AIR FORCE DOCTRINE PUBLICATION 5-0

PLANNING

U.S. AIR FORCE

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Air Force Doctrine Publication 5-0, *Planning*

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FOREWORD

Air Force Doctrine Publication (**AFDP) 5-0, *Planning* provides a planning methodology for Airmen to solve complex problems. All Airmen should be prepared to solve problems in contested, degraded, or operationally limited environments. The Air Force planning process (AFPP) focuses on providing commanders options to accomplish their mission.**

Doctrine embodies the fundamental principles by which military forces guide their actions in support of national objectives. It is a body of carefully developed and tested ideas officially approved to provide a common frame of reference for solving military problems. However, the challenge for United States Air Force (USAF) doctrine is to be simultaneously based on past experiences, applicable in the present, and leaning forward toward the future, all in equal measure.

The USAF must prepare for a new reality, one in which freedom of maneuver and freedom of action are increasingly challenged. To deter, compete, and win across the competition continuum, Airmen should be ready to conduct operations in contested, degraded, and operationally limited environments. Therefore, Airmen develop an understanding of their environment, make decisions, and converge effects when disconnected from higher headquarters (HHQ). AFDP 1, *The Air Force*, supports this effort by establishing mission command as the Airmen's philosophy for leadership and framework for the command and control (C2) of airpower. The mission command framework is centralized command, distributed control, and decentralized execution (CC-DC-DE). Mission command provides the responsiveness, flexibility, and initiative necessary to prevail in a future fight. By embracing a planning and orders development culture, USAF Service component or unit staffs (A-staffs) and Airmen at all echelons can accomplish their assigned mission while operating in uncertain, complex, and rapidly changing environments.

The AFPP is intended to provide Airmen with a conceptual framework for planning across the competition continuum. Planners must be proficient in their craft to enable Agile Combat Employment (ACE), set the conditions for victory in the six fights described in the *Air Force Future Operating Concept*, and address problems that typically aid force optimization for great power competition. The processes contained in this publication are equally useful for addressing institutional problems that require a disciplined planning methodology.

This publication should guide the air component in systematically addressing problems. All Airmen are encouraged to read this publication in conjunction with AFDP 3-0, *Operations*. Being familiar with doctrine, policy, and guidance related to the development and production of orders helps prepare us for the challenges we face. Throughout our history, innovative Airmen have developed and adapted technologies and employment methods to meet the challenges our nation has faced. AFDP 5-0, *Planning,* contributes to our distinguished lineage as overcomers.

CHAPTER 1: INTRODUCTION TO PLANNING

Planning is how Airmen address and solve complicated problems. It is the process through which Airmen frame a problem and provide solutions to achieve the full range of military objectives.

Plans and orders production allow commanders to provide subordinates formal, standardized, and authoritative guidance in a joint force recognized format.

Planning is a part of the C2 Process and a key enabler of the USAF's CC-DC-DE framework. Airmen on wing A-Staffs, and at all echelons, are problem solvers who use planning processes to produce clear plans and orders.

It is crucial that Airmen use standardized planning, orders production, and dissemination processes to foster disciplined initiative in the decentralized execution of operations. Commanders enable decentralized execution effective distribution of their intent. Tactically proficient Airmen with a mission statement, commander's intent, supporting logistics, and communication can exercise disciplined initiative and rapidly adapt to changing conditions.

The commander is the central element of all USAF planning. Commanders at all levels enable airpower and contribute to the C2 function. Planning enhances the commander's ability to make sound and timely decisions by increasing situational understanding of problems and providing a methodology to devise practical solutions.

Airmen may use the AFPP to address institutional issues while increasing familiarity with existing joint and Service planning processes. Examples of existing planning methodologies include the joint planning process (JPP), joint planning process for air (JPPA), and sister-Service planning processes. The AFPP enables Airmen to produce Service component staff estimates, base plans (BPLAN), authority-appropriate orders, USAF modified five-paragraph orders, and orders written using the mission-type order (MTO) technique.[1] **Airmen planning at any echelon through the distributed control continuum use the AFPP.[2]**

Contested, degraded, or operationally limited environments require commanders and staffs that can identify, understand, and methodically address problems through a repeatable process. The AFPP presented in this publication provides Airmen with an adaptable planning process to solve problems regardless of echelon or organization.

PLANNING AS A MAJOR C2 ACTIVITY

Planning the first C2 activity conducted by a commander and their staff in the overall C2 process. The four C2 activities that comprise the C2 process are: planning, preparing, executing, and assessing.[3] These activities are both cumulative and continuous. The

[1] For additional information on order formats and guidance, see Chairman of the Joint Chiefs of Staff Manual (CJCSM) 3130.03A, *Planning and Execution Formats and Guidance*.
[2] For additional information on distributed control continuum, see AFDP 3-0.1 *Command and Control.*
[3] For additional information on the C2 activities, see AFDP 3-0.1 *Command and Control*.

outputs of planning provide the foundational guidance for the remainder of the C2 process.

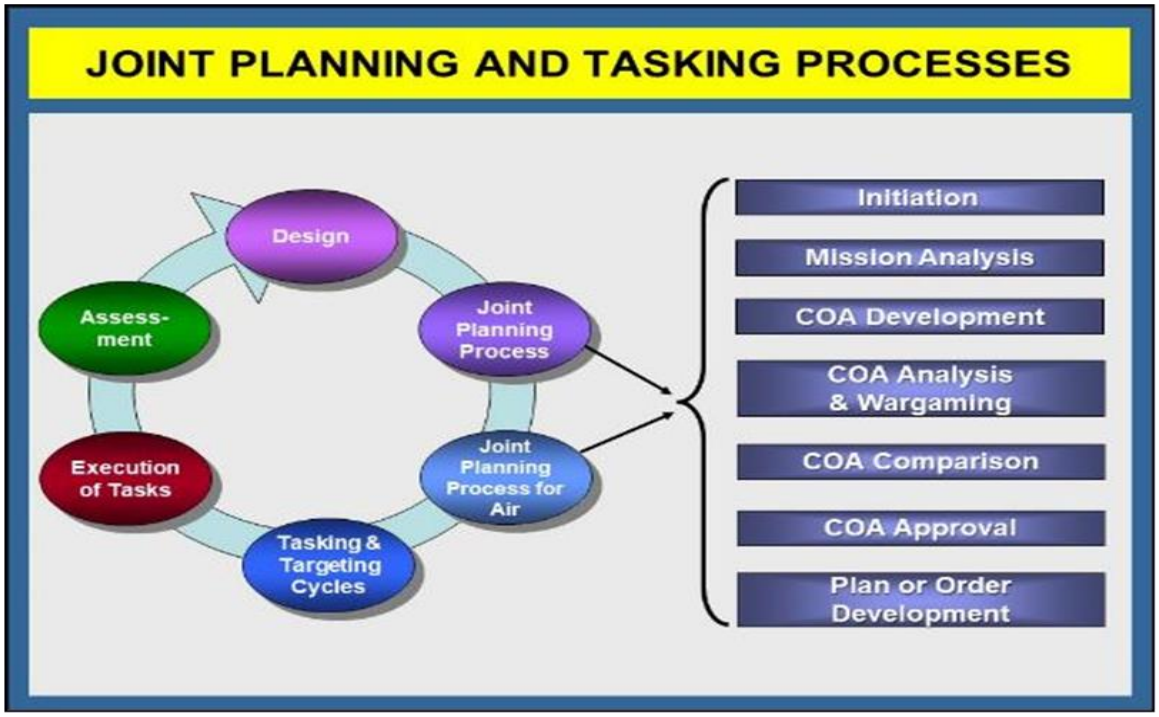
PLANNING METHODS

Several planning processes are described in this publication to highlight selection considerations for each process. **When commanders are tasked with a mission, they choose the right planning method based on the situation, guidance, and the operational environment (OE).** They should consider the level of guidance from HHQ and the type of plan or orders they want to produce. The various planning processes generally include the same steps, what differs is who is doing the planning and what plan is produced. Factors that might influence a commander's choice of planning methodology include:

- HHQ guidance.
- Desired output of the planning process.
- Applicability of the doctrinal planning guidance to address the situation.
- Command authority considerations.
- A-staff's familiarity with specific planning methodologies.
- Size, scope, structure, and/or the dynamic nature of the problem or task.
- Time and resources available for planning.

JOINT PLANNING PROCESS (JPP)

The JPP is the method that guides the planning of joint campaigns and operations. Joint Publication (JP) 5-0, *Joint Planning*, details the JPP, used by a joint force headquarters (HQ) staff, to create or support strategic and theater-level objectives through joint operations. Airmen assigned to joint staffs generally use the JPP. Outputs of the JPP and JPPA are vital to the design efforts in the AFPP. The steps of the JPP and JPPA are identified in the figure, "Joint Planning and Tasking Processes."

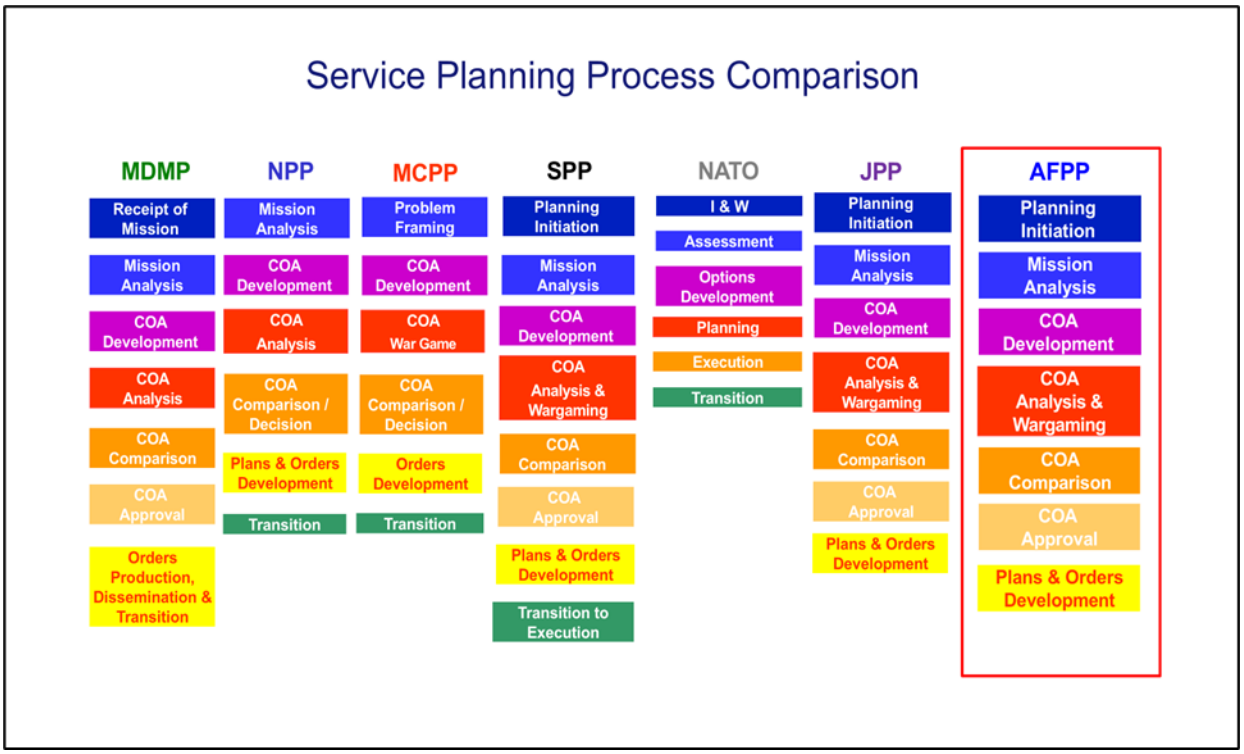


JOINT PLANNING PROCESS FOR AIR (JPPA)

The JPPA is an air-centric application of the JPP utilized by an air component commander and their staff at the operational level of war to guide the employment of joint air capabilities. **JPPA nests under JPP with specific details and considerations for joint air operations, and is captured in JP 3-30, *Joint Air Operations*.** Airmen assigned to a theater combined force air component commander (CFACC) or joint force air component commander (JFACC) generally employ JPPA to create a joint air operations plan (JAOP). The use of JPPA, and the guidance provided in JP 3-30, is ideally suited for Airmen at or in concert with the joint air operations center (JAOC). An air expeditionary task force (AETF) or wing may need to use the JPPA to plan joint air operations depending on the environment.

OTHER SERVICE PLANNING PROCESSES

All US Military Services have their own planning processes that link their planning activities to C2. The Army has the military decision-making process (MDMP), the Navy has the Navy planning process (NPP), the Marines have the Marine Corps planning process (MCPP), and the Space Force has the Space Planning Process (SPP). All Services incorporate their Service-specific planning considerations into their process.



AIR FORCE PLANNING PROCESS

The AFPP is a planning method derived from the JPP for use by USAF commanders and staffs at all levels. This publication serves as the principal document for guidance on the application of the AFPP. Airmen utilize the AFPP when the guidance, mission, situation, and environment dictate the need for USAF specific outputs.

The AFPP reflects the extant best practices for planning. The AFPP presents an easily adaptable planning process for Airmen and provides tailored guidance for the planning needs of the USAF. **Airmen employ the AFPP to solve problems. The AFPP is a tool for commander's staffs to methodically develop optimal courses of action to address the range of challenges confronting their units. The result of the AFPP is a commander's plan or order.**

CHAPTER 2: THE AIR FORCE PLANNING PROCESS

The AFPP is a commander led planning methodology that integrates the activities of the staff, subordinate and adjacent units, and other partners to understand the situation and mission, develop, analyze, and compare the course of actions (COA) available, and decide on one that that best accomplishes the mission.

The AFPP can be applied to planning situations encountered by wing A-staffs in garrison or deployed. The steps of the AFPP are outlined in the figure, "Air Force Planning Process". **This publication guides planners through the AFPP by providing an overview, inputs, activities, and results for each step. For more information on how to progress through the AFPP see Appendix F, "AFPP Kneeboard."** Inputs, activities, and results for each step will vary based on HHQ guidance, commander's guidance, and echelon of command. Developed operational design, operational approaches, air component design, and air component approaches can inform planning at subcomponent commands. Material more appropriate for the JPP or JPPA will be annotated with additional remarks.

- The AFPP helps commanders apply thoroughness, clarity, sound judgment, logic, and professional knowledge to understand situations, develop options to solve problems, and reach decisions.
- The AFPP facilitates collaborative and parallel planning as the HHQ solicits input and continuously shares information concerning future operations with subordinate and adjacent units, supported, and supporting units, and other military and civilian partners.
- The AFPP drives preparation. Since time is a factor in all operations, commanders and staffs conduct a time analysis early in the planning process. This analysis helps them determine what actions are required and when those actions should begin to ensure forces are ready before execution. The AFPP is iterative and may require the commander to direct subordinates to start necessary movements, conduct task organization changes, begin information collection operations, and execute preparation activities before completing the plan.

Air Force Planning Process

1. Planning Initiation.
2. Mission Analysis.
3. Course of Action Development.
4. Course of Action Analysis and Wargaming.
5. Course of Action Comparison.
6. Course of Action Approval.
7. Plans and Orders Development.

The steps of the AFPP are detailed in the figure above. As the commander and staff conduct the AFPP they use the air component design elements to create a conceptual framework underpinning planning.

DESIGN

AFPP integrates design elements to produce an air component approach, plans, and orders that reflect the Airman's perspective.

Design and planning are inextricably linked-design is part of planning and planning informs design. Commanders and staffs, across all echelons, use design to define and refine problems that need to be solved. Simultaneously, planning efforts produce potential solutions for the identified problems. This publication specifically articulates operational design and air component design.

Effective planning starts with a joint force commander's (JFC's) operational design. Operational design is the conceptual basis and framework underpinning a campaign, operation plan, and/or orders. "Design is about creating operational vision,"[4] to define the scope of planning. Design continues throughout planning.

Operational design enables the JFC and staff to comprehend wide-ranging solutions for mission completion and to grasp the uncertainty in a complex operational environment. The air component should actively participate in the JFC's operational design process, particularly during the early stages. Commanders and staffs use the JPPA to create plans for joint air operations while informing operational design and creating support plans and orders for the JFC. Design is integrated in planning efforts. Planners utilize the JFC's operational approach to inform the development of specific courses of action, plans, and orders. Planning and operational design facilitate the transformation of broad guidance into tactical-level tasks.

Operational design provides a methodology consisting of four continually interacting components: define the problem, analyze guidance, understand the environment, and develop a method to solve the problem to create the construct for further planning. Thirteen operational design elements assist the commander and staff in conducting the operational design methodology.[5] Operational design normally produces planning guidance and an operational approach prior to AFPP initiation. The air component design, air component approach, and AFPP support the JFC's operational design and planning (detailed later in this chapter).

Typically, JFCs provide planning guidance and an operational approach to subordinate commanders before detailed joint planning. **The elements of design are continually evaluated and refined in the major activities of the C2 Process (planning, preparing, executing, and assessing).** Ultimately, a well-articulated and understood design helps define the problem, establish the objective, and set the stage for further planning. The "Air Component Design Elements" figure lists elements initially identified during the first

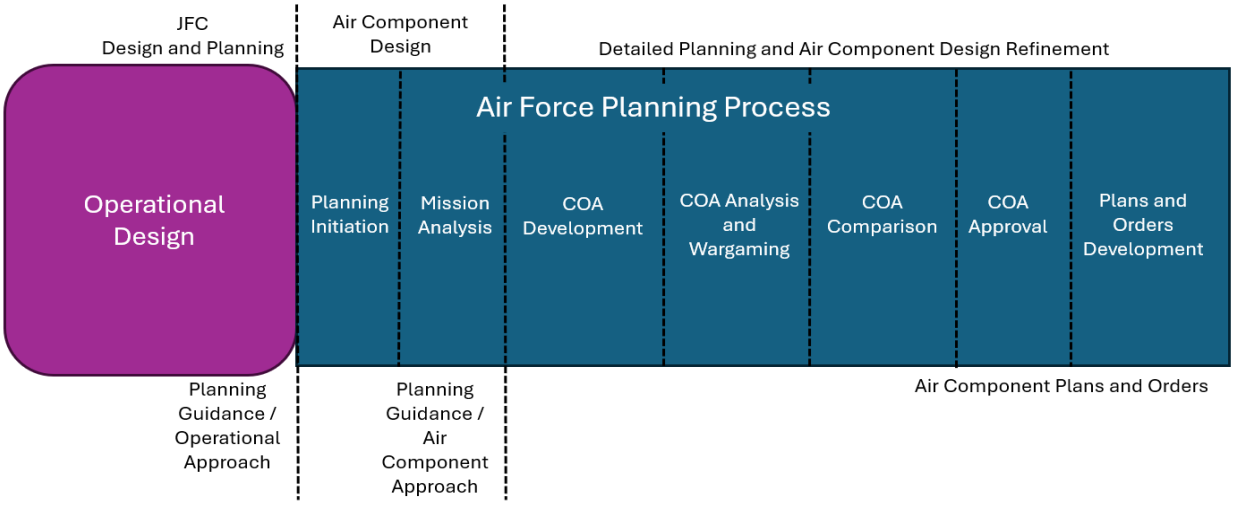
[4] Jeffrey M. Reilly, Operational Design: Distilling Clarity for Decisive Action (2012).
[5] See JP 5-0, *Joint Planning,* for additional information.

two AFPP steps of planning initiation and mission analysis.

Air Component Design Elements

1. Objective.
2. Desired End State.
3. Root Cause.
4. Effects.
5. Culmination.
6. Physical Characteristics of the OE.
7. Lines of Operation and Lines of Effort.
8. Decisive Points.
9. Direct and Indirect Approach.
10. Operational Reach.
11. Arranging Operations.
12. Anticipation.
13. Forces and Functions.

Air component design is a methodology for applying adaptive thinking to identify and define problems. **The air component design is derived from the JFC's operational design**, and it requires commanders to coordinate their design efforts with higher and lower echelons as well as supporting commanders. Air component design applies to all USAF commander directed planning, regardless of the assigned unit or echelon. A commander constructs an air component approach, scoped to their applicable problem and mission, in the context of the air component design. The "Design in Planning" figure shows the relationship between operational design, air component design, and the AFPP.



Design in Planning

Commanders and their staffs use design thinking to produce an air component approach during planning initiation and mission analysis. Sometimes the mission permits HHQ and subordinate units to conduct simultaneous design and planning. Simultaneous planning enables subordinate units to frame their efforts within the HHQ direction, ensuring alignment with the overall strategic objectives. The outputs of design reflect the commander's intent and are pivotal to further planning efforts. The broad description of actions needed to address the defined problem is conveyed with an air component approach. The initial air component approach is completed by the end of mission analysis. Plans and orders are normally produced at the end of the plans and orders development step.

ADAPTIVE THINKING

Adaptive thinking is used during all steps of the AFPP and enables problem identification and framing. Adaptive thinking is the commander and staffs' ability to critically analyze information, think creatively, make decisions, and solve problems dynamically. Thus, it is recommended that planning teams include individuals with diverse skills, knowledge, and experience to ensure the planning process is conducted from multiple viewpoints.

THE AIRMAN'S PERSPECTIVE ON PLANNING

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.

- The perspective is comprehensive and integrates all domains and environments, all disciplines and partnerships, all levels, and all instruments of national power.
- The perspective is about thinking creatively and reflectively while seeking solutions.
- The perspective integrates all design, planning, execution, and assessment efforts into a unitary whole.
- The perspective focuses on behavior and seeks to achieve objectives most effectively, then to the degree possible, most efficiently.
- The perspective is unique because it places the end state and objective at the forefront of planning.

Civilian Harm Mitigation and Response (CHMR)

Commanders and their staffs have a moral and legal obligation in planning to reduce the risk of harm to civilians and civilian objects. CHMR efforts reflect the importance of protecting and respecting human life and treating civilians with dignity and respect. Prioritizing CHMR in planning only enhances the effectiveness and legitimacy of military operations and contributes to mission success. CHMR considerations should be incorporated during all steps of the AFPP.

- Consider CHMR in the air component design and approach.
- Planning initiation: Identify and address cognitive bias in operational art.
- Mission analysis: emphasize CHMR considerations in the:
  - Analysis of centers of gravity (COGs).
  - Completion of specified, implied, and essential tasks.
  - Analysis of the assigned mission.
  - Identification and mitigation of risks.
- COA development: identify potential civilian harm incidents, mitigation, and response options.
- COA analysis and wargaming: Consider CHMR during analysis and wargaming of the adversary's most likely and most dangerous COAs.
- COA comparison: consider differences in CHMR for each COA.
- COA approval: discuss CHMR during COA Approval.
- Plans and orders development: clearly describe CHMR considerations and options in the plan or order.

The remaining chapters of this publication discuss the AFPP steps. Each chapter is focused on a single step of the AFPP and is organized into overview, inputs, activities, and results sections.

CHAPTER 3: PLANNING INITIATION

The first step of the AFPP is planning initiation. **Commanders at any echelon initiate the AFPP in response to HHQ guidance and direction.** Traditionally, planning activities are led by the commander and their A3 or A5 staff. However, the commander may appoint any Airmen to serve as part of a planning team. **HHQ products support air component planning initiation by providing either an operational approach or planning guidance and commander's intent.** At lower echelons of command, analysis of this intent may suffice for design. Descriptive guidance and iterative air component design help the commander and staff ensure they understand the problem.[6]

PLANNING INITIATION INPUTS

Planning initiation normally starts in response to HHQ direction. Inputs that inform this step may include planning guidance, operational approaches, planning orders, air component approaches, and operational planning documents. Likewise, a commander may initiate planning in response to local or internal problems that require rigorous and methodological development and evaluation of options.

PLANNING INITIATION ACTIVITIES

When a new mission is identified, commanders and staffs perform the following planning initiation activities:

- Alert the staff and other key participants.
- Document previously identified and relevant air component design elements from operational guidance, as required.
- Gather the tools. Once notified of the new planning requirement, the staff prepares for mission analysis by gathering the necessary tools and examining relevant information about friendly, neutral, and threat networks. These tools include, but are not limited to:
  - Appropriate manuals, doctrine, military terms, and symbols.
  - All documents related to the mission and the area of operations (AO), including the HHQ's planning guidance, rules of engagement (ROE), operational approach, orders, air component approach, maps and terrain products, and operational graphics.
  - HHQ and other organizations' intelligence and assessment products.
  - Both the unit's and HHQ's standing operating procedures.
- Develop an initial understanding of the OE.

[6] See AFDP 3-0.1, *Command and Control,* for additional information.

- Begin or update running staff estimates (e.g., logistics estimate, intel estimate).
  - Estimates are an essential part of the air component design process. Through their estimates, the staff provides expert assessment of the OE and relevant factors affecting effective planning and execution toward the achievement of objectives and attainment of end states. **Airmen running AFPP use staff estimates to inform their planning.**
- Conduct an initial assessment. During this step, the commander and staff conduct an assessment of the time and resources available to plan, prepare, and begin the execution of an operation. This initial assessment:
  - Identifies and frames the problem to address conditions that must change, or stay the same, to reach the desired system state.
  - Determines which outside agencies and organizations to contact and incorporate into the planning process.
  - Assesses the staff's experience and cohesiveness.
  - Creates a staff planning timeline that outlines how long they can spend on each step of the AFPP. The staff planning timeline indicates what products are due, who is responsible for them, and who receives them. Timelines may be compressed in crisis compared to contingency planning. Artificial intelligence (AI) may be able to expedite or improve some steps of the AFPP.
- Apply adaptive thinking and the Airmen's perspective to the OE and problem.
- Issue the commander's initial guidance. Initial guidance may include the following:
  - How to abbreviate the AFPP, if required. An abbreviation may involve compressing planning timelines due to not having to produce elements of mission analysis or restraining the number of COAs developed. The abbreviation of the AFPP does not involve eliminating or skipping steps but rather focuses on the allocation of time, resources, and priority of steps.
  - Necessary coordination, including liaison officers.
  - Authorization to begin information collection activities.
  - Locations, dates, and times of planning meetings.
  - Initial information requirements.
  - Additional staff tasks.

OPERATIONAL ENVIRONMENT

Planning initiation involves developing an understanding of OE as part of air component design. OE analysis is crucial for planners to define the problem and create an operational approach. This includes all the tangible and intangible factors that influence operations. Planners can gain awareness of the OE by examining guidance from HHQ, intelligence estimates, and country plans. Factors to consider when assessing the OE include physical location, potential actors and stakeholders, weather, geography, sociocultural aspects, infrastructure, communication lines, information environment, and population. Models are often used to analyze the OE, and more details can be found in the mission analysis section of this publication.

Constant analysis is essential to comprehend the OE. This is necessary because the OE is an intricate system with linkages that impact strategic, operational, and tactical levels of warfare. It is important to recognize that our understanding of the OE evolves as we gather more information. HHQ may have already conducted an analysis of the OE to guide subordinate design efforts. Airmen's analysis of the OE should be guided by HHQ, staff estimates and the commander's intent. This understanding can come from various sources, such as higher-level guidance, which includes plans, planning orders (PLANORDs), warning orders (WARNORDs), operation orders (OPORDs), execution orders (EXORDs), planning directives, operational approaches, joint intelligence preparation of the operational environment (JIPOE), intelligence preparation of the battlespace (IPB), and staff estimates.

A challenge in examining the OE is that it exists as a part of a constantly evolving series of complex systems and understanding requires a holistic analysis of the systemic interconnectivity. One way to frame the OE involves the deliberate division of the environment into two interrelated subsystems that foster a shared understanding of the OE's overarching interconnectivity. The two subsystems are the observed system and the desired system.

"In preparing for battle, I have always found that plans are useless, but planning is indispensable."

–Dwight D. Eisenhower
34th President of the United States

Planners using the AFPP focus on the systems related to their mission and problem. The air component is often provided with an understanding of the OE during planning initiation. HHQ guidance provided to the air component allows Airmen to focus on the subsystems and define the problem.

The observed system is an analysis of how the environment currently exists and functions. There is no exact prescription for visualizing the observed system because the observed system is a construct of what one has the capability to see and understand. Planners begin the development of the observed system by examining key factors such

as principal actors, the historical content of the situation, current operations, security, logistics, base infrastructure, communications, command and control, computers, intelligence, surveillance, and reconnaissance, and other elements related to the problem's resolution. The overarching goal of visualizing the observed system is learning how the system currently functions and understanding how the system will change in reaction to an action or series of actions. Based on the projected changes in the observed system, planners have a mechanism to exploit the changes and anticipate adversary operations. An important aspect of the observed system is setting the foundation for understanding the desired system.

The desired system analyzes the air component's objectives and how to change the observed system to achieve those objectives. In addition to objectives, the desired system assesses actors capable of influencing objectives and end states, barriers to achieving objectives, and time.

PLANNING INITIATION RESULTS

Planning initiation may result in a planning timeline, planning team roster, collection of planning guidance, initial understanding of the OE, and identification of necessary design elements. The staff may issue a preparatory order. A preparatory order describes the situation (guidance overview and OE), mission (tasks and purpose), execution (concept of operations), administration and logistics (concept of support), and C2 (command relationships and C2 structure).

CHAPTER 4: MISSION ANALYSIS

During the mission analysis step of the AFPP, the staff analyzes the HHQ's operational approach, plans, or orders to gain an understanding of the mission, intent, OE, resources available, limitations, and specified and implied tasks. This step defines and refines the problem through the study of the specified tasks and identifies the implied tasks as well as the specified and implied tasks that are essential to accomplish the mission and resolve the problem. It focuses the commander and the staff on the problem at hand and lays a foundation for effective planning. **During mission analysis, Airmen identify the elements of air component design and construct an air component approach.**

The staff performs updates, initiates, or reviews JIPOE, develops critical facts and assumptions, and determines the initial commander's critical information requirements (CCIRs). Additionally, IPB should be conducted by intelligence personnel staff within the Service and functional components and support the individual operations with force-specific micro-analysis. Throughout mission analysis, staff members have an open iterative dialogue with the commander to refine and update their guidance.

While the staff conducts their analysis, the commander conducts their own review of HHQ guidance and mission objectives. The commander's analysis and adaptive thinking provide a frame of reference that helps to quickly assess the staff's work.

Mission analysis marks the beginning of the staff estimate and is not a one-time event. Mission analysis is a continuous effort that is constantly re-evaluated as the situation develops and new information is presented. Although some activities occur before others, mission analysis typically involves substantial concurrent processing of information by the commander and staff, particularly in a crisis.

MISSION ANALYSIS INPUTS

Primary inputs to mission analysis are planning initiation results and HHQ operational or air component approaches. When the commander receives a mission tasking, analysis begins with questions like:

- What is the purpose of the mission? (What problem is the commander asked to solve or what change to the OE is desired?)
- What are the specified, implied, and mission essential tasks?
- Will the mission achieve the desired objectives?
- What limitations (i.e., constraints and restraints) have been placed on my own forces' actions?

Planning for In-residence Education

The COVID-19 outbreak impacted living conditions and operations around the world. Air Education and Training Command momentarily paused in-residence education at several institutions due to safety concerns. Gradually, guidance was received to initiate planning to conduct a safe return to in-resident education operations. Air University planning course instructors worked with commanders, staffs, and outside organizations to plan for a safe return to normal operations.

The planning process directed by the instructors was a modified version of the JPP. The use of a heavily modified JPP was the beginning of the AFPP.

Teams developed multiple COAs that informed leadership's decision to return to in-residence operations. Commander selected COAs were molded into an approved plan that was shared among organizations to develop an understanding of the mission, intent, tasks, logistics, and authorities for COVID-19 education operations. The successful planning efforts resulted in schools resuming professional military education in a safe and timely manner.

MISSION ANALYSIS ACTIVITIES

Mission Analysis enables commanders and staffs to understand the problem(s), mission, and situation. **The mission analysis activities are often simultaneously conducted.** During mission analysis, the tasks (specified, implied, and essential) and their purposes should be identified to ensure planning encompasses all requirements, including any limitations on actions that the commander or subordinate forces may take.

Development, and dissemination of an air component approach at the end of mission analysis helps commanders and staffs frame the problem and develop viable approaches to achieve the desired end state. Mission analysis should produce an understanding of the OE, observed system, desired system, and tasks the commander should accomplish in support of the HHQ. The essential tasks derived during mission analysis should be accomplished to enable the end state as expressed in the commander's operational objectives, mission, and intent statements.

Review Commander's Initial Planning Guidance. Planners should have an active dialogue with their commander to understand their initial vision, intent, and view of the problem. The commander and staff should consider the timeframe and scope of the problem. Planning leads provide the following to the rest of the staff:

- JFC's narrative, mission statement, intent statement, and concept of operations (CONOPS).
- Forces and capabilities available for planning.

- Transportation, airlift priority, and airlift allocation.
- Other capabilities available (United States [US], multinational forces and organizations, interagency support).
- The political situation (e.g., host nation [HN], friendly and other foreign governments).
- Time allocation.
  - Balance the desire for detailed planning against the need for speed. Be keenly aware of the time available until the commander and HHQ decide, issue orders, and begin to execute the operation.
- A timeline reflecting known and assumed operational requirements (e.g., C-day, D-day) to focus the planning groups during planning.
- A timeline identifying the time available to complete the planning activities based on the HHQ delivery requirements.

Review HHQ's Planning Activities and Strategic Guidance. During this mission analysis, planners should examine all HHQ guidance and policy (at least two levels above), level of operational command authority, strategic communications, WARNORDs, planning orders, alert orders, draft plans, other planning group feedback, and commander conversations. Most importantly, they seek to understand their unit's role in the HHQ mission, intent, and CONOPS.

- HHQ orders should provide specific guidance to include a description of the situation, purpose, objectives, mission, tasks, and pertinent limitations.
- If available, analyze the HHQ's (and JFC's) operational approach to gain an appreciation for their understanding and visualization of the situation and problem. Develop an air component approach at the air component level (air operations center [AOC] or Air Force forces [AFFOR] staff). At the AETF and wing level review the air component approach. This provides a basis for a detailed analysis of the OE and of the tasks that may describe the mission and its parameters.

Determine Facts. A fact is a statement of information known to be true and relevant to planning. A fact defines the scope of the problem. If a fact is invalidated, it should result in a new or modified plan. When facts change it may drive contingency planning. Planners should use caution in characterizing information as facts, as some data thought to be facts may be based on incomplete information or open to subjective interpretation based on the observer's perspective. **Several of the facts that inform the AFPP are determined during HHQ mission analysis. Airmen should seek to reference facts identified by HHQ to inform their planning.**

- The JIPOE aids in understanding the complex, interconnected conditions and influences that bear on commander decisions. It enhances a friendly understanding of the OE and adversary intentions and behaviors. Other steps include listing the facts relevant to the situation or mission and submitting requests for information (RFIs)

early when information is needed.

- Identify the adversary's system of key nodes and links (the behavioral, physical, or functional relationship between nodes) to help understand the threat networks.
- Treat HHQ assumptions as facts for planning (seek to verify HHQ assumptions).
- Also consider:
  - Geographic features and meteorological and oceanographic characteristics.
  - Population demographics (e.g., ethnic groups, tribes, ideological factions, religious groups and sects, language dialects, age and income groups, gender, public health issues).
  - Political and socioeconomic factors (e.g., economic system, political or tribal factions).
  - Infrastructure (e.g., transportation, energy, and information systems).
  - Law of War requirements as specified in US law, international law, or host-nation agreements (HNA).
  - Environmental conditions (e.g., earthquakes, volcanic activity, pollution, diseases).
  - Locations of intergovernmental organizations, foreign embassies, and non-governmental organizations operating within the OA.
  - Capabilities and intent of individuals, or organizations conducting cyber or information and influence operations.
  - Prevalence of misinformation, disinformation, or competitor operations in the OE related to joint force activities.

Develop Assumptions. An assumption is a belief about the current situation or future course of events, presumed to be true in the absence of facts. **Valid assumptions should be logical, and realistic, and are essential to continued planning.** It is also important to emphasize that assumptions identify risks to the plan and important decision points for executing branches and sequels. Assumptions encompass four basic categories: time, political, enemy, and friendly forces. The staff may prioritize assumptions for the commander in terms of what causes mission failure, what leads to partial mission failure, and what affects timing and tempo. Assumptions that make the mission fail are the highest priority and essential for identifying the branches and sequels in the plan.

Consider all assumptions in risk analysis. Potential plan changes due to incorrect assumptions should be addressed as branches or sequels. Include assumptions made by HHQ, however, challenge assumptions that appear unrealistic. A method for

identifying assumptions is presented in the figure, "Technique for Identifying Assumptions". Assumptions should be continually reviewed to ensure validity. Additionally, assumptions should be turned into facts as soon as possible. Tools to validate assumptions include RFI, priority intelligence requirements (PIRs), and friendly force information requirements (FFIRs). PIRs, FFIRs, and RFIs are discussed later in this chapter.

An assumption, proved invalid, may lead to substantial changes in the approved plan. If an issue does not have this level of impact, it should not be an assumption. Never "assume away" potential problems, such as weather or likely adversary capabilities and options. Intelligence and planning staffs should keep commanders apprised of assumptions and knowledge gaps in mission analysis.

Technique for Identifying Assumptions

When identifying assumptions, consider the five A's:

Awareness: the amount of warning or notification expected.

Assets: types and numbers available (e.g., airlift, allied capabilities, force availability).

Access: basing, overflight, and ability to stage operations.

Additional/other activity: degree and type of involvement of bordering or third-party nations (e.g., what else is going on?).

Authorities: commander-specific (e.g., JFC-delegated, cross-combatant command [CCMD] relationships).

Define and Develop a Problem Statement: The problem can be defined by determining what needs to be reconciled between the observed and desired system. Once the problem is defined, it should be communicated in a clear and concise problem statement.[7] The statement considers how tension and competition affect the OE by identifying how to transform the observed system to the desired system—before adversaries begin to transform current conditions to their desired end state. The statement broadly describes the requirements for transformation, anticipating changes in the OE while identifying critical transitions. The problem statement provides a focus for planning efforts and helps ensure the conservation of resources during potential execution.

[7] See JP 5-0, *Joint Planning,* for additional information.

Example Problem Statement

The XX AETF seeks to establish additional operating locations to enable ACE and defeat adversary actions. Adversaries are expected to impede the positioning of necessary resources and capabilities at remote locations. Host nation populations at desired operating locations may suffer negative economic impacts by assisting with positioning efforts. New operating locations must establish air base defense. The new operating locations will ensure a stable balance of power in the region that deters adversary aggression.

Analyze the Most Likely and Most Dangerous Threats to mission success. In AFPP, Airmen should consider the most likely and most dangerous threat that could prevent mission success and reaching the desired system. The threats should relate to the identified problem requiring action to move the observed system to the desired system. **Airmen should consider the most likely and most dangerous threat to mission success during tabletop exercises in COA analysis and wargaming.** Joint staffs at the operational level may focus on the most likely and most dangerous adversary COAs.

Develop Air Component Design. Air component design sets the stage for more detailed planning and is revisited during planning. **Airmen using the AFPP use the air component design to establish a framework for further planning.** The scope of a problem is revealed through air component design and adaptive thinking. The scope and complexity of the problem can vary. Well-structured problems may be addressed with tactics and techniques while medium-structured problems could use doctrine to develop potential solutions. Plans at the strategic level, however, usually deal with ill-structured problems that are interactively complex.

Adaptive thinking that considers CC's guidance, the OE, and **air component design produces an air component approach**. The analysis of air component design to produce an air component approach occurs throughout the AFPP. However, this analysis is particularly focused during planning initiation and mission analysis.

The air component design provides a logical framework comprised of several elements to conduct problem identification and framing. Establishing the air component design framework correlates to activities associated with conducting a comprehensive mission analysis. Furthermore, the air component design allows for the coordination of operations and activities to achieve objectives. Air component design is **iterative** and requires a consistently evolving understanding of the observed system and desired system to define the problem. Importantly, air component design empowers mission command in a contested, degraded, and operationally limited environment by providing a shared vision that analyzes key decisions and risks.

Planning Example: Operation ALLIES REFUGE, Ramstein AB

In 2021, Ramstein AB conducted crisis planning to assist in the evacuation of Special Immigrant Visa applicants and other vulnerable Afghans. With little time to prepare, the base cleared out two of its aircraft hangars and set up hundreds of cots to provide temporary shelters. However, planning efforts quickly changed when base leaders realized Ramstein AB would become a primary evacuation hub for US European Command. Ramstein AB enhanced planning efforts to encompass medical, logistics, maintenance, civil engineering, security, and food services personnel to provide necessary services and a haven for thousands of evacuees.

An undertaking of this magnitude required enormous resources, planning, and people. The modified planning efforts necessitated adjustment of non-essential services and several course of action alterations. Commander-selected COAs were developed into an approved plan that was shared among several organizations. The clearly written plan developed a shared understanding of the mission, intent, tasks, logistics, and authorities. The successful planning efforts resulted in a historic evacuee operation and the processing, security, and safety of over 35,000 Afghans.

In order for commanders and staffs to effectively develop their air component approach, they must have a clear understanding of the HHQ guidance, observed system, desired system, problem, and its root cause. This understanding allows them to analyze the operational approaches of HHQ and create their air component approach. **Commanders decide which air component design elements are depicted in their air component approach.** Air component design elements are:

- *Objective:* Clearly defined, decisive, and attainable goal toward which an operation is directed.
- *Desired end state*: The set of required conditions that define the achievement of the commander's objectives.
- *Root cause:* The fundamental underlying reason or factor that is driving the problem, essentially the most critical aspect that needs to be addressed to solve the issue. Teams discuss lines of effort (subordinate problem sets) to address the root cause utilizing the "5 Why Analysis" method by asking "Why" as many times as needed (minimum 5) to identify the root cause of the initial problem statement.

- *Effects*:Physical and/or behavioral state of a system that results from an action, a set of actions, or another effect. Desired effects should link to objectives. Effects should be measurable. Effects should be distinguishable from objectives and tasks as they support conditions for success. For more information on Effects see Appendix C, Actions and Effects."

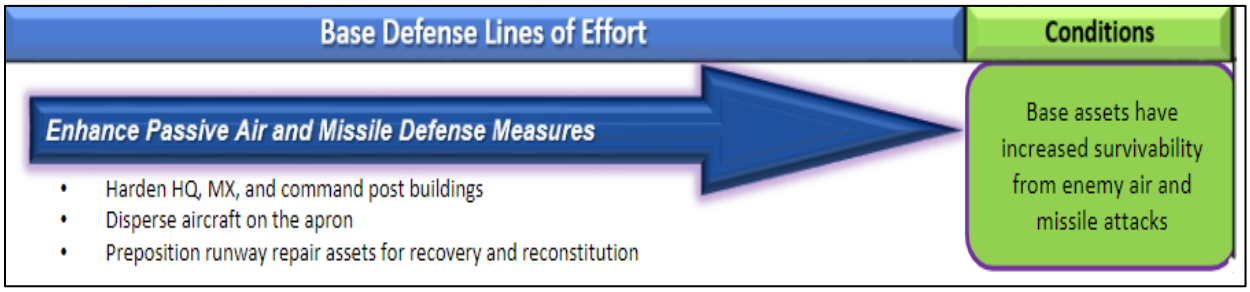
- *Culmination*: Point in time and/or space when the operation can no longer maintain momentum.

- *Physical characteristics of the OE*: Tangible factors of the OE to consider are physical size, weather/climate, and geography.

- Lines of Operation (LOO) and Lines of Effort (LOE):

  - *LOO*: Defines the interior or exterior orientation of the force in relation to the enemy. Describe and connect a series of decisive actions that lead to control of a geographic or force-oriented objective.

  - *LOE*: Links multiple tasks and missions using the logic of purpose, cause and effect, to focus efforts towards establishing operational level objectives that can lead to strategic objectives. An LOE may represent subordinate problem sets of an overarching problem. The Base Defense Lines of Effort example illustrates how tasks can support a line of effort to achieve a condition.



- *Decisive points (DPs)*: Key terrain, key event, critical factor, or function that, when acted upon, enables a commander to gain a marked advantage over an enemy or contributes materially to achieving success (e.g., creating a desired effect, or achieving an objective).

- *Direct and Indirect Approach*: The manner in which a commander contends with the problem. The direct approach addresses the problem's principal strength by applying effort directly against it. An indirect approach addresses the problem by applying effort against key components of the problem to reach an effective solution.

- *Operational reach*: The distance and duration across which a joint force can successfully employ military capabilities.

- *Arranging Operations*: Commanders may consider organizing operations according to depth, timing, and tempo. Some ways to organize complex operations include phases, branches, sequels, and operational pauses.

- *Anticipation*: Consider what might happen and look for indicators of forecasted events.

- *Forces and Functions*: Comprised of all friendly, enemy, and adversary forces, capabilities, and associated functions. The functions include the mechanisms the commander may use to solve the problem (e.g., defeat the enemy or stabilize the situation).

Determine and Plan for Authorities. Commanders and planners at all echelons should be aware of their commander's authorities either in the operational or administrative branches of the chain of command. In the joint force, all authorities reside with the JFC and are delegated to subordinate commanders, with considerations for further delegation to lower echelons, through an appropriate order. Planning for the delegation of **appropriate and legitimate** authorities in contested, degraded, and operationally limited environments should be considered. Mission command requires leaders to ensure subordinates are provided and aware of the authorities they possess in the execution of their responsibilities outlined in the commander's intent. Distributed control enables commanders to delegate authorities to plan, prepare, execute, and assess activities to dispersed locations for an effective span of control and maintain the initiative, particularly in contested environments. 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 authorities.

"It is a given in future conflicts that the joint force will be conducting operations in a contested environment. We must be prepared to execute in a degraded C2 environment where clearly delineated and forward-thinking commander's intent will be a requirement. It is imperative senior leaders provide our commanders with conditions-based authorities delegated to the lowest capable and competent level and empower command by negation to accept the appropriate level of risk, all while working toward moments of clear C2."

–General Charles Q. Brown, Jr., 22nd Chief of Staff, USAF
Remarks as Commander, Pacific Air Forces, 2019

Determine Operational Limitations (Constraints and Restraints). Constraints and restraints are actions required or prohibited by higher authority that limit the commander's freedom of action. Additionally, a constraint and/or restraint can be a restriction imposed by conditions and circumstances. **Restraints are HHQ requirements placed on the command that prohibit action.** An example of a restraint is a prohibition from conducting a movement to a specific location (e.g., a bordering nation). **Constraints are HHQ requirements placed on the command that dictates action.** An example of a constraint is HHQ's direction to fly a certain mission as part of an operation within a specific time, sequence, or phase.[8]

Identify Specified, Implied, and Essential Tasks. For planners to accurately develop a mission statement and air component approach, they should be able to identify the three types of tasks that will be used to solve the problem. Specified tasks are assigned to the commander verbally or in writing by the HHQ. Specified tasks often become essential tasks. Implied tasks are tasks that are revealed by mission analysis but not explicitly stated by HHQ guidance. Implied tasks may NOT be essential to mission accomplishment but should be identified to inform further planning. Determining the essential tasks from the specified and implied tasks ensures that the commander addresses what needs to be accomplished for mission success.

- **Specified tasks** are tasks specifically assigned to the commander verbally or in writing by the HHQ. These are normally written in the 'Tasks to Subordinates' paragraph and/or 'Coordinating Instructions' in the HHQ plan or order.

- **Implied tasks** are tasks that mission analysis reveals the commander must perform (or prepare to perform) but are not stated explicitly in an order or elsewhere. Implied tasks do not include routine tasks or standard operating procedures (SOP) inherent in most operations. Guidance for identifying implied tasks is presented in the Deriving Implied Tasks figure.

Deriving Implied Tasks

To derive implied tasks, focus on analyzing the HHQ mission, intent, concept, and specified tasks, to include specified tasks to other units. As a technique, ask:

- "In this situation, what other major tasks would my echelon normally perform?"
- "What in the HHQ mission, intent, or concept implies a major (but unstated) task for the commander?" For example, if the HHQ has a deter portion of the mission, then contributing to deterrence could be an implied task.
- "What task to another unit, component, or agency is likely to require significant support from the commander?"

[8] The Law of War always applies and should be considered, along with ROE and Rules for the Use of Force, in evaluating constraints and Restraints. Refer to the Department of Defense Law of War Manual.

- **Mission essential tasks** are a subset of specified and/or implied tasks the commander must accomplish to succeed at the mission. Mission essential tasks are the basis for the commander's mission statement.

Develop Commander's Mission Statement. A mission statement is a short sentence or paragraph that provides a clear statement of the action to be taken and the reason for doing so. The mission statement is written to cover the entire operation. It is the basis for planning and is included in planning guidance, staff estimates, commander's estimates, CONOPS, and the completed plan/order. The mission statement can be revised if initial circumstances change. A mission statement once approved drives the remainder of the AFPP. The commander's mission statement should address:

- *Who*: The entity responsible for the mission.
- *What*: The essential tasks.
- *When*: Often expressed by 'when directed,' 'on order,' or 'be prepared to.'
- *Where*: In the designated geographic area.
- *Why*: The reason for accomplishing the essential tasks.

An example mission statement highlighting the 5 W's is presented in the Example Mission Statement figure.

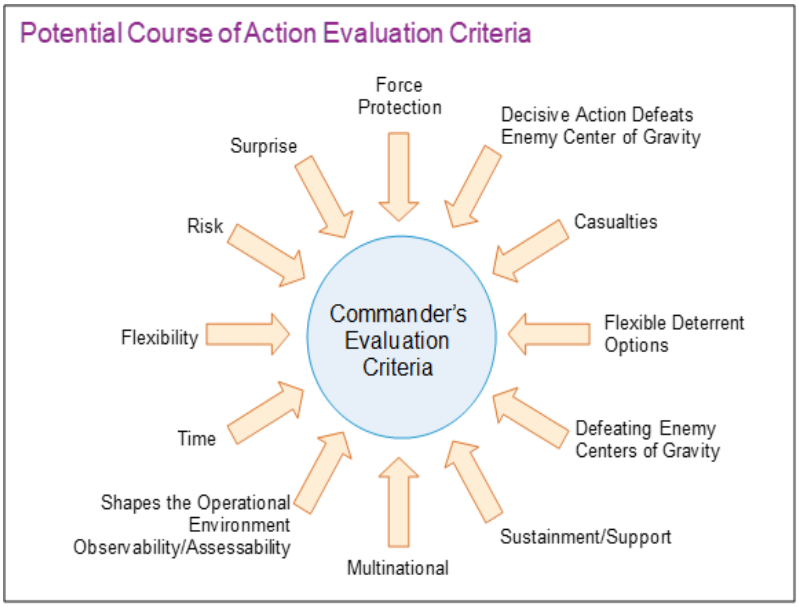
Example Mission Statement

When directed, the 325th Fighter Wing will stand up the crisis action team, move required personnel and equipment to emergency divert locations, harden base facilities at Tyndall Air Force Base, open storm shelters, and establish necessary life support to ensure the safety of personnel and critical resources during hurricane conditions.

Conduct Initial Resource Review. The initial resource review in mission analysis is a first look at all resource requirements e.g., time, personnel, funding, etc.) to determine broad requirements and identify initial shortfalls. This review identifies resources required to accomplish the specified and implied tasks and highlights any disconnects that may exist. Resource shortfalls become a part of the risk discussion.

Develop COA Evaluation Criteria. COA evaluation criteria are the measures used for developing and determining an acceptable COA. The commander should include these criteria in initial planning guidance and may be determined from the commander's intent. Planners should seek to obtain COA evaluation criteria as early in the planning process as possible to inform planning efforts. They help determine supporting objectives, effects, tasks, and if or when to move to the next major operation or phase. These criteria also

become the basis for assessment.[9]



The commander and staff use the COA evaluation criteria during AFPP step five to select the best COA. **Developing initial evaluation criteria during mission analysis or as part of the commander's initial planning guidance helps eliminate bias before COA analysis and comparison.** Evaluation criteria address factors that affect mission success or may cause failure. Commanders adjust criteria and weighting according to their own experience and vision. Suggestions for possible COA criteria are in the figure, "Potential Course of Action Evaluation Criteria".

Develop Commander's Risk Assessment. A risk assessment should be conducted at all levels of command. There are two categories of military risk: risk-to-force (RF) and risk-to-mission (RM). RF is the probability and consequence of current and contingency events causing harm to the provisioning and sustainment of sufficient military resources. RM is the probability and consequence of current and contingency events causing harm to current or future military objectives.[10]

Commanders may delegate risk management decisions to lower echelons, however, they maintain the responsibility for overall risk. Airmen and wing A-staffs should be familiar with how to use the joint risk framework and discuss probabilities and consequences of risk events.

Staffs use historical data, intuitive analysis, modeling and simulation tools as available, and judgment to consider mission risk, mitigation, and residual risk. Risks are evaluated and presented by assessing the probability of occurrence and severity of consequence.

Staffs should address assumptions and PIR during risk assessment. PIRs are considered for risks aligned with how they impact the mission. During the risk assessment step, you may encounter additional valid and necessary assumptions. Planners should address the potential opportunities and consequences of assumptions being valid/invalid. Risk articulation is the most important conversation the planning team can have with the commander and the commander will have with HHQ. With every risk, there is an

[9] See AFDP 3-0.1, *Command and Control,* for additional information.
[10] See CJCSM 3105.01B, *Joint Risk Analysis Methodology*, for additional information.

opportunity to discuss both positive and negative aspects.

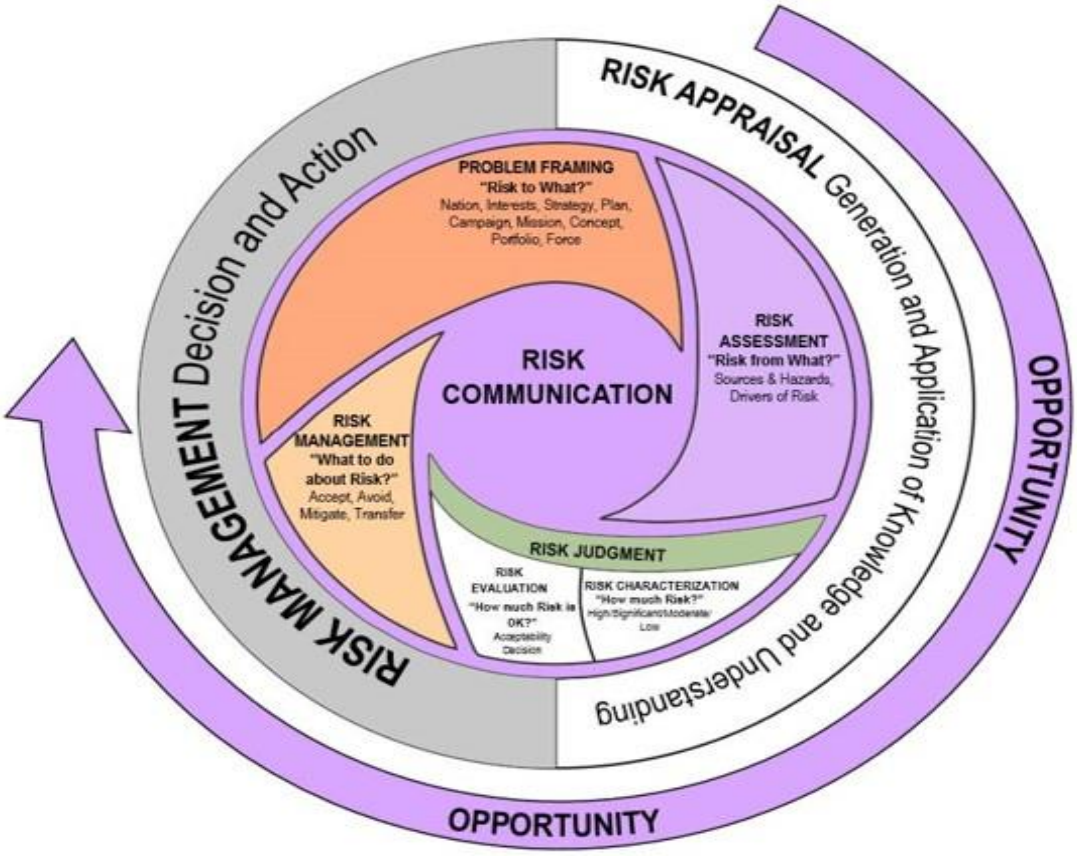
Guidance on determining the probability and consequence of an event is provided in the figure, “Probability and Consequence of Event”.

Probability of Event (P)	Consequence of Event (C) to NMS	
Very Likely (~81-100%)	Extreme	• RM, Mission Failure, Objectives Unachievable • RF, No Sourcing Solutions Exist for Critical Requirements
Likely (~51-80%)	Major	• RM, Objectives Minimally Achieved (consider time, priority) • RF, Shortfalls Exist for Critical Requirements
Unlikely (~21-50%)	Modest	• RM, Objectives Mostly Achieved (consider time, priority) • RF, Worldwide Sourcing Solution Exist for Most Requirements
Very Unlikely (~0-20%)	Minor	• RM, Mission Success, Objective Achievable • RF, Joint Force Fully Sustained and Requirements Sourced

Probability and Consequence of Event

Risk should be discussed in planning using the joint risk framework. Planners may start identifying risk by asking about what resources are in jeopardy. Upon determination of what is at risk, planners assess what is placing the resource in peril. The risk assessment is provided to the appropriate commander to make a risk decision. Depending on the situation and the risk acceptance authority given to the commander, they may decide to accept, avoid, mitigate, or transfer the risk. Commanders and staffs should consider how risk management decisions may displace risks to other forces. Risk assessments and commander’s risk management decision should be addressed in the commander’s intent statement, CONOPS, or as additional guidance that describes what risks the commander allows subordinates to accept and under what conditions.[11] **The joint risk framework figure applies to the JPP, JPPA, and AFPP.**

[11] For additional information on risk assessment, see CJCSM 3105.01B, *Joint Risk Analysis Methodology,* and JP 5-0 *Joint Planning*.



The Joint Risk Framework

Determine Initial Commander's Critical Information Requirements. CCIRs are elements of information the commander identifies as being critical to facilitate timely decision-making. CCIRs belong exclusively to the commander and are not static. Commanders refine and update both decision points and associated CCIRs throughout the operation. **CCIRs are identified when using the JPP, JPPA, and AFPP.** When developing CCIRs at subcomponent commands, focus on decision points related to the air component approach. CCIRs should also be coordinated with the commander's servicing judge advocate to ensure compliance with the law and existing rules of engagement.

CCIRs may include:

- *Priority intelligence requirements*: PIRs focus on the adversary and the OE and are often tied to commander's decision points. Airmen determining PIRs focus on the problem's root cause, observed system, and desired system in relation to commander's decision points (AFPP). Commanders at all levels use PIRs to drive ISR operations to support decisions and operations.

- *Friendly force information requirements*: Information regarding the status of friendly forces and supporting capabilities associated with the operation.

- *Essential elements of information (EEIs)*: Intel gaps when PIRs cannot be answered and drive the development of detailed EEIs. EEIs form the basis for RFIs by outlining specific information requirements.

- *Requests for information*: RFIs are requirements for intelligence information or products to support an operation not necessarily related to standing requirements or scheduled intelligence production. RFIs may satisfy PIRs and FFIRs.[12]

Initial CCIR identification during mission analysis can assist in identifying anticipated decision points and related information requirements. At this point, neither a COA nor a CONOPS exists, therefore, the intent is to capture ideas that may become CCIRs.[13]

Determine Decision Points. Decision points often require a commander decision that can be detailed on a decision support matrix (DSM). DSMs are useful for informing commander decisions and conducting COA analysis and wargaming. An example DSM template is found below.[14]

Decision Support Matrix							
Decision Point	Named Area of Interest	Target Area of Interest	Event	Decision Criteria	Sources of Decision Criteria	Assets Available	CJTF Actions
					SIGINT HUMINT MASINT IMINT		
Adversary's Assumptions			Adversary's Possible Decisions			Adversary's CCIRs	
Risk	Mission Impact	Probability	Mitigation			Residual Risk	
Notes							
Weather, Solar, Sea State, Maneuver Rates…							

Develop Commander's Intent Statement. The commander's intent statement should articulate their vision of the mission's purpose, end state, and risks. A well-framed intent statement provides subordinates with the ability to exercise disciplined initiative. Commanders are encouraged to write their own commander's intent as it is pivotal to mission command. Commander's intent may change based on the scope of the mission

[12] For more information on PIRs, EEIs, and RFIs see Air Force Tactics, Techniques, and Procedures 3-4.14, *Contingency Intelligence Network*.
[13] Focus on decision points related to the air component approach. Even early in planning, it may be apparent there are critical commander decisions that are required regardless of the COA selected. CCIRs are more applicable to the JPP and JPPA but can still be identified in the AFPP.
[14] For more information on decision points, see JP 5-0, *Joint Planning*.

and with the planning process. The final intent statement is published in the order.

- **Purpose.** Purpose delineates the reason for the military action with respect to the mission of the next higher echelon. The purpose explains why the military action is being conducted. Purpose helps the force pursue the mission without further orders, even when actions do not unfold as planned. Thus, if an unanticipated situation arises, participating commanders understand the purpose of the forthcoming action well enough to act decisively and within the bounds of the higher commander's intent (JP 5-0).

- **End State.** The end state is a set of desired future conditions the commander wants to exist when an operation ends. Commanders may describe the operation's end state by stating the desired system and conditions of the friendly force in relation to the desired conditions of the enemy, terrain, and civil considerations. A clearly defined end state promotes unity of effort among the force and with unified action partners.

- **Risks.** The intent statement outlines the identified risk(s) throughout the planning process. Specifically, highlight risk accepted by the commander. Significant known risks requiring additional approval are combined with constraints and restraints.

Example Commander's Intent Statement

Purpose: The purpose of this operation is to ensure air base defense by hardening facilities, employing deception schemes, establishing defense in depth force protection strategies, supporting ballistic missile defense operations, and supporting air defense sortie generation to ensure unhindered base operations.

End State: At the end of this operation, facilities will be hardened, enemy surveillance attempts degraded, force protection threats mitigated, air and missile defense units supported, and base operations fully functioning.

Risk: There is a high probability that forces will be in danger of adversary fires should air base defense efforts fail, which results in a major consequence. This presents a significant risk to air base forces. There is a likely probability that degradation to base facilities will hinder mission generation capability. This poses a major risk to air base forces' accomplishment of the mission.

Prepare or Update Staff Estimates. A staff estimate is an evaluation of how factors in a functional area support and/or impact the mission. The staff estimate process is central to formulating or updating the plan to accomplish the mission. Staff members continuously refine products as planning continues. Staff estimates focus on collecting information from a given functional area to help the commander and staff understand the situation and conduct mission analysis. The preparation and updating of staff estimates will normally be conducted by joint staffs. Airmen using the AFPP will normally reference staff estimates during planning. In staff estimates, each element:

- Reviews the mission and situation from their staff functional perspective.
- Examines the factors and assumptions for which they are the responsible staff.
- Evaluates how factors in their functional area may influence each COA.
- Provides detailed analysis of how that functional area would best support a given COA.
- Reviews the tentative force structure and determine additional lift requirements.
- Informs HHQ staff of logistics feasibility by leveraging the logistics overview.
- Identifies existing contract availability, point of debarkation (POD), percentage of PODs, inventories, and other distribution infrastructure available.
- Works to identify operational capability requirements in the plan.

Staff Estimate Functional Area Examples:

- Personnel estimate: Manning.
- *Intelligence estimate*: JIPOE, intelligence community factors, collection and processing, exploitation, and dissemination capabilities.
- *Operations estimate*: Offensive ops, air defense, air refueling, airlift, airspace control, C2.
- *Logistics estimate*: Time-phased force deployment data (TPFDD), beddown, fuel, munitions, water, supply.
- *Communications estimate*: Staff, systems, and communication requirements.
- *Information estimate*: Evaluation of how relevant actor perceptions, attitudes, and behaviors affect operations planning and execution.

"There will be challenges and this is much greater than just an AOC going away. Is the person that I am working for describing their priorities clearly? Are those priorities meeting with the realities of the operational environment? Is their feedback mechanism going back to command echelons so they can understand if they need to adjust their priorities?"

–General Mike Minihan, USAF
Remarks as Commander, Air Mobility Command, 2024
Doctrine Podcast: Lessons Learned in Doctrine

The exact format and level of detail vary among commands and staff sections based on theater specifics and other factors. Principal elements normally include mission, situation, functional considerations, and conclusions.

Present Commander's Mission Analysis Brief. The mission analysis brief is presented to the commander. The mission analysis brief is to ensure the commander and planning staff have a common understanding of the environment, problem, situation, and mission and is essential to forging unity of effort. It focuses on relevant conclusions reached during mission analysis. The brief should include representatives from the entire staff and partner organizations. The "Common Mission Analysis Briefing Elements" figure depicts a common framework for the commander's mission analysis brief.

Common Mission Analysis Briefing Elements

1. Purpose: Provide draft commander mission, obtain commander guidance.
2. Identify the relevant operating area (an area of interest may also be briefed).
3. Initial situation brief.
4. HHQ guidance, mission, and intent statements.
5. Problem statement, root cause, and subordinate problem sets.
6. Facts.
7. Assumptions.
8. Constraints and restraints.
9. CC's problem and key components.
10. End state.
11. Specified, implied, and essential tasks.
12. Commander's initial risk assessment.
13. Time analysis-Including projection of planning milestones.
14. Initial CCIRs.
15. Initial resource analysis.
16. Other guidance as applicable.
17. Air component approach, as required.
18. Proposed commander mission and intent statements.

NOTE: The briefing elements fall into two categories. Elements 1-10 "set the problem" and usually reflect information already provided. Elements 11-17 provide specific actions and needs.

MISSION ANALYSIS RESULTS

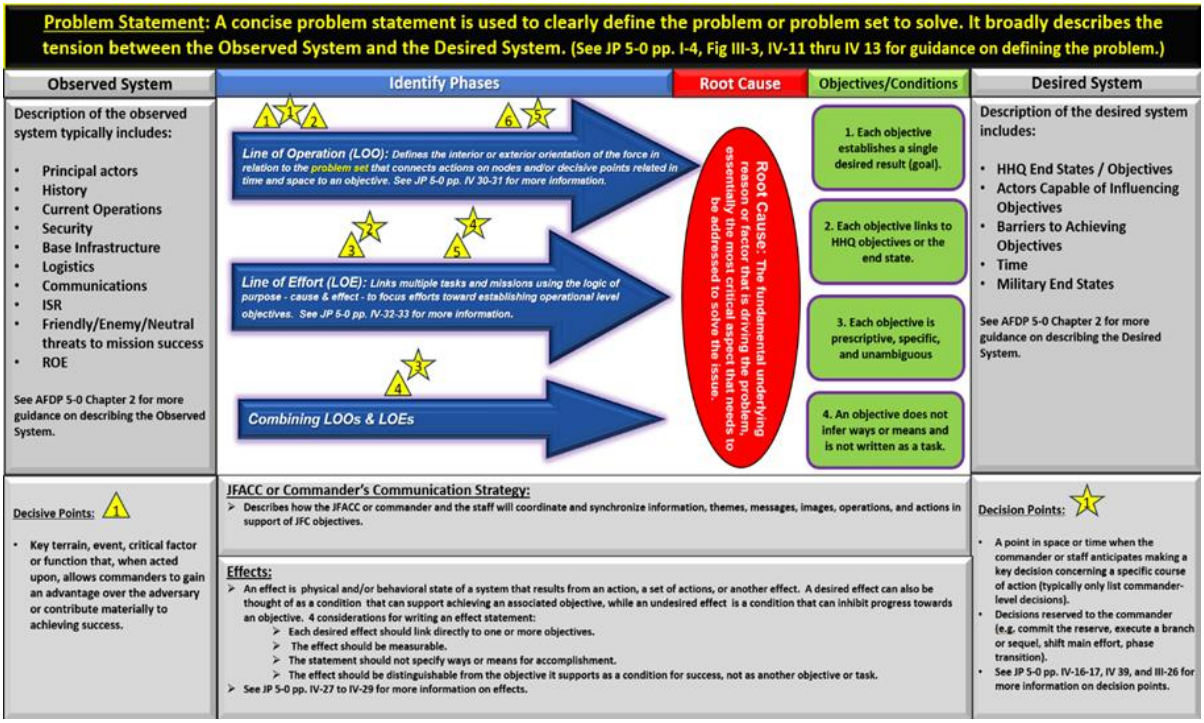
The results of mission analysis are an air component approach, specified, implied, and mission essential tasks, component(s) of the problem that need(s) to be addressed, mission statement, intent statement, updated planning guidance, and initial CCIRs. An additional output of mission analysis is the commander's approval of the staff's understanding of the observed and desired systems and refined guidance for further planning and design refinement.

Publish Commander's Refined Planning Guidance. Following the mission analysis brief, staff note guidance provided by the commander to guide further planning. Mission analysis outcomes, OE changes, and updated HHQ guidance can drive a requirement for refined planning guidance. Refined planning guidance may address the following:

- ✪ Approved mission statement.
- ✪ Updated commander's intent statement.

- Overall narratives two echelons up.
- Key elements of the OE.
- Key assumptions and operational limitations.
- End state and termination criteria.
- Acceptable or unacceptable levels of risk in key areas.
- The role of agencies and multinational partners in the pending operation and any related special considerations as required.
- Air component approach.

Air Component Approach. The air component approach is a fundamental output of air component design and initially produced at the end of mission analysis. **Air component design elements are normally used to construct the air component approach.** The approach is a commander's description of the broad actions the force can take to achieve an objective, support HHQ objectives, and attain a desired end state. The ultimate purpose of an air component approach is to describe how to achieve a desired system that leads to an enduring advantage for friendly interests. The accomplishment of all objectives should lead to the desired system and set of future conditions. Tactical tasks necessary to support lines of effort or lines of operations should be depicted on the air component approach. An "Air Component Approach Template" figure is provided below. For greater detail, see Appendix D, "Air Component Approach Template."



Air Component Approach Template

HHQs may develop an operational approach that informs the air component approach efforts. An operational approach primarily differs from an air component approach by focusing on the center(s) of gravity.

CHAPTER 5: COURSE OF ACTION DEVELOPMENT

The third step of the AFPP is COA development. A COA is "any sequence of activities that an individual or unit may follow" or "scheme developed to accomplish a mission." COA development seeks to determine "how" to use capabilities made available to accomplish the "what" derived during mission analysis. The COA is framed around time, space, and purpose. Airmen have a unique perspective on developing COAs focused on generating effects. **Commander involvement is critical.** The necessary degree of commander guidance and involvement depends on the situation.

COA DEVELOPMENT INPUTS

COAs provide potential ways to address an identified problem and create desired changes in the observed system resulting in the desired system. Inputs that inform COA development are the mission analysis results, refined air component design, and a refined air component approach.

Additional Planning Consideration

All major C2 activities may be enhanced with AI and human-machine teaming to optimize operations. First, data synthesis and processing capabilities can help planners make sense of a complex OE. Commanders and their staffs can then use their understanding of the OE to inform their air component design. As planners work to develop plans, AI can provide recommendations that influence COA development, and AI-enabled wargaming systems may allow iterative review of potential COAs in a shortened amount of time to improve the COA approval process. Subsequently, approved plans will lead to streamlined preparation. AI can make logistics and movement recommendations, enhance intelligence exploitation, and accelerate execution decisions. As the OE evolves during execution, AI can aid battle management nodes as they proactively maneuver forces to gain an advantage over the adversary. Finally, AI assisted analysis of friendly effects and adversary reactions can support operational assessment.

NOTE: AI and human-machine planning may enhance planning efforts but should not fully replace planning. An understanding of the mission and OE are cognitive planning products often considered more important than completed plans.

COA DEVELOPMENT ACTIVITIES

COAs should take into consideration the time available (time to plan), the most likely impact on the OE, and the most dangerous impact on the OE. Distinguishability is typically the most challenging facet of developing multiple COAs. Airmen typically build COAs in a "divide and conquer" fashion vs sequentially, often creating similar COAs. Staffs should consider the elements of the 5-paragraph order format as they conduct COA development. For additional information on the five-paragraph order format see Appendix A, “Plans and Order Format” and Appendix E, “Example Modified Five-Paragraph Order.” The figure, “COA Development Activities” provides more information on approaches to solving the problem.

COA Development Steps

1. Brainstorm COA(s).
2. Chart or Visualize COA(s).
3. Prepare COA Statement, Sketch, and Task Organization.
4. Present COA Selection Brief.
5. Refine Air Component Design and COA(s).
6. Continue Vertical and Horizontal Parallel Planning.

DEVELOPMENT STEP 1: BRAINSTORM COA(S)

A COA is a broad potential solution to an identified problem. COA brainstorming generates options for follow-on analysis and comparison that satisfy the commander’s intent and planning guidance. During COA brainstorming, planners use knowledge, skills, experience, creativity, judgment, and products developed during mission analysis to develop broad concepts. Typical activities in this step include (see “COA Development Activities” figure):

- Review information from mission analysis HHQ operational approach, and air component approach if available.
- Determine COA development technique-simultaneous or sequential.
- Consider the elements of air component design and air component approach.
- Develop alternative COA themes and approaches.
- Analyze forces and capabilities, including force flow issues.
- Identify command relationships.
- Integrate staff estimates and updates.

DEVELOPMENT STEP 2: CHART OR VISUALIZE COA(S)

This step organizes and synchronizes COAs. Graphically depicting the COA in space and time allows the commander to visualize the COA and synchronize it with current operations and requirements. In some cases, a sketch or graphic may be useful.

- ✪ Analyze mission analysis data and develop an operational timeline.
- ✪ Translate specified and implied tasks into objectives using an effects-based approach by general phases.
  - ✪✪ Phases, such as "shaping", or "redeployment operations", are used to achieve one or more major objectives. Transitioning to the next phase indicates a change in the emphasis, e.g., "stability ops" to “redeployment ops.” A single-minded focus on specific phases can help bind various facets of the problem to focus planners' ideas.[15]
- ✪ Identify the sequencing of the operation for each COA as appropriate.
- ✪ Identify main and supporting efforts by phase.
- ✪ Develop initial COA sketches.
- ✪ Develop initial COA statement.

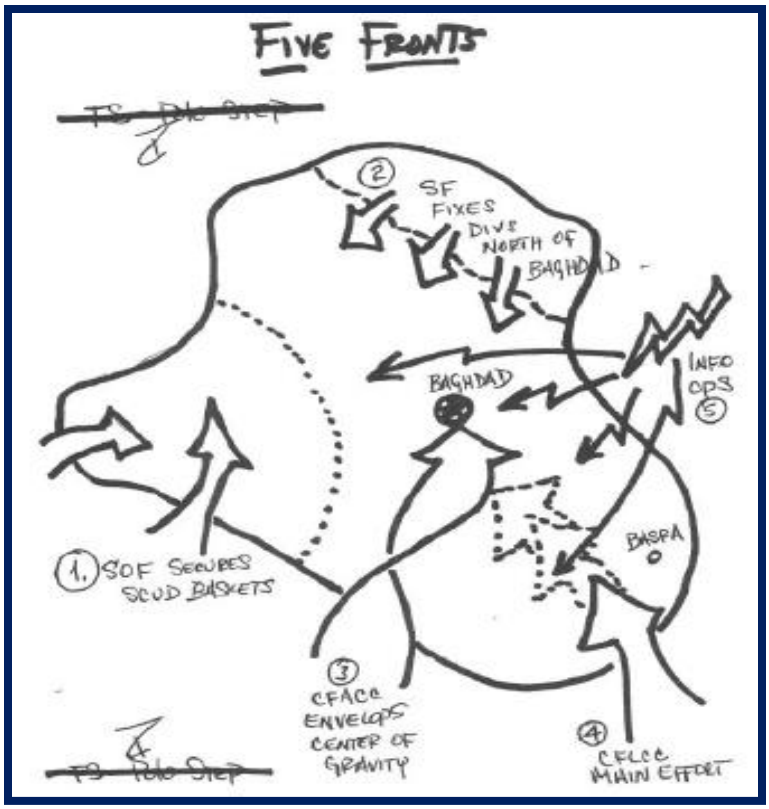
DEVELOPMENT STEP 3: PREPARE COA STATEMENT, SKETCH, AND TASK ORGANIZATION

This step creates a detailed narrative, graphical depiction, and a task organization methodology that explains the “5-Ws” and “how” the COA accomplishes the mission.

COA Statement. The COA statement is a narrative describing the CONOPS. It is typically written chronologically and addresses all phases of the operation. The statement addresses “who” (type of forces) executes “what” (tasks), expands on "when", shows "where" the commander’s mission statement applies, explains the “why, and adds "how". The “how” of the statement could address the means, methods, and priority of effort that makes a COA distinguishable.

[15] For additional information on operational phases and phasing, see JP 3-0, *Joint Campaigns and Operations.*

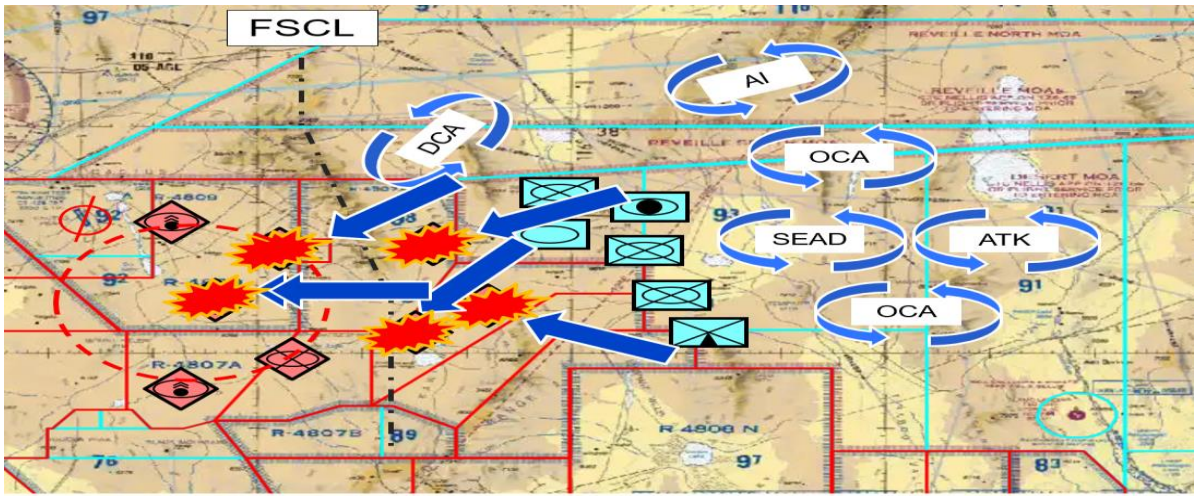
Sketch. COAs are often depicted and briefed using a combination of CONOPS graphics and sketches (the execution portion of the COA). COA sketches visualize how each COA can vary and evolve with maps and charts. An example sketch is the "Five Fronts" sketch from Gen Tommy Frank's book, *American Soldier*.



Five Fronts sketch from Gen Tommy Frank's book, *American Soldier*

Task Organization. The task organization should detail the relationship between tasked forces, the commander's authorities, the overall purpose of the COA, and supporting organizations. Resourcing (main effort) should be considered in larger operations during task organization construction.

In general, air COAs may vary with respect to ends, ways, means, and/or risks.[16] The staff should see how they can best synchronize (arrange in terms of time, space, and purpose) the actions of all the elements of the force once they begin to visualize COA alternatives.



Example COA Sketch

[16] For more information on COA distinguishability, see JP 5-0, *Joint Planning*.

Test The Validity of Each COA. A "valid" COA should be feasible, acceptable, suitable, distinguishable, and complete. A COA should accomplish all HHQ tasks and any additional tasks identified during mission analysis. While definitions are given below, the commander retains the final judgment for COA requirements. In addition to any requirements given by the commander, examine each prospective COA for validity using the following screening criteria:

- *Feasible*: The COA can accomplish the mission within the established time, space, and resource limitations.
- *Acceptable*: The COA should balance cost and risk with the advantage gained.
- *Suitable*: The COA can accomplish the mission within the commander's intent and planning guidance.
- *Distinguishable*: Each COA should differ significantly from the others (such as scheme of maneuver, lines of effort, phasing, use of reserve forces, and task organization).
- *Complete*: A COA should incorporate the following information:
  - How the decisive operation leads to mission accomplishment.
  - How shaping operations creates and preserves conditions for the success of the decisive operation or effort.
  - How sustaining operations enable shaping and decisive operations or efforts.
  - How to account for offensive, defensive, and stability or civil support tasks.
  - Tasks to be performed and conditions to be achieved (a COA should accomplish all tasks from HHQ, and additional tasks identified during mission analysis).

DEVELOPMENT STEP 4: Present COA Selection Brief

If required, a COA brief provides the commander an opportunity to provide refined guidance, including further analysis, revisions, wargaming direction, changes to design, and updated COA evaluation criteria. The "Typical COA Briefing Elements" figure guides items commonly discussed during the brief.

Typical COA Briefing Elements

1. Purpose.
2. HHQ mission and intent statements (two echelons higher).
3. Commander's mission and intent.
4. Intelligence estimate and environmental factors (JIPOE).
5. Logistics and sustainment considerations.
6. Timeline, phasing, and sequencing (correlate with previous steps).
7. Broad COA differences.
8. Depiction of each COA (e.g., charts, sketches, and statements).
9. Logistics and sustainment considerations.
10. Shortfalls, additional support, and authorities required.
11. Risks and identified mitigation measures.

DEVELOPMENT STEP 5: REFINE AIR COMPONENT DESIGN AND COA(S)

Continue to refine air component design and COAs. Changes in one COA, situation, or air design element may require corresponding changes to other COAs. Properly managed, air component design refinement is in an iterative process that keeps all products aligned and provides more refined COAs.

DEVELOPMENT STEP 6: CONTINUE VERTICAL AND HORIZONTAL PARALLEL PLANNING

Planners should integrate planning efforts with staff counterparts at HHQ and parallel agencies as appropriate. Airmen at the wing level should ensure that their planning supports the JFACC and/or commander, Air Force forces' (COMAFFOR's) guidance and direction. Expect planning adjustments as additional details become available and permit lower echelons to start planning and generate questions. If applicable, issue a preparatory order or Fragmentary Order (FRAGORD) to subordinates.

Providing sufficient guidance and time to subordinates is important in planning. A time consideration for planning is provided in "The One-Third, Two-Thirds Rule for Air Force Planning" figure.

COA DEVELOPMENT RESULTS

Proper COA development refines air component design and may produce six results: CONOPS, C2 structure and command relationships (COMREL), required capabilities, deployment and sustainment concept, COA statement (narrative description), and valid COAs.

CONOPS. A CONOPS is a verbal or graphic statement of the commander's intent to identify the overall purpose. It includes elements like a high-level view of the environment (e.g., terrain, multidomain considerations, weather, threats), an approach for how forces are to be organized, employed, and coordinated, and an initial list of tasks and responsibilities to subordinate and supporting organizations. Frequently presented as a graphic, the CONOPS is the foundational element that planners can refine and develop the COA into the execution paragraph of the plan or order.

The One-Third, Two-Thirds Rule For Air Force Planning

Planning can be a time-intensive process for both superior and subordinate organizations. Air Force commanders and planners should be aware of the timeline for subordinates to plan. As a general rule when developing a planning timeline divide the time available into thirds and seek to utilize a third of the time available for their staff. The remaining two-thirds of the time should be preserved for subordinate planning. Commanders can publish updates in the OPORD, or following Fragmentary Orders (FRAGORDs), if the situation, timeline, or plan changes.

C2 and Command Relationships (COMREL). This deliverable should narratively identify required authorities (e.g., tactical control [TACON]) or support requirements (e.g., direct support) across the entire COA (and COA phases, if appropriate) to achieve the defined objectives and end state. A simple diagram may accompany the narrative C2 and COMREL. This deliverable forms the basis of the command, signal, and communications paragraph of the resulting order or plan, and where appropriate, informs Annex J of a HHQ CONOPS or plan.[17]

Required Capabilities and Support. This deliverable identifies the capabilities and support necessary including additional capabilities and support needed that the unit does not own or control. Higher level assistance may be required to leverage outside agencies or other Service interdependencies.[18]

Deployment and Sustainment Concept. This deliverable asks how planners envision "setting the force" and how logistics for sustainment should be performed.

COA Statement. This deliverable summarizes the who, what, when, where, why, and how, emphasizing the decisive action that is necessary to change the situation firmly in the commander's favor. The COA statement should provide details on how to accomplish the mission statement.

[17] See JP 5-0, *Joint Planning*, for additional information.
[18] This deliverable may inform paragraph four in order production or an additional annex in a plan.

CHAPTER 6: COURSE OF ACTION ANALYSIS AND WARGAMING

COA Analysis and Wargaming is a critical step of the AFPP, but it is often overlooked due to planners' inexperience and/or time mismanagement. Wargaming provides the opportunity for planners to analyze the problem to improve the COA(s). This step provides an opportunity to visualize the friendly COAs. It is the best opportunity to analyze COAs against threats to mission success and adversary capabilities before execution. Planners should seek to accomplish some degree of analysis or wargaming regardless of how simple the problem is. **Tabletop exercises focused on the most likely and most dangerous threat to mission success are best suited for use at the AETF and wing level.** Planners using the JPP and JPPA will focus on the adversary's most likely and most dangerous COAs.[19]

The Importance of Wargaming

Wargaming may be manually conducted or computer-assisted. Wing A-staffs and Airmen at all echelons may be limited to manual wargaming capabilities. AI and human-machine teaming may enhance future wargaming capabilities and allow for multiple iterations of the wargame in a compressed timeframe. Wargaming's value is underscored by the more than fifty wargame iterations conducted prior to the execution of Operation DESERT STORM. COA refinement is often necessary due to wargaming. Results from each iteration should be analyzed to enhance understanding of the problem, mission, and OE. The value of planning is greater than the plan itself.

Wargaming for non-operational problems. Wargaming is a recorded "what if" session of actions and reactions designed to visualize the flow of the conflict and evaluate each COA in light of the challenges posed by the problem and OE. The plan may not involve adversary forces per se, but all plans entail other factors, interdependencies, and threats or challenges to mission accomplishment. COA analysis and wargaming should be tailored to methodically evaluate these various considerations and their outcomes.

Planners should work with the commander to further define or refine the COA evaluation criteria during this step. Solidifying the evaluation criteria before wargaming enables planners to record the strengths and weaknesses of each air COA according to those criteria. Results from COA analysis and wargaming may require refinements of the air component design and air component approach.

COA ANALYSIS AND WARGAMING INPUTS

COA analysis and wargaming inputs include the COA development results, refined air component design, and a refined air component approach. Planners may need to review or identify COA evaluation criteria to conduct COA wargaming. Additionally, the staff

[19] For additional information on most likely and most dangerous COAs see JP 5-0, *Joint Planning*.

should identify or confirm the wargame methodology that will be used for COA analysis and wargaming.

COA ANALYSIS AND WARGAMING ACTIVITIES

Like other steps, COA analysis and wargaming involve open and honest discussion framed around the problem at hand. COA analysis and wargaming apply to both non-combat and combat operations. It is a deliberate attempt to visualize the flow of the operation while focusing on CCIRs and decision points for the commander. If COA modification occurs during analysis or wargaming, ensure changes are reflected in relevant mission analysis documents. Finally, a modification in one COA may affect other COAs. A suggested method for advancing through COA Analysis and Wargaming is presented in the Wargaming Steps figure.

COA Analysis Steps

1. Prepare for COA Analysis and Wargaming.
2. Conduct Analysis and Wargaming, and Record Results.
3. Refine Selected COA (as required).
4. Report Results.

ANALYSIS STEP 1: PREPARE FOR COA ANALYSIS AND WARGAMING

The most important outcome of this step is to ensure that all materials are made available, and the game is set up and chosen to test the critical events, DPs, LOOs, LOEs, deliberate timeline analysis, and/or operational phasing. Other activities may include:

- Gather tools, materials, and data.
- Define or refine COA evaluation criteria.
- List friendly forces and review friendly COAs.
- List adversary forces and prepare adversary COAs.
- List known critical events and decision points.
- Determine wargame participants and roles.
- Select wargame method (manual or computer-assisted).
- Select a means to represent the operating area, force laydown, and moves.
- Select a method to record and display wargame results.

The Action-Reaction-Counteraction Wargame Methodology

This method may use a dedicated Red Team to roleplay as the adversary against Blue COA(s). It is managed by a neutral wargame director, preferably one who has not participated in COA development activities. The Red Team can advise planners of potential implications associated with each COA, and help explore unintended consequences and likely second- and third-order effects of specific actions.

The wargame proceeds through a situation, action, reaction, and counteraction drill. Conduct each drill until the event being tested is adequately discussed or time is exhausted.

Situation

- Facilitator provides an overview of the wargame describing the specific event to be wargamed along with beginning and ending criteria.
- Red Team presents current disposition of forces IAW specified COA.
- Blue Team presents current disposition of forces IAW specified COA.

Action

- Starts with the initiating event (typically friendly action) and the full range of friendly force operations that comprise that action.

Reaction

- The Red Team identifies the same scope of the adversary reaction.

Counteraction

- Blue Team describes all areas of counteraction. The counteraction can begin the next sequence or a separate, new action can begin the sequence.
- Consider risk assessments and mitigation efforts throughout the wargame.
- Identify branches, sequels, and CCIRs.

NOTE: Wargamed events can and probably will occur simultaneously.

ANALYSIS STEP 2: CONDUCT ANALYSIS/WARGAMING AND RECORD RESULTS

There are many different methods to conduct wargaming. It is rare below the air component level to have access to computer-assisted wargaming. Most wargames can be accomplished or modified to a simple tabletop format. Key to this step is the accurate recording of the wargame results for COA refinement.

Wargaming does not have to be time intensive. When facing time or personnel constraints, focusing on specific elements of the plan or operation can greatly reduce the wargame's duration. A focused key leader discussion may also suffice for wargaming. When choosing what to wargame consider:

- **Tabletop Exercises**: Walk through the plan with a focus on the most likely and most dangerous threat to mission success. The problem and the anticipated changes to the observed system should be discussed.
- **Critical events**: Focus on specific critical events that encompass the essence of the COA or that address events of particular interest to the commander.
- **Decision points**: An identified point in time or space that require a commander's decision. Available options for the commander, to select upon reaching the decision point, should be annotated. The DSM discussed in Chapter Two can be used for annotating DPs and potential adversary or enemy reactions.
- **LOO/LOE method**: Wargame a specific LOO or LOE.
- **Box method**: Wargame all actions within a discrete geographic area.
- **Deliberate timeline analysis**: Wargame all actions within a discrete block of time.
- **Operational phasing**: Phasing organizes an operation into manageable parts. A phase integrates and synchronizes related activities to improve unity of effort during executions. Use campaign or operation phasing as the framework to identify and analyze significant actions and requirements.

During the wargame ensure all relevant data is recorded for later COA refinement and modification. The following items are typically recorded and analyzed during COA analysis and wargaming:

- Timing issues and time required for objectives.
- Additional resources and effort for improvements.
- Potential risks and mitigations.
- COA strengths and weaknesses, especially those related to evaluation criteria.
- Branch and sequel requirements.
- Commander's DPs and CCIRs.

ANALYSIS STEP 3: REFINE OR MODIFY EACH COA

In this step, the results of the wargame are utilized to modify and refine each COA. Airmen are encouraged to review wargame outputs utilizing the seven joint functions as a framework to ensure alignment with the joint force.[20] Planners should recognize the possibility that a wargame result could invalidate a potential COA. In these cases, it is the responsibility of the planning team to be transparent about the result and consider removing the COA from further consideration.

[20] For additional information on the joint functions, see JP 3-0, *Campaigns and Operations*.

ANALYSIS STEP 4: REPORT RESULTS

If requested, reporting results provides the commander wargame results before COA comparison. If accomplished, results should address:

- COAs wargamed against the most likely and most dangerous threats to mission success.
- Key strengths and weaknesses.
- Potential decision points identified and associated CCIRs.
- Potential branches and sequels identified.
- Key changes required and made to COAs.
- Invalidated COAs identified by the wargame.
- Refined Blue COAs and outstanding issues.
- Wargame conclusions and recommendations.

COA ANALYSIS AND WARGAMING RESULTS

The results of wargaming are refined COAs, commander DPs, refined air component design, and notes on critical events. This helps inform the commander's decisions during execution.

Additionally, the detailed notes from the analysis and wargaming provide background information to interested parties about the advantages and disadvantages of the COAs.

CHAPTER 7: COURSE OF ACTION COMPARISON

The COA comparison step of the AFPP provides the commanders and staffs an opportunity to see how the developed COAs rate against previously approved evaluation criteria. **COAs are not initially evaluated against other COAs.** Rather, each COA is assessed independently against COA evaluation criteria, and selection criteria related to the commander's intent, and then compared to other COAs after independent assessments are complete. COA comparison facilitates the commander's decision-making process by considering the ends, ways, means, and risks associated with each COA.

COA COMPARISON INPUTS

Key to this step is the COA analysis and wargaming results, refined air component design, and a refined air component approach. Planners may need to review or identify the COA evaluation criteria and definitions to conduct the COA comparison. Additionally, the staff should identify or confirm the COA comparison method and potential weighting considerations.

COA COMPARISON ACTIVITIES

Planners should consider the guidance provided in the "COA Comparison Inputs and Outputs" figure prior to starting the step.

Whichever comparison method(s) are used, this step aids in determining which COA best suits the situation and commander's needs.[21]

Some of the COA comparison methods typically used to conduct comparison:

- Simple plus, minus, neutral assessments.
- Narrative qualitative comparisons of advantages and disadvantages.
- Numerically (weighted or not weighted) comparisons with multiple evaluation criteria.

[21] For additional information on COA comparison methods, see JP 5-0, *Joint Planning*.

Example Numerical Comparison

		Course of Action					
		COA 1		COA 2		COA 3	
Criteria	Weight	Rating	Product	Rating	Product	Rating	Product
Exploits maneuver	2	3	6	2	4	1	2
Attacks COGs	3	2	6	3	9	1	3
Integrates maneuver and interdiction	2	2	4	3	6	1	2
Exploits deception	2	1	2	2	4	3	6
Provides flexibility	2	1	2	3	6	2	4
CSS (best use of transportation)	1	3	3	2	2	1	1
Total		12		15		9	
Weighted total			23		31		18

NOTE: The higher the number, the better.

- The joint force commander's intent explained that the most important criterion was "attacking the enemy's COGs." Therefore, assign a value of 3 for that criterion and lower numbers for other criteria that the staff devises (**this is the weighing criterion**).
- For attacking the enemy COGs, COA 2 was rated the best (with a number of 3). Therefore, COA 2 = 9, COA 1 = 6, and COA 3 = 3.
- After the relative COA **rating** is multiplied by the **weight** given each criterion and the product columns are added, COA 2 (with a score of 31) is rated the most appropriate according to the criteria used to evaluate it.

Legend

COA course of action COG center of gravity CSS combat service support

COA COMPARISON RESULTS

Results of COA comparison are individual COA advantages and disadvantages, COA discussion notes, COA recommendations, and staff recommend COAs. Air component design and approach should be refined if necessary.

CHAPTER 8: COURSE OF ACTION APPROVAL

During the AFPP COA approval step, the planning staff work together to develop and present COAs and a recommendation to the commander for approval. The COA decision briefing summarizes the work completed to develop, analyze, and compare COAs. Afterward, the commander may brief HHQ and receive their approval if the COA is part of a larger operation or campaign. The key to COA approval is the commander and planning staff combining their experience, knowledge, skill, and creativity to analyze the data and recommendations. The commander selects a COA from the confluence of adaptive thinking and air component design. A method for progressing through the COA approval step is presented in the "COA Approval Activities" figure.

COA APPROVAL INPUTS

COA approval should be informed by the COA analysis and wargaming results, refined air component design, and a refined air component approach. COA approval is driven by the cumulative AFPP effort.

COA APPROVAL ACTIVITIES

COA Approval Steps

1. Prepare the COA decision briefing.
2. Present the COA decision briefing.
3. Commander selects or modifies COA.
4. Refine selected COA (as required).
5. Prepare briefing, message, or commander's estimate for HHQ Approval.

APPROVAL STEP 1: PREPARE THE COA DECISION BRIEFING

Tailor the brief to fit the commander's level of understanding at the time of the brief. If the brief occurs shortly after the COA development brief, or if a wargame brief was given, the COA decision brief may be abbreviated.

APPROVAL STEP 2: PRESENT THE COA DECISION BRIEFING

Typically, the planning lead(s) brief the commander. Principal staff directors and division chiefs should attend. When necessary, capabilities or issues should be addressed at a higher classification level, including a supplemental briefing with appropriately cleared individuals in a suitable facility.

Sample COA Decision Brief Outline

The staff prepares a briefing to the commander providing the following (as applicable):

1. Purpose of the briefing.
2. Update of the OE.
   a. Opposing situation:
      i. Adversary order of battle/location and disposition (threats to mission success at the AETF and Wing level).
      ii. Logistics-summary of ability to support operations.
      iii. Time and space factors-capability to move to and reinforce initial positions.
      iv. Combat capability-state of training, readiness, battle experience, physical condition, morale, leadership, motivation, tactical doctrine, discipline, and significant strengths and weaknesses.
      v. Unknowns-intelligence gaps about the adversary or OE.
   b. Friendly military situation-implications of other component requirements on air component operations (e.g., ISR, refueling).
   c. Status of the operational area including infrastructure, geographic terrain, information environment, and social terrain.
3. HHQ commander's mission and intent statements.
4. Operational concepts and COAs developed.
   a. Any changes from the mission analysis briefing regarding: Assumptions, limitations, adversary and friendly centers of gravity, phasing of the operation, LOOs, and LOEs.
   b. COAs: COA name, COA statement, COA sketch, COA architecture. Major differences between COAs, and a summary of COAs.
      i. COA Architecture: Task organization, COMREL, support requirements, additional authorities required, additional forces needed, organization of the operational area.
      ii. COA Analysis Summary: Wargame results/evaluation criteria/comparison methodology/strengths and weakness of each COA

APPROVAL STEP 3: COMMANDER SELECTS OR MODIFIES COA

Following the COA decision briefing the commander may:

- Concur with the recommendation as presented.
- Select a different COA.

- Direct modification (possibly combining elements of two or more COAs).
- Direct development of additional COAs.
- Request additional information or analysis prior to decision.
- Direct that one of the COAs be used as the basis for a deception plan.
- Direct that a briefing or message be prepared to present the COA to HHQ for approval.
- Defer the decision and consult with selected staff and commanders.

APPROVAL STEP 4: REFINE SELECTED COA (AS REQUIRED)

The staff refines the selected COA in accordance with the commander's guidance and briefs the commander again if required.

APPROVAL STEP 5: PRESENT SELECTED COA FOR HHQ APPROVAL

When a selected COA is part of a HHQ operation or campaign plan, the staff may prepare a commander's estimate to accompany the recommended COA. The commander's estimate provides a concise, narrative statement of how the commander intends to accomplish the mission and provides the necessary focus for plan development. HHQ will use appropriate staffing and approval processes as well as other techniques to ensure plans remain synchronized with HHQ's concept, intent, and campaign plan. Being integrated and aware of HHQ planning can help ensure the commander's selected COA receives approval from the appropriate authority.

COA APPROVAL RESULTS

A COA approval decision that informs the development of a plan or order is the primary result of this step. The elements of air component design are still being refined at the end of COA approval.

CHAPTER 9: PLANS AND ORDERS DEVELOPMENT

The plans and orders development step of AFPP explains the basic steps of writing orders with a special focus on the paragraph format. Ultimately, the order type should convey the commander's intent and direction to their subordinate commanders. While explained in the context of the AFFP, the steps and guidance provided in the chapter apply to all JPP based planning processes. In addition, we discuss the emerging efforts of writing orders utilizing the mission type order (MTO) technique, which enables commanders to distribute control of specified operations and activities to subordinate commanders.

EFFECTIVE PLANS AND ORDERS

Effective plans and orders are simple and direct to reduce misunderstanding. Orders should be brief and clear so that the subordinate units can conduct operations in contested environments if necessary. The situation determines the degree of simplicity required since simple plans executed on time are typically better than detailed plans executed late. Commanders at all echelons weigh the potential benefits of a complex plan against the risk that subordinates may fail to understand it.

As such, the language is direct. An example of this is, "The palletized cargo remains in the assembly area" instead of "The palletized cargo will not accompany the unit." Effective plans and orders directly and positively state what the commander wants the unit and its subordinate units to accomplish and why.

Effective plans and orders are brief and clear. These plans use short words, sentences, and paragraphs. Plans use acronyms unless clarity is hindered. Brief and clear orders:

- Use doctrinally correct terms and symbols.
- Avoid jargon.
- Use plain language when a doctrinal term is not available.
- Eliminate every opportunity for misunderstanding the commander's intended direction.

PLANS AND ORDERS OVERVIEW

Administrative instructions and formats for preparing plans and orders can include:[22]

Types of Plans. A plan is a design for a future or anticipated operation. Plans come in many forms, and they vary in scope, complexity, and duration.

Campaigning. Campaigning is the persistent conduct of related operations, activities, and investments that align military actions with the other instruments of national power, supporting global integration across the competition continuum in pursuit of strategic objectives. Campaign and contingency plans support national strategy.

[22] See CJCSM 3130.03A, *Planning and Execution Formats and Guidance*, for additional information.

Campaign Plans. JFCs develop and execute campaign plans. Developing and issuing a campaign plan is appropriate when the contemplated simultaneous or sequential military operations exceed the scope of a single major operation. Contingency plans are branches of campaign plans, typically prepared in advance of an anticipated crisis, and they should be modified during execution. Campaign and contingency plans have four levels of details: commander's estimate, base plan (BPLAN), concept plan (CONPLAN), and operation plan (OPLAN). **Doctrinally there is no separate air campaign, rather the JFACC executes joint air operations in support of a JFC's or combatant commander's (CCDR's) campaign plan.**

A campaign is a series of related operations aimed at achieving strategic and operational objectives within a given time and space.[23] CCDRs develop campaigns to support the global campaign and shape the OE in a manner that supports those strategic objectives. They conduct their campaigns primarily through military engagement, operations, posture, and other activities that seek to achieve US national objectives, protect US national interests, and prevent the need to resort to armed conflict while setting conditions to transition to contingency operations if required.

Contingency Plans. Campaign plans establish conditions for contingency operations. Plans for contingencies and conflict are often branches of, or sequels to, base campaign plans. Contingency plans are developed during ongoing steady state conditions, employing the JPP to create one of the same four levels of detail as campaign plans: commander's estimate, BPLAN, CONPLAN, or OPLAN.

Planning during a crisis entails the positioning of forces, or at least the start of that process, often concurrent with early planning. Although existing plans may not align with an emerging crisis, those plans can often be modified for a specific situation to facilitate rapid COA development. Existing planning products for force execution and deployment, particularly TPFDD built for contingencies, can often be modified in time-constrained situations. Crisis planning produces joint OPORDs and other orders associated with the time-sensitive execution of operations.

Observations should be captured during planning and after every operation in the form of lessons learned. **Absorbing lessons learned and adapting to them appropriately is critical to operational success.** Events should be documented in detail to provide information that improves the planning and execution of future actions. Planners should review after-action reports and other lessons-learned analyses in preparation for the planning process. These reviews ensure planners benefit from prior experience and use what they learn to inform, adapt, and improve steady state, contingency, or crisis planning.

Types of Orders. An order is a communication, written, oral, or by signal, which conveys instructions from a superior to a subordinate. In the context of joint operational planning, some of the types of written orders are:

[23] For additional information on campaigning, see JP 5-0, *Joint Planning.*

- Operation Order (OPORD).
- Fragmentary Order (FRAGORD).
- Planning Order (PLANORD).
- Warning Order (WARNORD).
- Tasking Order (TASKORD).

A Note of Caution on Orders Terminology

The terminology associated with an order has a very specific meaning when used in the joint environment under a CCDR. Commanders must have the appropriate authority to issue certain orders. The guidance provided in this document is associated with their use by a commander under a CCDR command relationship. Commanders should be aware of the guidance provided in CJCSM 3130.03A, Enclosure C when developing their orders both inside and outside of this structure to ensure that the order type is appropriate and does not exceed their authority.

An *OPORD* is a directive issued by a commander to subordinate commanders to affect the coordinated execution of a national command authority operation. Commander's issue OPORDs to direct the execution of long-term operations and the execution of discrete short-term operations within the framework of a long-range OPORD. This type of order can be issued at any echelon of command.

A *FRAGORD* is a modification to an existing order, and it is fragmented by only describing the changes, additions, deletions, and modifications. FRAGORDs differ from OPORDs in the degree of detail provided. This type of order can be issued at any echelon of command.

A *PLANORD* provides essential planning guidance to develop, adapt, or refine an existing plan due to emergent changes in the environment. A PLANORD must be issued by an appropriate commander.

A *TASKORD* is a direct task for subordinate unit execution that must be done as it is imposed by an appropriate authority.

A *WARNORD* is a preliminary notice of an order or action that is to follow. WARNORDs help subordinate units and staffs prepare for new missions by describing the situation, providing initial planning guidance, and directing preparation activities. A WARNORD must be issued by an appropriate commander.[24]

[24] See CJCSM 3130.03A, *Planning and Execution Formats and Guidance,* for additional information.

In addition to OPORDs, FRAGORDs, PLANORDs, and WARNORDs, USAF forces may receive the following types of orders from a joint HQ:

- Alert order.
- Execute order.
- Prepare-to-deploy order.
- Deployment order.
- Redeployment order.

PLANS AND ORDERS DEVELOPMENT INPUTS

The COA approval results, refined air component design, and a refined air component approach, informs the creation of plans and orders. Information from the cumulative AFPP effort can aid in plan or order creation.

PLANS AND ORDERS DEVELOPMENT ACTIVITIES

This section outlines the basic steps for the creation of a five-paragraph order. Not all orders follow the five-paragraph format (e.g., air tasking orders and airspace control orders). However, the five-paragraph form is the Department of Defense (DoD) standard used by the joint staff and unified commands. The USAF has a modified five-paragraph order format as seen in AFDP 1-1, *Mission Command,* and in the figure. For additional information see attached Appendix A, "Plans and Order Formats," and Appendix E, "Example Modified Five-Paragraph Order."

USAF Modified Five-Paragraph Order Format (JP 5-0)

1. Situation
2. Mission
3. Execution
4. Force Sustainment
5. Command, Signal and Communications

If the planning processes have been followed, writing, and assembling the plan or order should not be difficult. Most of the information needed has already been discussed and refined in previous steps of the AFPP. The administrative tasks required to physically produce and synchronize the plan, or order should consume most of the time. The "Orders Development Steps" figure provides a general guide for orders creation.

Orders Development Steps

1. Develop base paragraphs:
   a. Review approved information, products, guidance, etc.
   b. Finalize intent statement and CONOPS.
   c. Assign production tasks.
   d. Synchronize with parallel and supporting plans and orders.
2. Publish base order or plan.
3. Develop appropriate annexes.
4. Issue FRAGORDs to disseminate annexes and updates (as required).

ORDERS STEP 1: DEVELOP BASE PARAGRAPHS

Paragraph 1: Situation. The situation paragraph describes the OE including areas of interest and the geographically defined area of operations. The planning work completed to understand the OE provides information for completing this paragraph. Additionally, assumptions the commander and staff made about the mission and problem are captured in the situation paragraph. The other sub-paragraphs within the situation paragraph are the adversary and friendly components. Both sub-paragraphs are intended to describe for the reader the composition, disposition, and strength of the forces and describe how the adversary is expected to employ their capabilities. In the friendly sub-paragraph, the mission and intent of commanders of higher echelon commanders are included so the subordinates can clearly understand how the nesting of tasks, purposes, and missions are related to unity of effort.

Paragraph 2: Mission Statement. The mission statement paragraph is solely comprised of the mission statement. The mission statement is developed during mission analysis and refined once a COA is chosen. The five elements of a mission statement answer these questions:

- Who will execute the operation (unit or organization)?
- What is the unit's essential task (normally a tactical mission task or tactical enabling task)?
- Where will the operation occur (assigned area, objective, engagement areas, or grid coordinates)?
- When will the operation begin (by time or event)?
- Why will the force conduct the operation (for what purpose)?

Paragraph 3: Execution. The execution paragraph describes the commander's approach to achieving mission success-the "how" of an operation. It begins with the commander's intent and CONOPS and continues with tasks directed to subordinate units.

These tasks identify which subordinate force is the main effort for the operation and what forces are supporting, shaping, or sustaining elements to execute the scheme of movement and maneuver that result in mission accomplishment. The execution paragraph includes prioritized tasks. Lastly, the execution paragraph includes coordinating instructions that are specified tasks applicable to all forces. Coordinating instructions usually include constraints and restraints, commander's critical information requirements, and other information that is common to all subordinates and not stated in unit SOP.

- **Commander's Intent Statement.** The commander's intent statement is developed through the planning process. In the order writing process, the commander's intent statement is refined into a clear and concise statement that frames the operation's purpose, desired end state, and risk. It remains nested within higher echelon commander's intent and guidance with an awareness of the larger operational and strategic context. The intent includes purpose, end state, and risk the commander is willing to accept. An intent statement may also include method and mission essential tasks.

- **CONOPS**. The CONOPS is a statement that directs the way subordinate units cooperate to accomplish the mission and establishes the sequence of actions the force uses to achieve the end state. In the CONOPS, the commander describes how the actions of subordinate units fit together to accomplish the overall mission (essential task and purpose) within the assigned area. Commanders and their staffs describe the CONOPS by defining time, space, and resources.

Time refers to the sequencing and synchronization of tasks or operations to attain end state conditions with the least cost in personnel and resources.

Space refers to the establishment of an assigned area: AO, zones, and sectors.

Resources refer to designating the priority and allocation of resourcing based on the assignment of the main effort, supporting efforts, and reserves.

The CONOPS also includes:

- The central approach the commander intends to accomplish the mission.

- Provides for the integration, synchronization, and sequencing of time, space, forces, and resources.

- Provides for the tempo of the operation.

- Relates and nests the objectives and effects to those of the higher commander.

In developing the CONOPS, commanders and staff ensure their concept nests with that of their HHQ. Nesting a concept is a planning technique to achieve unity of purpose whereby each succeeding echelon's CONOPS are aligned by purpose with the higher echelons' CONOPS. An effective CONOPS describes how the forces support a mission of the HHQ and how the actions of subordinate units fit together to accomplish a mission.

Paragraph 4: Force Sustainment. Force sustainment describes all required aspects of sustaining the force during an operation (typically broken down into individual phases of the operation). It includes a description of the quantities of all classes of supply, where they are, and what the resupply plan is across the area of operations. It gives an estimate of resupply rates based on forecasted consumption. The paragraph may also include the concept for maintenance (preventative, repair, and replacement) of key pieces of equipment. Time and quantity requirements should be primary planning factors. It should cover functional areas of logistics, transportation, personnel policies, maintenance, health services, and administration.

- **Logistics.** This paragraph addresses the commander's logistics priorities and intent: basing, combat, general, and geospatial engineering requirements, required contracted support, and environmental considerations. Identify the priority and movement of logistic support for each option and phase of the concept.

- **Personnel.** Identify detailed planning requirements and subordinate taskings. Assign tasks for establishing and operating personnel facilities, managing accurate and timely personnel accountability and strength reporting, and making provisions for staffing them. Discuss the administrative management of participating personnel. Refer to annex E (if published).

Paragraph 5: Command, Signal, and Communications. The purpose of this section is to summarize command arrangements and their respective roles and responsibilities. The section identifies changes to major C2 organizations, the commander's battle rhythm, and the staff's expected duty hours. The locations of headquarters and command posts should be annotated. Additionally, this section discusses the scope of communications systems and procedures required to support the mission. The procedures should detail a primary, alternate, contingency, and emergency (PACE) plan for an organization's internal and external communications.

- **Command.** Include a designation of supported and supporting commanders, coordination instructions, and a listing of the command relationship's organizational structure, expected to exist in support of mission execution. This section describes the location(s) of the command and subordinate commands as well as alternate HQ locations. Additionally, COMREL should be detailed in this section along with the plan for succession of command.

- **Signal and communications.** This section describes the means of communication equipment for the force, (e.g., voice, digital, satellite communications, mesh networks, common operating picture, etc.) and usually defines any shortfalls in communications equipment requirements for the force to operate. It prioritizes the ways communication is conducted during the operation through a PACE plan. The purpose of a good PACE plan is to establish redundancy so that communications are always available. Most units have two PACE plans: one for communications to HHQ and one for subordinate units. A PACE plan for a HHQ is likely established by the HHQ.

ORDERS STEP 2: PUBLISH BASE ORDER

Due to the time involved in creating detailed annexes and appendices, the commander approves, and the staff publishes the base order (five-paragraphs) as soon as possible to allow subordinate units to begin subsequent planning and preparation. Updates to the base order can be published in a FRAGORD on their own or with the annexes developed in step 3. If annexes are intentionally omitted with no plan for further development indicate this on the order.

ORDERS STEP 3: DEVELOP APPROPRIATE ANNEXES

Orders at echelons below the AETF do not normally have annexes. However, the more complex an operation becomes and/or the greater the number of capabilities involved, the greater the need for the detail provided in annexes. In these circumstances, the key to the success of a good order is well-written annexes, appendices, tabs, and exhibits further detailing concepts or subjects that do not need to be specified in the main paragraphs of the order.

Commanders and staffs are not required to develop any or all the annexes listed below. The number and type depend on the commander, echelon of command, and needs of a particular operation. Minimizing the number of annexes keeps the order consistent with completeness and clarity. If the information relating to an annex's subject is brief, the order writer places the information in the base order and omits the annex. Staffs list annexes under an appropriate heading at the end of the document they expand. For example, they list annexes at the end of the base order, appendices at the end of annexes, and so forth.

When an annex is not required, staffs indicate this by stating "omitted." For example, the order writer would state, "Annex R (Reports) omitted." If the situation requires an additional annex not shown below, leaders can add to this structure.

Amplify information in annexes where necessary by appendices to annexes, tabs to appendices, and exhibits to tabs. Ensure annexes, appendices, and associated pieces comply with the general sequential structure outlined in CJCSM 3130.03A, *Planning and Execution Formats and Guidance*. Use only those annexes appropriate to the order. At lower echelons, annexes are typically only used when the BPLAN is limited by classification or level of detail. Following is a list of the annexes and examples of their content. **Do not change or reorder annex numbers.**

A: TASK ORGANIZATION.

- Time-phased Force and Deployment List.
- Shortfall identification.

B: INTELLIGENCE.

- Commander's PIRs and supporting information requirements provide an overall picture of intelligence support to operations.

C: OPERATIONS.

- Appendices address various aspects (e.g., personnel recovery, ROE, etc.).

D: LOGISTICS.

- Broad sustainment and logistics concepts that support operations, synchronized with operations and phases for joint forces over which the commander exercises TACON (e.g., fuels management, subsistence, mortuary affairs, mobility, transportation).

E: PERSONNEL.

- Personnel matters and other support (e.g., personnel processing, legal, postal).

F: PUBLIC AFFAIRS.

- Broad public affairs concepts that support all operations, and the broad public affairs plan synchronized with operations phases.

G: CIVIL-MILITARY OPERATIONS.

- Considerations for military interaction with governmental and non-governmental agencies, multinational forces, and other interorganizational partners.

H: METEOROLOGICAL AND OCEANOGRAPHIC OPERATIONS.

- Broad weather factors affect all commander tasked operations.

I: KNOWLEDGE AND INFORMATION MANAGEMENT.

- Knowledge management (KM) roles responsibilities, KM plan, and collaborative tools.
- Preventive measures taken to mitigate hostile actions against DoD personnel (including family members), resources, facilities, and critical information.

J: COMMAND RELATIONSHIPS.

- C2.
- Command considerations.
- Command relationships.
- Memorandum of understanding (MOU).
- Designation and location of all air-capable command HQ.
- Continuity of operations (COOP) and degraded operations.
- Command, control, and communications considerations.

K: COMMAND, CONTROL, COMMUNICATIONS, COMPUTERS, AND INTELLIGENCE (C4I) SYSTEMS.

- General overview of C4I systems and procedures required to support air operations (e.g., cybersecurity, satellite communications).

L: ENVIRONMENTAL CONSIDERATIONS.

- May contain geospatial information and services.
- Broad geospatial factors affect all commander tasked operations.

N: ASSESSMENTS.

- Commander-specific assessment plan and metrics.

P: HOST-NATION AGREEMENT.

- HNA reliability, presumed support.

Q: HEALTH SERVICES.

- Patient movement, hospitalization, etc.

S: SPECIAL TECHNICAL OPERATIONS (STO).

- Air component guidance based on HHQ Annex S, "Integrated Joint Special Technical Operations" that informs COMAFFOR logistics, employment, assessment, and consequence management of Service-provided STO capabilities, as required.

T: CHEMICAL, BIOLOGICAL, RADIOLOGICAL, AND NUCLEAR (CBRN) RESPONSE.

- Consequence management and CBRN response could be addressed within Annex C.

V: INTERAGENCY-INTERORGANIZATIONAL COORDINATION.

- Interaction and collaboration with other government departments, and nongovernmental, private, and international entities.
- Interagency synchronization matrix.

W: OPERATIONAL CONTRACT SUPPORT.

- Contracted support requirements estimate and contractor management plan.

Y: COMMANDER'S COMMUNICATIONS STRATEGY.

- Messages and themes to promote or avoid with the target audience.

ORDERS STEP 4: PUBLISH ANNEXES AND SUPPLEMENTAL GUIDANCE AS FRAGORDS

This step publishes and disseminates FRAGORDs for any remaining annexes or to update the base order or plan. This process occurs continually to meet evolving situations and changes in the OE. Receiving subordinate elements should actively confirm receipt of orders, plans, and annexes.

PLANS AND ORDERS DEVELOPMENT RESULTS

Plans and orders development results in a plan or order that communicates the commander's direction and intent. The plan or order should be clearly written in the five-paragraph format. The plan, order, and air component approach may require refinement as the problem, observed system, and desired system change.

MISSION-TYPE ORDER TECHNIQUE

Utilizing the MTO technique is a direct enabler of mission command. Commanders can use the MTO technique to distribute control of specified operations and activities to subordinate commanders in contested, degraded, and operationally limited environments. Alternatively, commanders can provide very detailed and specific orders to subordinates. Orders should provide subordinate commanders with clear intent, a shared understanding of an operation's purpose, and visibility of the wider operational and strategic context. MTO styled orders enable subordinate commanders to exercise flexibility and creativity during C2 activities to meet the changes in the OE and exploitation of emergent opportunities.[25] MTO is a technique for writing orders that provides latitude for flexibility in execution while meeting the commander's intent. Not every order utilizes the MTO technique, but the process for orders production does not change based on the technique, only the level of detailed direction contained in the order.

Operating Under MTOs

Capacity is a measure or degree to which an individual or organization is able, has the potential, or has demonstrated the ability to operate according to the principles of mission command. Units or individuals who have trained to and demonstrated an embodiment of the attributes of mission command and practice its principles consistently are able to operate with minimal guidance while still achieving the commander's intent. The MTO technique for writing orders is the USAF's preferred method. Airmen and USAF units should strive to maximize their capacity to ensure the effectiveness of the MTOs.

–**AFDP 1-1, *Mission Command***

[25] For additional information on C2 activities, see AFDP 3-0.1, *Command and Control.*

Under the mission command philosophy, the MTO technique focuses on giving and creating orders centered on the purpose of the operation rather than details of how to perform assigned tasks. Commanders should utilize the MTO technique by writing orders that delegate decisions and empower subordinate initiative to make decisions based on the commander's guidance rather than constant communications. Subordinates' understanding of the commander's intent (spelled out in paragraph 3a of orders) at every level of command is essential to execution under the mission command philosophy.

Orders written using the MTO technique are as brief and simple as possible. MTO styled orders clearly convey the unit's mission and commander's intent. They summarize the situation (including observed system or anticipated starting conditions), describe the operation's end state, and may provide a CONOPS to accomplish the unit's mission. When assigning tasks to subordinate units, MTOs include all components of a mission statement: who, what, when, where, and why. However, commanders particularly emphasize the purpose (what and why) of the tasks to guide disciplined initiative.

MTOs contain the proper level of detail, they are neither so detailed that they stifle initiative nor so general that they provide insufficient direction. The proper level depends on each situation, and it is not easy to determine. Some phases, and types, of operations require tighter control over subordinate elements than others. A phase of an operation involving an air assault, for example, may require precise synchronization and guidance. On a similar note, nuclear operations are an example of a type of operation that often requires specific guidance for effective execution.[26]

[26] As a rule, the base order contains only the specific information required to guide while allowing subordinates as much freedom of action as possible. Attachments to the plan or order contain details regarding the situation and instructions necessary for synchronization.

APPENDIX A: PLANS AND ORDERS FORMATS

PARAGRAPH FORMAT

Regardless of echelon, order writers show the main five-paragraph headings on written orders. There are several different types of orders and plans discussed in this publication. **Orders and plans should be written according to the Chairman of the Joint Chief's of Staff directive guidance to the maximum extent possible.**[27]

The example modified five-paragraph order provided in Appendix E is aligned with the USAF modified order format in AFDP 1-1, *Mission Command*.

ACRONYMS AND ABBREVIATIONS

Order writers use acronyms and abbreviations to save time and space if these acronyms and abbreviations do not cause confusion. However, order writers should not sacrifice clarity for brevity. Order writers keep acronyms and abbreviations consistent throughout the order and its attachments. They avoid using acronyms and abbreviations not found in the *Air Force Glossary* or the *DoD Dictionary of Military and Associated Terms*. Before using an acronym or abbreviation, at its first use in the document, order writers spell out the acronym or abbreviation and then place the acronym or abbreviation between parentheses immediately after the term. After this first use, they use the acronym or abbreviation throughout the document.

LOCATION AND DIRECTION DESIGNATIONS

Location and direction designations are important in orders. Order writers describe locations or points on the ground by:

- Providing the map datum used throughout the order.
- Referring to military grid reference system coordinates.
- Referring to longitude and latitude if available maps do not have the military grid reference system.
- Order writers designate directions in one of two ways:
  - As a point of the compass (for example, north or northeast).
  - As a magnetic, grid, or true bearing, stating the unit of measure (for example, 85 degrees [magnetic]).

When first mentioning a place or feature on a map, order writers print the name in capital letters exactly as spelled on the map and show its complete grid coordinates (grid zone designator, 100-kilometer grid square, and four-, six-, eight-, or ten-digit grid coordinates) in parentheses after it. When first using a control measure, such as a contact point or a phase line, order writers print the name or designation of the control measure in capital

[27] See CJCSM 3130.03A, *Planning and Execution Formats and Guidance,* for additional information.

letters followed by its complete grid coordinates in parentheses. Thereafter, they repeat the coordinates only for clarity.

Order writers describe areas by naming the northernmost (1200) point first and the remaining points in clockwise order. They describe positions from left to right and from front to rear, facing the enemy. To avoid confusion, order writers identify flanks by compass directions, rather than right or left of the friendly force.

If the possibility of confusion exists when describing a route, order writers add a compass direction for clarity (for example, "The route is northwest along the road LAPRAIRIE-DELSON."). If a particular route already has a planning name, such as the main supply route LION, order writers refer to the route using only that designator.

Order writers designate trails, roads, and railroads by the names of places along them or with grid coordinates. They precede place names with a trail, road, or railroad (for example, "road GRANT-CODY"). Order writers designate the route for a movement by listing a sequence of grids from the start point to the release point. Otherwise, they list the sequence of points from left to right or front to rear, facing the enemy.

Order writers identify riverbanks as north, south, east, or west. In wet gap-crossing operations, they identify riverbanks as either near or far.

NAMING CONVENTIONS

Unit SOP normally designates naming conventions for graphics (for example, assembly areas, phase lines, and objectives). Otherwise, planners select them. For clarity, order writers avoid multiword names, such as "JUNCTION CITY." Simple names are better than complex ones. To ensure operations security, order writers avoid assigning names that could reveal unit identities, such as the commander's name or the unit's home station. They do not name sequential phase lines and objectives in alphabetical order. For memory aids, order writers use sets of names designated by the type of control measure or subordinate unit. For example, a division order might use colors for objective names and minerals for phase line names.

CLASSIFICATION MARKINGS

Classification marking for orders and plans follows DoDM 5200.01 Volume 2 *Marking of Information,* DoDI 5200.48, *Controlled Unclassified Information (CUI),* and applicable security classification guides.

EXPRESSING UNNAMED DATES AND HOURS

Order writers use specific letters to designate unnamed dates and times in plans and orders. Joint doctrine lists common letters for dates and times as shown in the below table.

Term	Designates
C-day	The unnamed day on which a deployment operation commences or is to commence (JP 5-0).
D-day	The unnamed day on which a particular operation commences or is to commence (JP 3-02).
H-hour	The specific hour on D-day at which a particular operation commences (JP 5-0).
L-hour	The specific hour on C-day at which a deployment operation commences or is to commence (JP 5-0).
P-hour	The specific hour on D-day at which a parachute assault commences with the exit of the first Soldier from an aircraft over a designated drop zone. P-hour may or may not coincide with H-hour planning horizon.

Designated letters for dates and times

EXPRESSING TIME

USAF orders express all times in a plan or order in the ZULU time zone (universal time coordinate). Local time should not be used due to the nature of USAF operations which often span multiple time zones.

The effective time for implementing a plan or order is the same as the date-time group of the order. Order writers express the date and time as a six-digit date-time group. The first two digits indicate the day of the month, the next four digits indicate the time. The letter at the end of the time indicates the time zone. Staffs add the month and year to the date-time group to avoid confusion. For example, a complete date-time group for 6 August 2025 at 1145Z appears as “061145Z August 2025”.

If the effective time of any portion of the order differs from that of the order, staffs identify those portions at the beginning of the coordinating instructions (paragraph 3). For example, order writers may use “Effective only for planning on receipt” or “Task organization effective 261300Z May 2025.”

When using inclusive dates, staffs express them by writing both dates separated by a dash (for example, 6-9 August 2025 or 6 August-6 September 2025). They express times in the 24-hour clock system using four-digit Arabic numbers, including the ZULU time zone indicator.

IDENTIFYING PAGES

Staffs identify pages following the first page of plans and orders with a short title identification heading located two spaces under the classification marking. They include the number (or letter) designation of the plan and the issuing HQ. For example, OPLAN 00-15-9AETF-A (U) or Annex B (Intelligence) to OPLAN 00-15-23rd AD (U). (In this case, AETF-A stands for Air Expeditionary Task Force Afghanistan.)

NUMBERING PAGES

Order writers number the pages of the base order and each attachment separately beginning on the first page of each attachment. They use a combination of alphanumeric designations to identify each attachment.

Order writers use Arabic numerals only to indicate page numbers. They place page numbers after the alphanumeric designation that identifies the attachment. They use Arabic numerals without any proceeding alphanumeric designation for base order page numbers. For example, the designation of the third page of Annex C is C-3. Order writers assign each attachment either a letter or Arabic numeral that corresponds to the letter or number in the attachment's short title. They assign letters to annexes, Arabic numerals to appendices, letters to tabs, and Arabic numerals to exhibits. For example, the designation of the third page of Appendix 5 to Annex C is C-5-3.

Order writers separate elements of the alphanumeric designation with hyphens. For example, the designation of the third page of Exhibit 2 to Tab B to Appendix 5 to Annex C is C-5-B-2-3.

ATTACHMENTS

Attachments (annexes, appendices, tabs, and exhibits) are information management tools that expand on the BPLAN or order. However, even when attachments are used, an effective base order contains enough information to be executed without them.

Staffs refer to attachments by letter or number and title. They use the following naming conventions:

ANNEXES. Staffs designate annexes with capital letters, for example, Annex D (Fires) to OPORD 19-06—9AETF-A.

APPENDICES. Staffs designate appendices with Arabic numbers, for example, Appendix 1 (Intelligence Estimate) to Annex B (Intelligence) to OPORD 19-06-9AETF-A.

TABS. Staffs designate tabs with capital letters, for example, Tab B (Target Synchronization Matrix) to Appendix 3 (Targeting) to Annex D (Fires) to OPORD 19-06-9AETF-A.

EXHIBITS. Staffs designate exhibits with Arabic numbers, for example, Exhibit 1 (Traffic Circulation and Control) to Tab C (Transportation) to Appendix 1 (Logistics) to Annex F (Sustainment) to OPORD 19-06-1 9AETF-A.

If an attachment has a wider distribution than the base order or is issued separately, the attachment requires a complete heading and acknowledgment instructions. When staffs distribute attachments with the base order, these elements are not required.

APPENDIX B: CENTER OF GRAVITY ANALYSIS METHODS

COGS AND LINES OF EFFORT

A practical means of linking objectives, effects, tasks, and actions is through COG analysis and designing lines of effort. **COG identification and analysis is often completed at an operational level HQs.** A COG is the "source of power that provides moral or physical strength, freedom of action, or a will to act."[28] COG analysis should reveal what is critical and relate what is critical to what is vulnerable. Critical vulnerabilities may be attacked, exploited, or protected to decisively affect the enemy and enable friendly action. Analysis of a COG's critical factors generally yields DPs, which are key terrain, key events, critical factors, or functions that, when acted upon, enable a commander to gain a marked advantage over an enemy. A COG analysis may reveal vulnerabilities for countering an enemy kill chain.

Counter Kill Chain

Advancements in adversary anti-access, area denial capabilities greatly expand the range and lethality of adversary kill chains. These enhanced lethal kill chains limit friendly freedom of action and raise the risk to mission while making achievement of the JFC's objectives more difficult. Minimizing adversary enhanced denial capabilities and achieving intended friendly effects in the OE has elevated the need to counter adversary kill chains.

To attack friendly forces, an adversary must complete a sequence of actions to implement their kill chain. They must detect friendly forces, communicate via command-and-control networks, decide on engagement options, and then employ fires. Exploiting vulnerabilities in every step of this sequence through joint all domain operations can counter these kill chains. Electromagnetic attacks can disrupt and degrade adversary detection systems. Offensive cyberspace operations can disable communication networks. Long-range fires can destroy C2 nodes. Agile combat employment can defeat adversary targeting and fires employment.

BL: Joint operations leveraging all domains can counter adversary kill chains to generate desired effects, achieve the joint force commander's objectives, and attain the desired end state.

During design and planning, it is helpful to have a tool that depicts the relationship of effects to COGs, DPs, objectives, and other events and concepts, using the logic of purpose- cause and effect. Such a tool is usually arranged in proper time sequence to

[28] See JP 5-0, *Joint Planning,* for additional information.

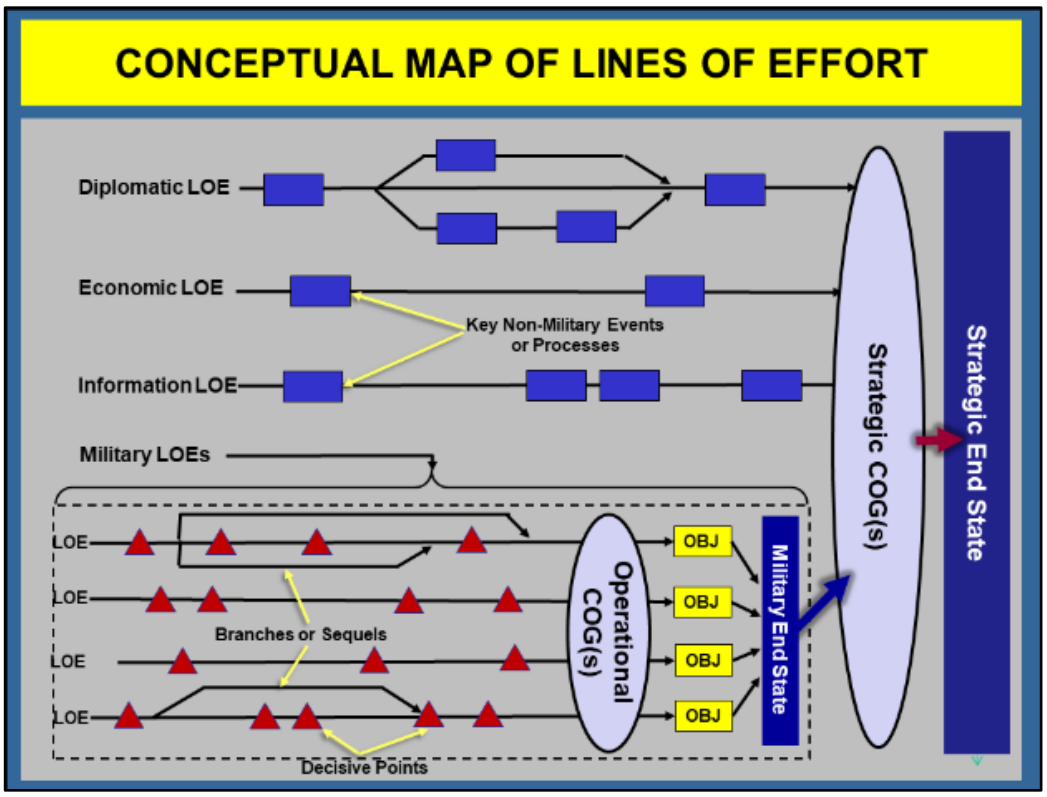
help commanders and strategists visualize how operations evolve and interact over time. LOEs provide just such a tool.

LOEs help visualize COAs, laying them out in time sequence and helping identify where certain effects should be created and where DPs are located in time relative to other events. LOEs are useful when working with interagency and multinational partners, helping commanders and strategists visualize how military means can support all instruments of national and multinational power. The aggregate of the effects of all instruments of power acting together forms a series of LOEs leading directly to the strategic end state. Each LOE can be broken down into constituent objectives, DPs, effects, and actions or tasks. LOEs contribute to accomplishing objectives in other LOEs and may define DPs.

Each LOE can be refined further by including tactical-level objectives, effects, and individual tactical tasks. Given sufficiently sophisticated planning tools, each organization's tasks could be shown as LOEs. Regardless of whether each task is so depicted, it can be useful for each tasked organization to understand how its assigned task contributes to the overall end state. This can aid in understanding the cross-domain effects of given actions. See the figure, "Conceptual Map of Lines of Effort" to visualize LOEs.[29]

Analyzing COGs provides a means of focusing friendly efforts, both offensively and defensively. There are several tools and techniques available to identify and analyze COGs. Joint doctrine (JP 5-0, Chapter IV) presents one model, but there are others, each with its assumptions, strengths, and weaknesses. All, however, attempt to relate what is critical to what is vulnerable in some helpful way-to identify and prioritize critical, targetable vulnerabilities. Each of the common methods is examined below, with a summary discussing the strengths and weaknesses of each.

[29] For additional information on COG analysis and LOEs, see JP 5-0, *Joint Planning*.



Caution: In the same sentence in which he first described a "center of gravity," Clausewitz made it clear that it was only a metaphor, a picture to help understand the "main thing."[30] The COG analysis techniques-even using COG as an acronym-highlight the extent to which military planning can uncritically employ shortcuts. The process of COG analysis may also lead to a mental image of a static adversary or enemy. The best correction for this oversimplification is to study the opponent thoroughly. Respect that the opponent is capable and willing to fight wherever possible. Accept that the opponent could be employing a strategy that we may find hard to understand. Addressing these challenges can be aided by using red teams.

All models have in common that any COG a commander chooses to affect should always be linked to one or more objectives. If the objective changes, the COG may also change. At the strategic level, a COG could be one or a set of leaders (political or military), an alliance, a military force, critical functions, or national will. A COG is often associated with an adversary's or enemy's military capabilities at the operational level, such as a powerful element of the armed forces. Still, it could also include other capabilities in the OE. COGs can emerge or change over time due to the interplay of friendly, hostile, and other forces in the OE. They may be based on the end state, mission, objectives, and the opponent's strategy.

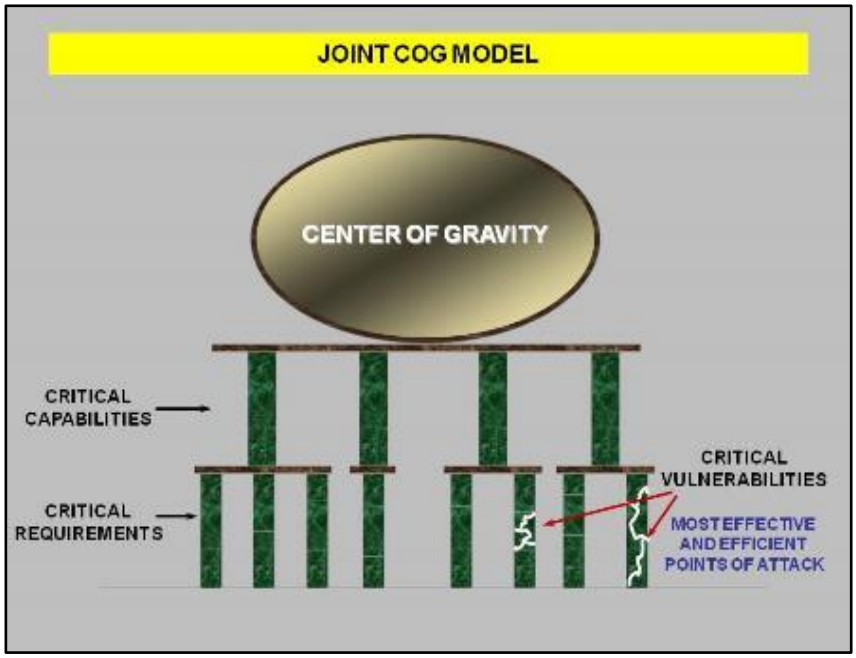
COG analysis occurs as part of JIPOE, mission analysis, or both. Commanders should consider the opponent's COGs and identify and protect their COGs. Effects-based

[30] See Clausewitz, *On War,* for additional information.

approach to operations should orient on creating effects in time and space that decisively affect a COG.

THE JOINT MODEL

The model endorsed in joint doctrine is also known as the Marine Corps model, the "CG-CC-CR-CV Model," and the "Strange Model," for its developer, Dr. Joe Strange of the Marine Corps War College. This model uses the abbreviation "CG" for the center of gravity. For all purposes, "CG" and "COG" should be considered synonymous.[31] This model is depicted in the figure "Joint COG Model," and an example of its application is given in the figure "Joint COG Model Example (World War II)."



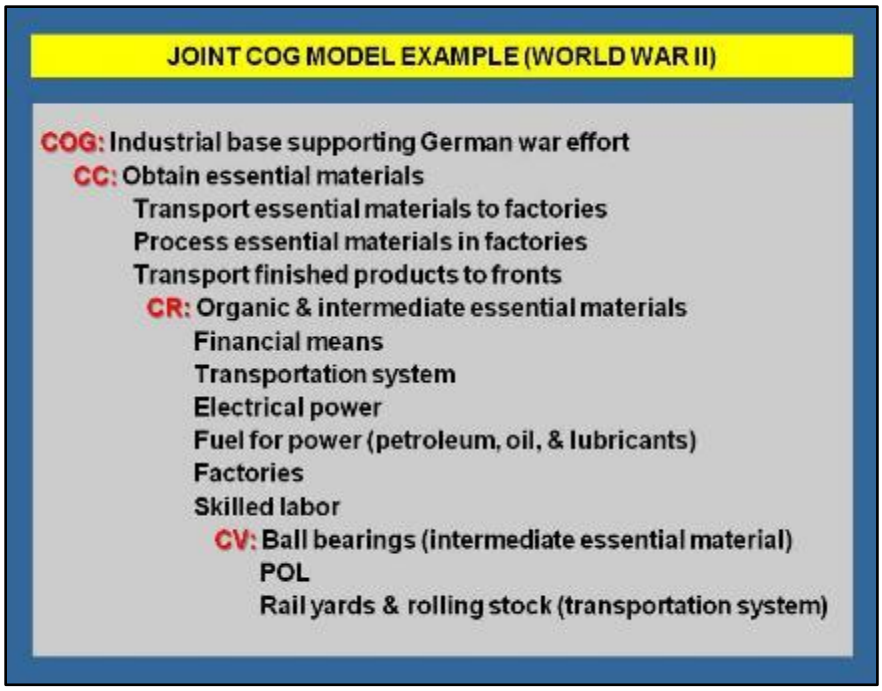
Description. This model starts with the joint definition of a COG as a source of strength, freedom of action, or the will to act. It then analyzes the COG to determine (in order) its:

- ***Critical capabilities*** *(CCs):* those means that are considered crucial enablers for a COG to function as such (and are essential to the accomplishment of the specified or implied objectives).
- ***Critical requirements*** *(CRs):* essential conditions, resources, or means for a CC to be fully operational.
- ***Critical vulnerabilities*** CRs, or components thereof, are deficient or vulnerable to attack (or other effects) that create decisive or significant effects on the COG.

COGs are nouns-tangible or intangible sources of power. CC can be thought of as verbs-things a COG *does.* CRs are nouns-those *things* a critical capability needs to function as such. CVs are those CR that are vulnerable.

Advantages. This is an intellectually thorough manner of analyzing COGs. It relates critical elements to vulnerabilities via a logical causal chain. It has been endorsed in joint doctrine and is taught in some form in most if not all, Service schools.

[31] See Dr Joseph Strange, *Centers of Gravity and Critical Vulnerabilities: Building on the Clausewitzian Foundation So That We Can All Speak the Same Language,* for additional information.



Disadvantages. This method can be difficult to "operationalize"-to work through intellectually so that it yields actionable tasks and targets. Effective application of this approach requires a comprehensive and detailed understanding of a competitor's systems. Doing it properly thus takes time. This model has significant power, but analysts may sometimes find it challenging to derive valid CC or properly determine vulnerabilities from requirements. Experience has shown that these are the most common points when the model breaks down. As a result, analysts should use care and understand the system they are analyzing. This method also tends to be more labor-and information-intensive than other models.

THE STRATEGIC RING MODEL

This model is also known as the "five-rings model" and as "Warden's Rings," after its developer, Col (Ret) John A. Warden III.[32]

Description. The basic structure of this model is not of COGs, per se, but of characteristics common to all living organisms. This is depicted in "The Strategic Ring COG Model." It posits that there are one or more COGs within each ring of the systems, it is thus a straightforward systems analysis tool as much as it is a tool for COG analysis.

The model maintains that there are certain functions necessary for every system to function:

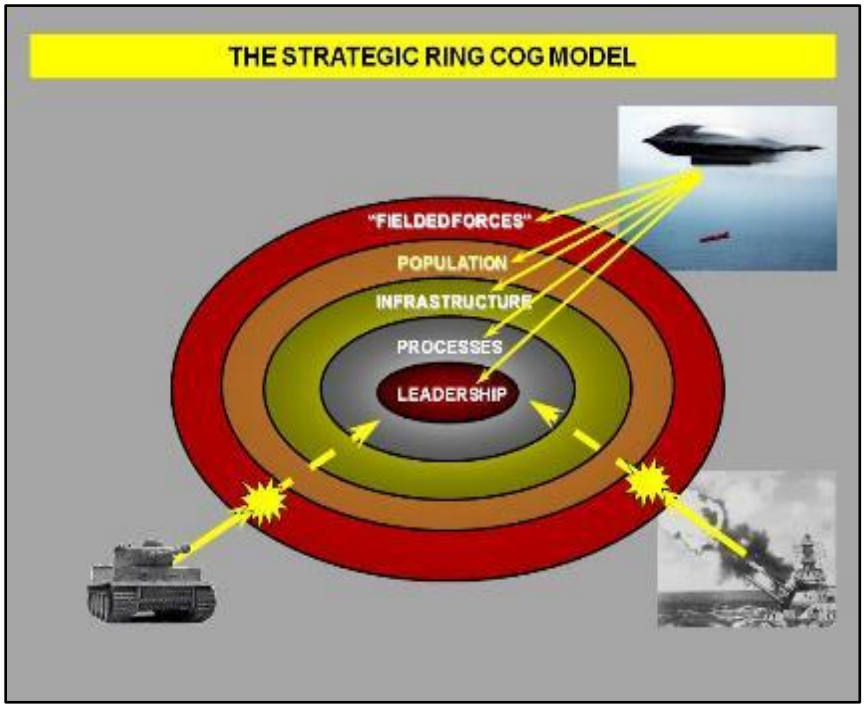
- A C2 and information processing system, such as the leadership and C2 apparatus within a military or the central nervous system of a human body.
- The processes necessary for the system's survival, such as communications, food production and distribution, financing, and manufacturing in a state, or respiration and blood circulation in a living body.
- A system of infrastructure, like the electrical power distribution or transportation

[32] See John Warden, *Warden's Five-Ring System Theory,* for additional information.

systems of a nation or the bone and vascular systems of a body.

- A population, such as the aggregate of individuals within a nation or armed force or the cells within a body.

- A fighting or defense mechanism, such as the fielded armed forces of a nation or the immune system of a body *(NOTE: Col [Ret] Warden chooses to call this ring "fielded forces")*.



Advantages. This model shows the central value of leadership as a COG-it helps demonstrate the value of shock and dislocation on all rings through effects on leadership. It also shows that airpower does not have to fight through enemy fighting mechanisms (fielded forces) to affect the critical opponent systems defended by them, as other forms of military power often do. If used according to Warden's original logic, one of the more powerful aspects of the model is that the five-rings are "fractal"-they recapitulate at lower levels. They can be used to describe system behavior at successively lower levels. One can easily analyze any component or subcomponent of a system using the same five rings model.

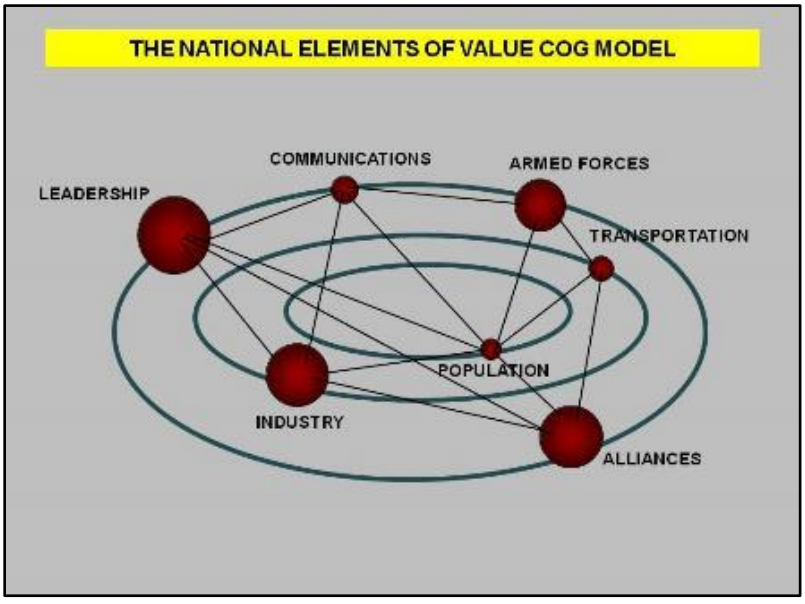
Disadvantages. This model makes no distinction between what is critical and vulnerable, in fact, it confuses the two. Applying blindly ("we've drawn our five-rings, and those are our COGs") can encourage mirror imaging of the opponent's system and lead to a mechanistic and reductionist inputs-based approach to targeting. Experience has shown that some teams using only this method list the five categories as *the* COGs and immediately begin listing "customary" target sets below them. This is the antithesis of effects-based targeting. Finally, this model considers the subject system in isolation, ignoring its connectivity to external systems and other aspects of the OE. This is the antithesis of a systems approach to COG analysis.

THE NATIONAL ELEMENTS OF VALUE (NEV) MODEL

This is also known as the NEV model and Barlow's Model, after its originator, Col (Ret) Jason Barlow.[33]

Description. This model is generically like the strategic rings model but seeks to show a greater degree of interconnectivity and connectivity to external systems. The national elements of value include:

- **Leadership**-The political and military decision-makers within the government.
- **Industry**-All of a country's manufacturing, agriculture, research, technical enterprises, and parts necessary to support them, such as power production, water supply, and raw materials.
- **Population**-A country's ubiquitous features that are important but hard to categorize and quantify, e.g., nationalism, morale, the will of the people, esprit de corps, ethnocentrism, ability to endure hardship, and religious conviction or fervor.
- **Transportation**-All modes.
- **Communications**-The physical means thereof.
- **Alliances**-The friends, trading partners, and neighbors from which a country receives support for continuing the conflict. NEVs are interdependent and self-compensating. They are a critical means of system adaptation, redistribution, and recuperation. The lines connecting NEVs (depicted in the figure, "The National Elements of Value COG Model") are constantly varying in size and texture, as they represent the strength and direction of influence, both formal and informal, and the various lines of command, control, and authority inherent among the elements. Although the NEVs are the same for every country, they vary in importance from country to country and from day to day within a given country. Therefore, it can be assumed that commanders make rational decisions concerning their NEVs.



[33] See Jason Barlow, *Strategic Paralysis: An Airpower Theory for the Present,* for additional information.

Advantages. This model provides a somewhat more sophisticated analysis of the elements of a nation-state than does the strategic ring model. It also accounts for connectivity between elements and entities external to the system.

Disadvantages. The NEV model is designed to evaluate national systems and thus may be of limited value in analyzing non-state actors. Further, like the strategic ring model, it does not provide a means of analyzing individual elements as systems. It thus may have the exact disadvantages the strategic ring model does: oversimplification, a cookie-cutter approach, and a tendency to fit preconceived targeting information to the model rather than letting the model drive targeting decisions.

THE "CARVER" METHOD

This model is used in the special forces community and elements of the Federal government to assess Centers of Gravity and may have some validity for USAF elements (at echelon) to assess localized threats as well as friendly critical assets or capabilities.

Description. "CARVER" stands for "criticality, accessibility, recoverability, vulnerability, effect, and recognizability." Its elements are used to conduct a comparative assessment of previously identified critical elements, according to the following criteria:

- **Criticality**-How essential is this element to the successful functioning of its parent component, complex, or system?
- **Accessibility**-How susceptible is this element to attack, given its defenses and friendly offensive capabilities?
- **Recoverability**-How quickly and easily can this element recover from inflicted damage or destruction?
- **Vulnerability**-How susceptible is this element to neutralization, damage, or destruction given friendly offensive capabilities?
- **Effect**-What is the confidence that successfully prosecuting this element as planned creates the overall desired effect of the mission?
- **Recognizability**-How easily recognizable is this element (i.e., differentiated from surrounding nodes) considering sensor capabilities, employment conditions (weather, etc.), and time available to analyze the situation and act?

The CARVER method is a means to help analyze which COGs are susceptible to effects, whether friendly, neutral, or enemy, given determination by other methods. At the tactical level, Commanders and planners should rate prospective COGs (or the associated critical vulnerabilities) as objectively as possible according to the six criteria above and then total the scores to indicate which element might be the most susceptible to effects. This may be applied to friendly force assessment (force protection, survivability) or hostile systems lucrative for multidomain attack. CARVER can be an excellent tool for tactical commanders to develop COOP Plans as well as in-depth force protection schema.

Advantages. This method can offer valuable insights, more on which CR is vulnerable or which CV to attack than on what constitutes a COG and its relation to the rest of the opponent's system.

Disadvantages. This is only a partial COG analysis tool and should be used in conjunction with other methods to determine the most lucrative elements for targeting.

SYNTHESIS

Time and staffing permitting, one of the best methods of analyzing COGs is to synthesize the methods described above. One notional means of doing so is to:

- ✪ Identify opponent COGs.
  - ✪✪ Begin with the strategic rings model because of its simplicity.
  - ✪✪ Apply Barlow's NEV model for greater detail and functional nuance.
- ✪ Identify critical vulnerabilities.
  - ✪✪ Employ the joint (Strange) model (CG-CC-CR-CV) to determine CVs.
- ✪ Validate and prioritize the identified CVs.
  - ✪✪ Apply the CARVER method to rank CVs as subjects for action.
- ✪ Re-accomplish the first three steps for friendly COGs. Reassess periodically through COA wargaming and during each iteration of design and planning.

APPENDIX C: ACTIONS AND EFFECTS

There are two broad categories of actions relevant at the tactical and operational levels: **kinetic** and **non-kinetic**. Examples of kinetic actions include the use of explosive munitions and directed energy weapons. Examples of non-kinetic actions include using cyberspace weapons, radio broadcasts through operations in the information environment to encourage enemy surrender, and the employment of electromagnetic warfare capabilities.

Notes on the Terms
"Lethal," "Nonlethal," "Kinetic," and "Non-kinetic"

The terms "lethal" and "nonlethal" are currently recognized, although not formally defined, in joint doctrine. The existing dictionary definitions of these words describe them adequately. Joint doctrine refers to "lethal or nonlethal effects" (JP 3-0 and JP 3-09, *Joint Fire Support*), as well as "lethal and nonlethal fires." This volume refers to the effects that both lethal and nonlethal weapons and fires have on targets exactly as joint doctrine does.

Two other terms are in widespread, if informal, use as well: "kinetic" and "non-kinetic," intended to mean weapons or actions that create effects by releasing physical, kinetic energy, and those that do not. Joint doctrine, however, does not recognize these terms. Since they show no signs of disappearing from common use (including in much tactical doctrine), this publication uses definitions that convey distinct military meaning while keeping them as close as possible to the technical meaning of the terms in physics:

Kinetic: Relating to actions, capabilities, or weapons designed to produce effects using the forces and energy of moving bodies and directed energy. Kinetic actions can have lethal or nonlethal effects. **Non-kinetic:** Relating to actions, capabilities, or weapons designed to produce effects without the direct use of the force or energy of moving objects and directed energy sources. Non-kinetic actions can have lethal or nonlethal effects. **Neither term is used to describe an effect.**

TYPES OF EFFECTS

Four broad effects categories often overlap: *direct, indirect, intended***,** and *unintended*. In addition, there are many subcategories within these categories, especially concerning indirect effects. A few of these subcategories are highlighted in the following sections because of their doctrinal implications. Understanding these types of effects is important to an effects-based approach.

- **Direct Effects** are the results of action with no intervening effect or mechanism between act and outcome. They are also known as first-order effects. They are often immediate and easy to recognize. In most cases, they can be assessed empirically and meaningfully quantified.

- **Indirect Effects.** Direct effects trigger additional outcomes-intermediate effects or causal mechanisms that produce additional outcomes or results. These are indirect effects, sometimes known as second-, third-, or higher-order effects. Indirect effects may be intended or unintended and may be categorized in many other ways (see discussion below). They are usually displaced from direct effects in time and space and often can be hard to quantify or measure empirically. As a result, they are often assessed or evaluated in qualitative terms. Generally, the less direct the effect (the further removed it is in the causal chain or in time from the initial action), the harder it is to predict its results and measure after. Historically, it has proven extremely difficult to anticipate beyond third-order effects with certainty.

- **Intended Effects.** Intended effects are the desired, planned, and anticipated outcomes of an action or set of actions. They can be direct or indirect. Intended effects should always represent a net gain in accomplishing objectives or the end state

- **Unintended Effects.** Unintended effects are outcomes of an action that are not part of the original intent. These effects may be undesired or desired, presenting opportunities for exploitation. Almost all actions produce some unintended effects. These can be direct but are usually indirect. If unplanned, they can also be desirable or undesirable from the friendly point of view, leading to outcomes that help or hinder the achievement of friendly objectives.

There is another aspect of unintended effects that is easy to overlook in planning. Even successful operations carry a cost in terms of lost opportunities. For example, destroying certain C2 or communications nodes to degrade enemy cohesion can remove valuable sources of friendly intelligence or prevent the transmission of surrender guidance by the enemy government. Likewise, destroying transportation nodes like bridges to impede enemy movement may interfere with future friendly schemes of maneuver or recovery efforts after combat has ceased. Effective planning should account for these opportunity costs.

An Airmen's perspective will often highlight alternatives to outright destruction that can create desired effects without removing future opportunities for exploitation or negatively affecting the end state. For instance, in strategic attacks against enemy electrical power, carried out to cripple conflict-sustaining resources and disrupt national leadership functions, planners can use nondestructive weapons to bring down power for a given period or can destroy only a few critical nodes to avoid wholesale destruction of infrastructure that could impede later civil stabilization efforts.

NATURE OF EFFECTS

Within the categories direct, indirect, intended, and unintended, the nature of effects may be further understood to be *physical*, *psychological*, *behavioral*, or *functional*.

- **Physical effects** are the results of actions or effects that physically alter an object or system. Most physical effects are direct, but some may be indirect. Unintended or undesirable physical effects, like collateral damage, can often be major concerns in an operation.

- **Psychological effects** are the results of actions or effects that influence the emotions, motives, and reasoning of individuals, groups, organizations, and governments.
- Certain effects may result in changes in the outward behavior of these actors, which are then known as **behavioral effects.**
- When components of a system act in concert to produce a given function (as when those manning an IADS operate that system), intended behavioral effects may lead to changes in the system's behavior. These changes are known as **functional effects.**

Operational level objectives often entail defeating enemy forces, and defeat inevitably involves a psychological component. Unless the enemy is destroyed outright, all such changes entail a change in the enemy's emotions, motivations, or reasoning. Thus, there is a psychological component to almost every set of effects and may be the most important aspect in generating desired behavioral changes. There are very few instances in history where an enemy, however thoroughly beaten in battle, was utterly denied a means of resistance. Ultimately, collapse entails a series of choices framed by emotion, motivation, and reason. In conflict or coercive operations, defeat is an event that occurs in the mind of the enemy, who chooses to end resistance or aggression and otherwise act (behave) as we desire.

While it is seldom possible to directly measure psychological effects in living systems, behavioral results (and related functional results) can be measured. Nonetheless, the psychological states leading to a particular behavior can be important to understanding causal mechanisms during planning.

TYPES OF INDIRECT EFFECTS

Cumulative and Cascading Effects. Indirect effects can be achieved in a cumulative or cascading manner. Effects that result from the combination of many other effects are *cumulative*. The effects of synergy function the same as elsewhere, the combined, cumulative effect of such actions designed and coordinated in concert should be greater than the sum of each individual action added together.

Cascading effects are indirect effects that ripple through an enemy system, usually affecting other systems. Typically, they flow from higher to lower levels and typically result of attacking critical system nodes that connect systems or sub-systems.

As a practical matter, some of the most desirable effects have both cumulative and cascading aspects. The point at which a military unit "fails" and ceases to act as a coherent fighting force is a typical example. The collapse itself may be triggered by an accumulation of losses (although the precise point at which collapse occurs is often difficult to predict). In addition, however, the unit's collapse may foster significant changes that spread through its component elements, subordinate units, and other connected or related systems. These are cascading effects.

Cascading effects may accomplish desired ends more effectively than cumulative effects. For example, removing critical nodes may ensure a complete collapse or neutralization than a cumulative, attritional approach. They may also achieve ends more efficiently, requiring fewer resources to achieve equivalent effects, thus freeing those resources for other uses. Of course, some systems do not lend themselves to this approach. It may not always be possible to identify or target key nodes but targeting efforts should strive to do so whenever possible.

Cumulative and Cascading Effects

Weakening an enemy unit's combat power by destroying a command vehicle would be part of the **cumulative effects** of attack upon the unit, as would the unit's eventual collapse through attrition of many of its vehicles and personnel. To the extent the attack impacts other units and elements across the enemy system due to the degraded C2 ability, such impacts could be considered **cascading effects**.

In the case of an integrated air defense system (IADS), air superiority may be achieved through the accumulation of effects against the IADS' components and achieving it may cascade into many other desirable effects, giving the air component greater freedom of action, as well as increasing freedom of action for the joint force in other domains.

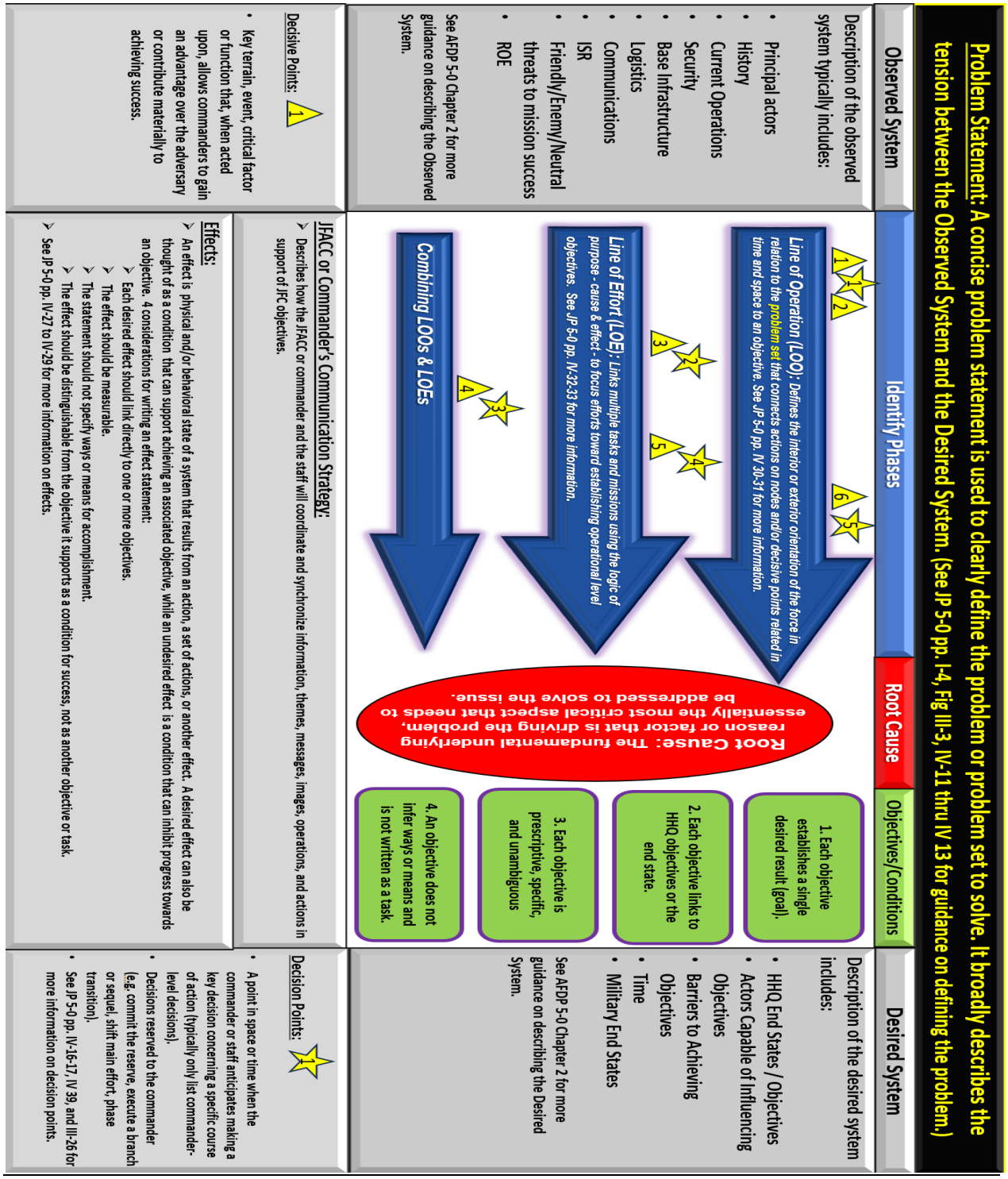
An electrical network, as an integrated complex system, demonstrates a different aspect of cascading effects. Targeting a few critical nodes within the network, then allowing internal system stress to cause successive cascading system-wide failure. Nature has inadvertently caused such effects with US power grids several times and coalition forces were able to achieve them early in Operation DESERT STORM by attacking a few key Iraqi power plants and distribution nodes. The effects of damage to critical infrastructure, such as the power grid will almost certainly cascade across other elements of the enemy system. Though effective at causing paralysis or system collapse, planners should be mindful of the potential cascading effects have for inducing unintended, second and third-order effects that may undermine achievement of objectives or the desired end state.

Effects of Sequential vs. Parallel Operations. In sequential operations, effects are imposed one after another. These operations are generally conducted when the effects generated through associated tasks and actions are required to enable follow on operations. Of the two, sequential operations are less likely to generate cumulative or cascading effects. To cause paralysis or enemy system failure, it is normally better to impose effects through parallel operations instead. Parallel operations aim to converge effects across an enemy system in a relatively short period, through various means and domains, to stress an enemy system in a manner that overwhelms its capacity to adapt. Functioning in this manner, parallel operations may take less time to achieve desired objectives.

However, parallel operations come at a cost. They require more resources (except time). Parallel operations are more complex to coordinate and should be planned more thoroughly, especially in terms of integration and synchronization of operations. Further, there may be reasons effects cannot or should not be imposed in parallel. In some cases, there may not be sufficient resources or capabilities. In other cases, a sequential approach is necessary because events need to happen in a certain order to enable other effects and ensure success. For example, in the opening minutes of Operation DESERT STORM, specific key early warning nodes were targeted to facilitate penetration of Baghdad's air defenses by other coalition aircraft. This one sequential strike helped ensure the success of the parallel efforts that followed.

APPENDIX D: AIR COMPONENT APPROACH TEMPLATE

Air component approaches are created using different templates to communicate the commander's vision. An example template is provided in this publication for reference.



APPENDIX E: EXAMPLE MODIFIED FIVE-PARAGRAPH ORDER

Subject: [Title or Serial] xxxxx
Originator: [Originator]
DTG: [date time group]

GENTEXT/SITUATION/

1. ( ) SITUATION. <At a minimum, provide sufficient background information as to WHY the tasking is needed and timeline. Additional amplifying information, as necessary.>//

GENTEXT/MISSION/

2. ( ) MISSION. <State the mission statement and address who, what, when, where, and why>//

GENTEXT/EXECUTION/

3. ( ) EXECUTION.

3.A. ( ) COMMANDER'S INTENT. <Sub-paragraphs include the purpose, end state, and risk>

3.B ( ) CONCEPT OF OPERATIONS. <Sub-paragraphs may include a general description of type or scope of the requirement and establish times.>

3.C. ( ) TASKS TO STAFF, ORGANIZATIONS, AND SUBORDINATE UNITS <Sub-paragraphs provide specific tasks to staff, organizations, and subordinate units with sufficient information of task requirements>

3.D ( ) COORDINATING INSTRUCTIONS.

3.D.1. C-DAY L-HOUR for deployments DDMMMYYYY_____Z.

3.D.2. Target D-DAY L-HOUR DDMMMYYYY_____Z.

3.D.3. <Estimated duration of the operation. Circumstance or date that automatically terminates operations.>

3.D.4. <Defense condition (DEFCON) or deployability posture.>

3.D.5. <Operational constraints, including any special ROE to include anti-terrorism and force protection issues applicable to this specific operation.>//

GENTEXT/FORCE SUSTAINMENT/

4. ( ) FORCE SUSTAINMENT. <Sub-paragraphs may include areas such as logistics, concept of maintenance, quantities and class of supplies, resupply plan, health requirements, status protections, transportation, etc.>//

GENTEXT/COMMAND, SIGNAL, AND COMMUNICATIONS/

5. ( ) COMMAND, SIGNAL, AND COMMUNICATIONS.

5.A ( ) COMMAND RELATIONSHIPS: <State supported/supporting relationships>

<Sub-paragraphs provide type of control exercised by the supported commander (OPCON, TACON, direct liaison authorized [DIRLAUTH])>

5.B ( ) COMMAND, CONTROL, COMMUNICATIONS, AND COMPUTER SYSTEMS (C4). <Sub-paragraphs may include requests for subordinate unit requirements, communications circuits to be used for reach-back, POCs, etc.>//

//SIGNED/JCD/DD Mmm YYYY//
JOHN C. DOE
Rank, USAF
Position

DECL/<source for classification>/<reason for classification>/<downgrade instructions or date>/<downgrading or declassification exemption code>//

(CLASSIFICATION)

APPENDIX F: AFPP KNEEBOARD

STEPS	INPUTS	ACTIVITIES	RESULTS/OUTPUTS
1: Planning Initiation	☐ HHQ Direction to start planning ☐ Commander's recognition of planning requirement	☐ Alert Staff ☐ Document relevant design elements ☐ Gather tools ☐ Make staff estimates ☐ Conduct initial assessment ☐ Issue Commander's guidance	☐ Planning timeline ☐ Planning team ☐ Planning Guidance ☐ Identification of necessary design elements ☐ Issue of preparatory order
2: Mission Analysis	☐ Strategic Guidance ☐ HHQ Planning directive ☐ Commander's Initial planning guidance ☐ Description of the OE ☐ Definition of the Problem ☐ Operational or Air Component Guidance ☐ Commander's Intent	☐ Review HHQ Planning Activities, Strategic Guidance and identify Chain of Command ☐ Review Commander's initial planning guidance ☐ Identify design elements ☐ Determine Facts ☐ Analyze Most Likely and Most Dangerous threat to mission success (Enemy COAs for JPP & JPPA) ☐ Develop initial assumptions ☐ Determine Constraints and Restraints ☐ Determine necessary elements of design to develop an operational approach or air component approach ☐ Analyze Friendly/Adversary COGs and Critical Factors (JPP/JPPA) ☐ Determine Rout Cause of Problem that requires further planning ☐ Identify Specified, Implied and Essential tasks ☐ Determine Decision points ☐ Develop a Proposed Mission Statement ☐ Conduct Initial Resource Review ☐ Develop Mission success Criteria ☐ Develop Risk Assessment ☐ Determine Initial CCIRs ☐ Determine the problem, problem's route cause, and subordinate problem sets ☐ Develop Commander's Intent Statement ☐ Prepare/Update Staff Estimates ☐ Present a Commander's Mission Analysis Brief	☐ Publish an air component approach (JPP/JPPA) ☐ Publish Commander's Refined Planning Guidance ☐ Identified Specified, Implied and Essential Tasks ☐ Component(s) of the problem that need to be addressed ☐ Staff estimates ☐ Mission Statement ☐ Updated Commander's intent statement ☐ List of initial CCIRs
3: COA Development	☐ HHQ Guidance ☐ Operational Approaches ☐ Air Component Approaches ☐ Mission Analysis Results	☐ Brainstorm COAs ☐ Chart/Visualize COAs ☐ Prepare COA concept of operations statement, sketch, and task organization ☐ Brief Commander on COAs under consideration – COA Selection Brief ☐ Continue Staff Estimate process to enhance COAs ☐ Continue vertical and horizontal parallel planning	☐ CONOPS ☐ COMREL ☐ Required capabilities ☐ Deployment and Sustainment Concept ☐ COA statement (narrative description) ☐ Valid COAs
4: COA Analysis and Wargaming	☐ Valid COAs ☐ Mission Analysis results ☐ Operations approaches ☐ Air component approaches ☐ COA evaluation criteria ☐ Selected wargaming method ☐ Planning guidance	☐ Prepare for COA Analysis and Wargaming ☐ Conduct Analysis/Wargaming and record results ☐ Refine/Modify each COA ☐ Report results	☐ Analysis and Wargaming results inform COA Comparison ☐ Advantages/disadvantages for each COA
5: COA Comparison	☐ Commander's evaluation criteria and definitions ☐ Weight considerations (if used) ☐ COA Analysis and Wargaming results ☐ Selected COA comparison method ☐ Associated guidance to the staff	☐ Compare COAs using selected COA comparison method	☐ Individual COA advantages and disadvantages ☐ COA discussion notes ☐ COA recommendation
6: COA Approval	☐ Individual COA Advantages and disadvantages ☐ COA Discussion Notes ☐ COA recommendation	☐ Prepare COA Decision Briefing ☐ Present COA Decision Briefing ☐ Commander selects and/or Modifies COA ☐ Refine Selected COA (as required) ☐ Prepare briefing, message, or Commander's Estimate for HHQ Approval	☐ Selected COA
7: Plans and Orders Development	☐ COA Approval Decision ☐ Valid COA ☐ COA Analysis and wargaming results ☐ Mission analysis results ☐ Air component design ☐ Air component approach ☐ Operational approach ☐ HHQ guidance	☐ Develop base paragraphs ☐ Publish base order/plan ☐ Develop appropriate annexes ☐ Publish annexes and supplemental guidance as FRAGORDS	☐ An order or plan to disseminate to subordinate forces

REFERENCES

All websites accessed 15 January 2025.

Doctrine can be accessed through links provided at: *https://www.doctrine.af.mil/*

US AIR FORCE DOCTRINE: *https://www.doctrine.af.mil/*

- AFDP 1, *The Air Force*
- AFDP 1-1, *Mission Command*
- AFDP 3-0, *Operations*
- AFDP 3-0.1, *Command and Control*

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