JOINT OPERATION PLANNING PROCESS (JOPP)
WORKBOOK

NWC 4111H

(Instructional Workbook for In-Class Work/Wargaming)

JMO Department, Naval War College
21 January 2008

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PREFACE

This document provides a framework to conduct military planning requiring the employment of forces. It is intentionally written for a joint audience, though the concepts and language are also applicable for Navy tactical units. It is based on the Navy's NWP 5-01 *Navy Planning*, CJCSM 3500.5A, *Joint Task Force HQ Master Training Guide*, U.S. Marine Corps Doctrinal Publications (MCDP) 1 *Warfighting* and MCDP 6 *Command and Control*, and MCWP 5-1 *Marine Corps Planning Process,* the U.S. Army Command and General Staff College series of publications ST 100-9 *The Tactical Decision Making Process*, ST 101-5 *Command and Staff Decision Processes*, *Battle Command: Leadership and Decision Making for War and Operations Other Than War (Draft 2.1),* JAWS *Campaign Planning Primer*, CJCSM 3500.040D *Universal Joint Task List (UJTL),* Army War College *Campaign Planning Handbook*, U.S. Army FM 3.0 *Operations,* U.S. Army FM 5.0 *Army Planning and Orders Production*, JP 3-0 *Joint Operations*, JP 5-0 *Joint Operation Planning*, JP 3-33 *Joint Task Force Headquarters*, and JP 2-01.3 *Joint Tactics, Techniques, and Procedures for Joint Intelligence Preparation of the Operational Environment*, and a variety of products from the U.S. Joint Forces Command Joint Warfighting Center. We appreciate the language and concepts found in many of these documents and when appropriate have used their exact wording. The format is designed to accommodate planning requirements regardless of the size of the force involved, the environment, and the scale of the objectives to be accomplished. The format is also intended to be applied across the full range of military operations (ROMO).

Summary of Major Changes

This edition of the NWC 4111 workbook is consistent with the processes and techniques found in the previous publication NWC 4111G and only serve as an update to those procedures as necessitated by recent joint doctrinal changes. The most significant adjustments found in this version are as follow:

- The title of the workbook has changed from Commander's Estimate of the Situation (CES) to Joint Operation Planning Process (JOPP) in order to reflect the broader goal of the publication.
- The steps for the Navy Planning Process (NPP), as reflected in the 2007 version of NWP 5-01 *Navy Planning*, are harmonized with the JOPP, as reflected in the 2006 version of JP 5-0 *Joint Operation Planning*.
- Modifications have been added to reflect the changes induced by JP 5-0 *Joint Operation Planning*. These include: Minor changes to course of action (COA) validity criteria; the replacement of Joint Intelligence Preparation of the Battlespace (JIPB) with the Joint Intelligence Preparation of the Operational Environment (JIPOE), the inclusion of *effects* concepts (see Appendix K), and the addition of a new phasing construct for operations.
- New appendices were added to assist planning activities. These include: enhanced glossary of commonly used terms and acronyms, a detailed description of command relationships, and a review of operational art and *effects* overlaps.

Electronic copies of this workbook are available through the Naval War College, Joint Military Operations Department website:

http://www.nwc.navy.mil/academics/courses/jmo/overview.aspx

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THE JOINT OPERATION PLANNING PROCESS (JOPP)

Military commanders are required to make decisions constantly. Every day, they and their staffs resolve simple, routine, and/or complex problems. To help them think through their options when faced with a force employment decision while applying their knowledge, experience and judgment, military staffs use a decision-making tool called the Joint Operation Planning Process (JOPP).

Developing plans is a continuing function of all commanders and staff officers. In reality, all officers involved in military operations are continually revising their original staff estimates and planning in the light of current developments. The planning process is an ongoing activity, which begins upon receipt of guidance and ends at the conclusion of operations. An entirely new plan and supporting estimates are normally not prepared except when a new operation is undertaken or when a drastic change in the situation renders such action necessary.

The process is supported by staff section specific estimates. Most of the staff divisions (e.g., J-1, J-2, J-3, etc., or Service counterparts) prepare their own estimates of the situation in support of the JOPP. Pertinent parts of these staff estimates are then inserted, verbatim or in modified form, into the final product. See CJCSM 3500.5A, *Joint Task Force HQ Master Training Guide* for a good review of each of the staff estimates.

JOPP underpins planning at all levels and for missions across the full range of military operations. It applies to both supported and supporting joint force commanders (JFCs) and to joint force component commands when the components participate in joint planning. This process is designed to facilitate interaction between and among the commander, staff, and subordinate headquarters throughout planning. JOPP helps commanders and their staffs organize their planning activities, share a common understanding of the mission and commander's intent, and develop effective plans and orders.

This planning process applies to contingency planning and crisis action planning (CAP) within the context of the responsibilities specified by the Chairman of the Joint Chiefs of Staff manual (CJCSM) 3122 series *Joint Operation Planning and Execution System* (JOPES). The JOPP also is also used by joint organizations that have no specific JOPES responsibilities. Furthermore, JOPP supports planning throughout the course of an operation after the Chairman of the Joint Chiefs of Staff (CJCS), at the direction of the President or Secretary of Defense (SecDef), issues the execute order (EXORD). In common application, JOPP proceeds according to planning milestones and other requirements established by commanders at various levels. However, the CJCSM 3122 series specifies joint planning and execution community (JPEC) milestones, deliverables, and interaction points for contingency and crisis action plans developed per the formal JOPES process. Figure 1 shows the primary steps of JOPP.

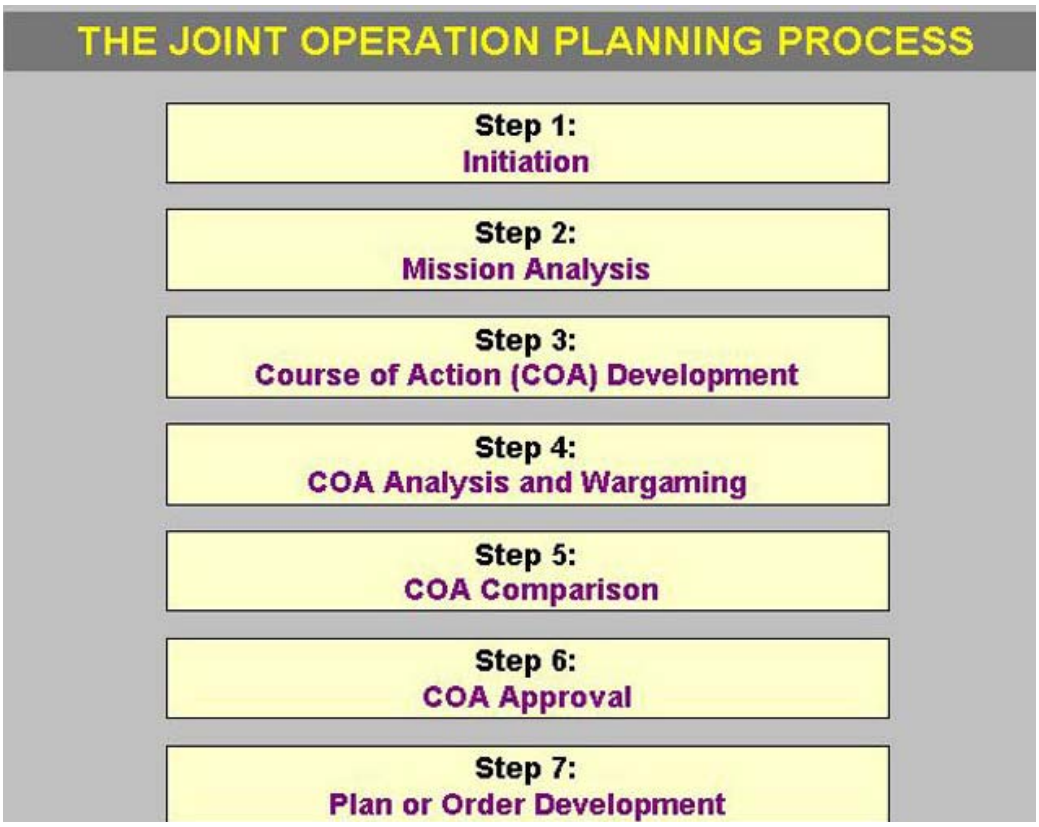


Figure 1. The Joint Operation Planning Process (JOPP) per JP 5-0

The JOPP and the NPP

Planning conducted by another Service may differ in format and detail from the JOPP, but all address similar planning issues. The Navy Planning Process (NPP), as detailed in NWP 5-01 *Navy Planning*, provides maritime planners with the procedures requisite for high tactical / low operational planning requirements. While the NPP accomplishes the same planning actions as outlined in the JOPP, it does so in six steps that in some cases combine the processes found in the Joint Publication 5-0 *Joint Operation Planning* (such as Mission Analysis and Initiation as well as COA Comparison and Approval), and in other cases add activities (such as Transition). It should also be noted that while the Joint Intelligence Preparation of the Operational Environment (JIPOE) is in fact a product of a staff estimate and not a planning step, its importance to the overall planning process is so critical that this workbook highlights its presence. This workbook uses the NPP steps (see Figure 2) for explaining the joint planning process; however, unlike the tactically focused NWP 5-01, this workbook retains a focus at the ***operational level of war***. As such, for the remainder of this workbook the term JOPP will be used rather than NPP to reflect the higher order planning requirements demanded by a joint environment and reflected in this workbook's procedures and examples.

Note that in practice these steps take place sequentially, but they may be compressed depending on available planning time, staff experience/capabilities, and the commander's involvement in the process. Additionally, subordinate—or even superior commanders—will be conducting their own parallel planning that require inputs from your command's process. In

other words, no planning is done in isolation. These steps are described and analyzed here sequentially for instructional purposes only.

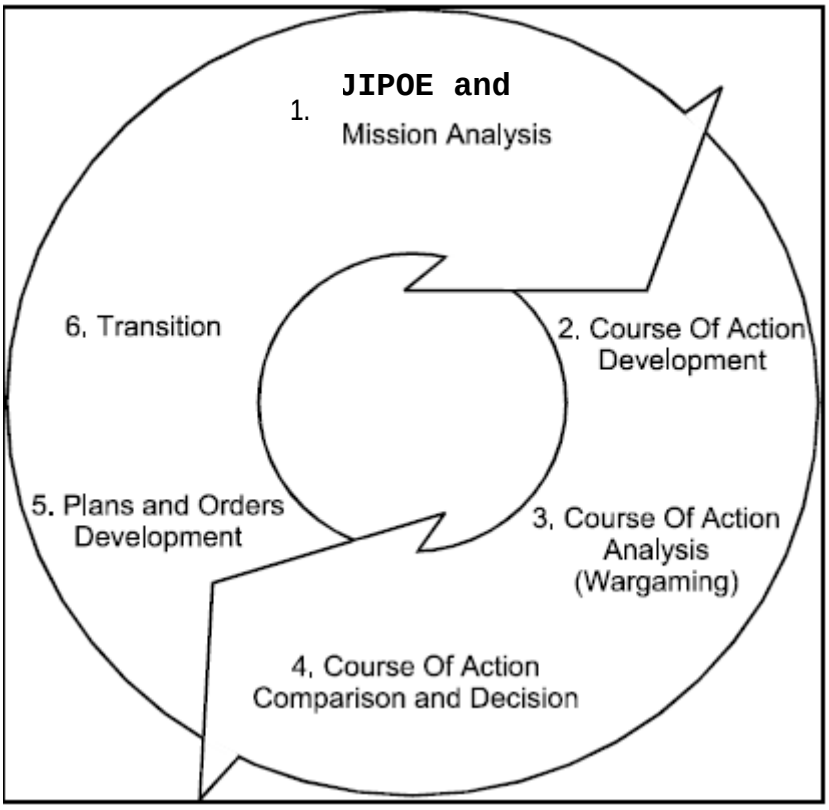


Figure 2. The JOPP using the Navy Planning Process (NPP)

JIPOE and Mission Analysis:

Step One, Part 1. While not a formal step in the JOPP, though essential to the joint planning staff's success, the JIPOE is a product of the Intelligence Staff Estimate. The most important portions of this estimate are the identification of the enemy's objectives and respective Center (s) of Gravity (COG) and the enemy's most likely and dangerous courses of action.

Step One, Part 2. Mission analysis drives the JOPP. As the first step of the process its purpose is to review and analyze orders, guidance, intelligence, and other information in order for the commander, planning team, and staff to gain an understanding of the situation and to produce a restated mission statement for the commander's approval.

Course of Action (COA) Development:

Step Two. Planners use the mission statement, commander's intent, and planning guidance to develop multiple COAs. Then they examine each prospective COA for validity by ensuring adequacy, feasibility, acceptability, distinguishability, and completeness with respect to the current and anticipated situation, the mission, and the commander's intent.

Course of Action Analysis (Wargaming):

Step Three. Course of action analysis involves a detailed assessment of each COA as it pertains to the enemy and the operational environment. Each friendly COA is wargamed against selected ECOAs. This step assists planners in identifying strengths, weaknesses, and associated risks, and in assessing shortfalls for each prospective friendly COA. Wargaming also identifies branches and potential sequels that may require additional planning. Short of execution, COA wargaming provides the most reliable basis for understanding and improving each COA. This step also allows the staff to refine its initial estimates based on additional understanding that is gained from the analysis.

Course of Action Comparison and Decision:

Step Four. All retained friendly COAs are evaluated against established criteria and against each other, ultimately leading to a staff recommendation and the commander's decision.

Plans and Orders Development:

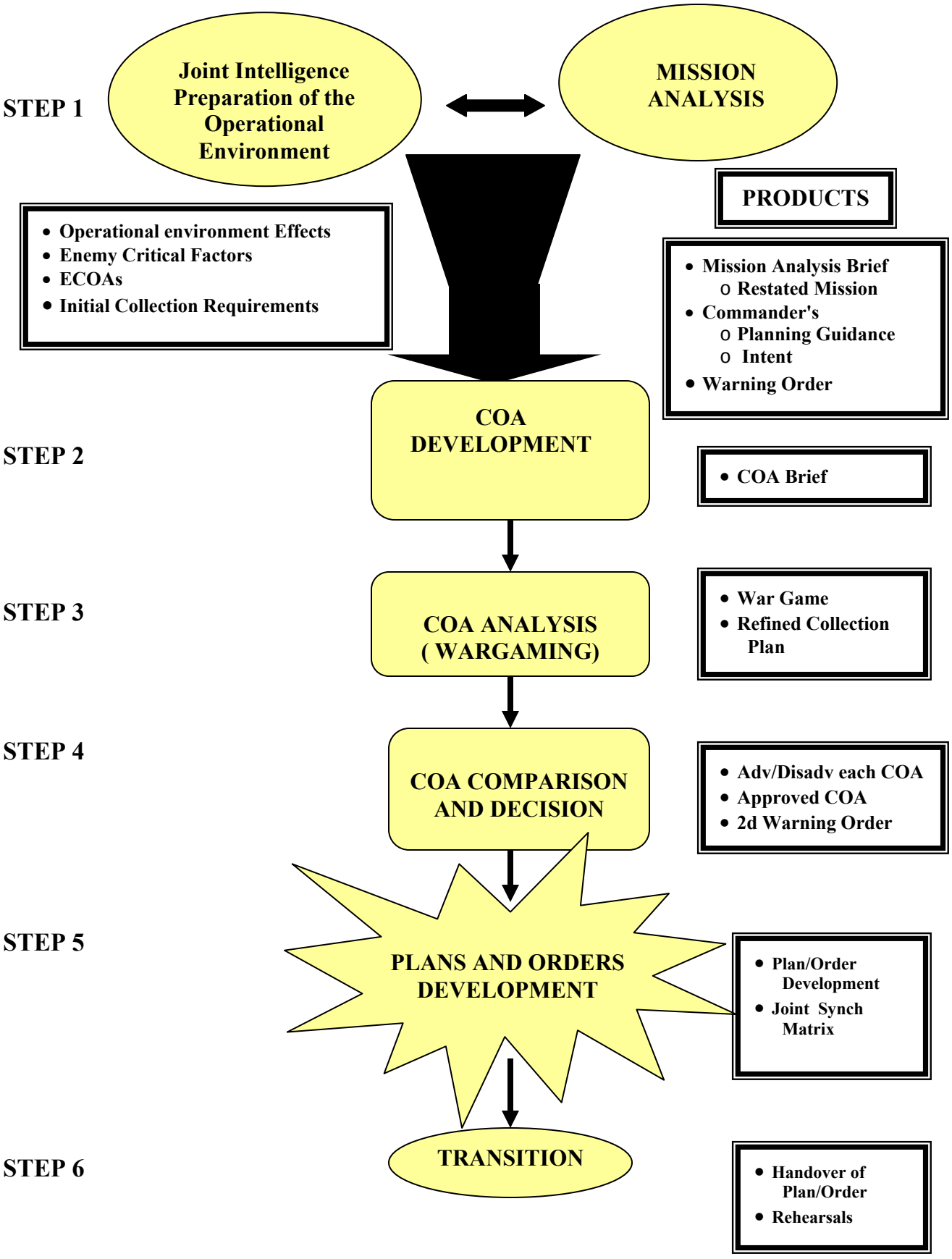
Step Five. The staff uses the commander's COA decision, mission statement, commander's intent, and guidance to develop plans and/or orders that direct subordinate actions. Plans and orders serve as the principal means by which the commander expresses his decision, intent, and guidance.

Transition:

Step Six. Transition is the orderly handover of a plan or order to those tasked with execution of the operation. It provides staffs with the situational awareness and rationale for key decisions necessary to ensure that there is a coherent transition from planning to execution. The process, however, does not end here. As depicted in Figure 2, the process is continuous. Staffs maintain running estimates that allow for plans and orders refinement. The planning staff continues to examine branches and sequels to plans and orders.

Figure 3 offers a brief summary of the major activities and associated products found in each of the JOPP steps.

Figure 3. JOPP Major Activities and Products



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STEP 1: JOINT INTELLIGENCE PREPARATION OF THE OPERATIONAL ENVIRONMENT (JIPOE) AND MISSION ANALYSIS (MA)

PART 1: JOINT INTELLIGENCE PREPARATION OF THE OPERATIONAL ENVIRONMENT

THE PURPOSE OF THE JIPOE PORTION OF THIS PLANNER'S WORKBOOK IS NOT TO MAKE THE USER A JIPOE EXPERT. THE INTENT IS TO EXPOSE THE NON-INTELLIGENCE STAFF OFFICER/PLANNER TO A CRITICAL ASPECT OF THE PLANNING PROCESS, WHICH IS ON-GOING THROUGHOUT THE PLANNING AND EXECUTION OF AN OPERATION. ALL PLANNERS NEED A BASIC FAMILIARITY OF THE JIPOE PROCESS IN ORDER TO BECOME CRITICAL CONSUMERS OF THE PRODUCTS PRODUCED BY THE J2/G2/N2/A2. THE JIPOE SERVES AN INTEGRAL ***SUPPORTING*** ROLE TO THE OVERALL PLANNING PROCESS. SOME OF THE STEPS IN THE JIPOE ARE CONDUCTED IN PARALLEL WITH THE MISSION ANALYSIS AND WILL REQUIRE INPUT FROM OTHER MEMBERS OF THE JOINT PLANNING TEAM. **SEE APPENDIX A FOR GREATER JIPOE DETAILS AND JOINT PRODUCT EXAMPLES.**

Joint Intelligence Preparation of the Operational Environment (JIPOE) is the analytical process to produce intelligence assessments, estimates, and other intelligence products. The primary purpose of JIPOE is to support the joint force commander's (JFC's) decision-making and planning by identifying, assessing, and estimating the enemy's center(s) of gravity (COG)(s), critical factors, capabilities, limitations, intentions, and courses of action (COAs) that are most likely to be encountered based on the situation. Using the JIPOE process, the joint force intelligence directorate (J-2) manages the analysis and development of products that provide a systems understanding of the increasingly complex and interconnected ***operational environment***—the composite of the conditions, circumstances, and influences that affect the employment of capabilities and bear on the decisions of the commander.

Although JIPOE support to decision-making is both dynamic and continuous, it must also be "front loaded" in the sense that the majority of analysis must be completed early enough to be factored into the commander's decision-making effort. JIPOE generally occurs in parallel to mission analysis, and supports mission analysis by enabling the commander and staff to visualize the full extent of the operational environment, to distinguish the known from the unknown, and to establish working assumptions regarding how adversary and friendly forces will interact within the operational environment. JIPOE also assists commanders in formulating their planning guidance by identifying significant adversary capabilities and by pointing out critical operational environment factors, such as weather and terrain; the locations of key geography; environmental and health hazards; attitudes of indigenous populations; and potential land, air, and sea avenues of approach. Of growing significance in JIPOE are considerations in the information environment, which are not limited to an adversary and will have ramifications across all phases of a planned military operation. As planning continues, analysts refine their assessment of the adversary's centers of gravity (COGs), potential enemy courses of action (ECOAs), and other factors.

The operational environment encompasses the air, land, sea, space, the information environment, and associated adversary, friendly, and neutral systems (political, military, economic, social, informational, infrastructure, legal, and others), which are relevant to a specific joint operation. Understanding this environment has always included a perspective broader than just the adversary's military forces and other combat capabilities within the traditional operational environment. However, current and future strategic and operational requirements and types of operations can benefit by a more comprehensive view of all systems in this environment relevant to the mission and operation at hand.

In order for the joint force staff to identify potential COAs, the Joint Force Commander (JFC) must formulate planning guidance based on an analysis of the friendly mission. This analysis helps to identify specified, implied, and essential tasks; possible branches and sequels; and any limitations on the application of military force. JIPOE supports Mission Analysis by enabling the commander and staff to visualize the full extent of the operational environment, to distinguish the known from the unknown, and to establish working assumptions regarding how adversary and friendly forces will interact within the limitations of the operational environment. JIPOE also assists commanders in formulating their planning guidance by identifying significant adversary capabilities and by pointing out critical operational environment factors, such as the locations of key geography, attitudes of indigenous populations, and potential land, air, sea, and informational avenues of approach. MA and the commander's planning guidance form the basis for the subsequent development of friendly COAs by the staff.

JIPOE is a continuous process, which enables JFCs and their staffs to visualize the full spectrum of adversary capabilities and limitations as well as potential Enemy Courses of Action (ECOAs) across all dimensions of the operational environment. While JIPOE is most often seen as part of the joint planning process, it is actually conducted both prior to and during operations. Just as the commander must continually make decisions about the course of a campaign or operation, the intelligence staff must constantly work to seek out, analyze, and disseminate new information to support those decisions. Although the specifics of the process vary depending on the situation and force involved, there is general agreement on the four major steps of JIPOE.

I. DEFINE THE OPERATIONAL ENVIRONMENT.

This first step is an initial survey of the geographic and non-geographic dimensions of the operational environment. It is used to bound the problem and to identify areas for further analysis. There are generally three tasks that must be accomplished.

1. Identify the Area of Operations and the Area of Interest. Much of the information may be provided in the superior's order or OPLAN, but usually this step requires coordination with the J-5, J-3, or other elements of the staff. If a Joint Operations Area (JOA) or other operational areas have been identified, they will help guide the intelligence requirements and collection plan. The operations area, or **Area of Operations (AO)**, is generally the area of direct concern to the commander and intelligence will be focused on this area. The **Area of Interest (AOI)** is usually a larger area, including areas that may influence the operation, but might not be under direct operational control of the commander. Intelligence activities will also be focused on this area, but not necessarily to the same degree as on the AO. The AO and AOI may differ for each dimension of warfare—land, maritime, air, space, and cyberspace – and may need to be

adjusted later in the planning process (e.g., if additional threats are identified outside the defined areas which may impact upon the commander's AO).

(Joint) Area of Operations:
(Recommend this be displayed on a map/chart for clarity and reference)

Area of Interest:

2. Determine the Significant Characteristics of the Operational Environment. This sub-step is an *initial review* of the factors of **space, time,** and **forces** and their **interaction** with one another. Examining these factors in general terms early in the process will help initiate intelligence collection and other activities that will support the later steps of the planning process. This review will require information on friendly forces and how the factors of space and time affect them. For this reason, the J2 staff must work closely with the J5, J3, and other staff members throughout the process.

3. Evaluate Existing Data Bases and Identify Intelligence Gaps and Priorities. In this sub-step, intelligence personnel review the information found in various automated databases, Intelink sites (the classified version of the internet), and other intelligence sources, both classified and unclassified. The staff begins to coordinate with local, theater, and national intelligence organizations that may provide support to the operation, and initiates new intelligence collection and production requests as necessary. Intelligence requests and requirements may take the form of:

- **Priority Intelligence Requirements (PIRs).** These are the *commander's* intelligence priorities for the operation that will drive all intelligence activities used in support of Commander's Critical Information Requirements (CCIRs) to be discussed later. The J2 staff will normally develop and propose PIRs for the commander's approval.

- **Requests for Information (RFIs).** This is a *general term* that may be used by operations or other personnel who need timely information from the intelligence staff or an intelligence organization concerning an aspect of the operation. If the information is readily available, such as through the Joint Intelligence Center (JIC), the RFI will be answered directly. If the answer will require additional analytical work, a *production request* may be necessary.

- **Production Requests (PRs).** These are used to request the development of new studies, reports, and other intelligence products. For example, if the initial review of available intelligence revealed that little information existed on the enemy's information operations capability, a PR might be sent by the J2 staff to the theater JIC, requesting that this information be provided by a certain date. If the information to answer such a request does not currently exist in the intelligence community, a *collection requirement* may be placed.

- **Collection Requirements (CRs).** These may take many forms, depending on the information needed and the collection assets available to get it. For example, some information may be available through the tasking of a theater intelligence collector such as U-2 aircraft. The J2 staff collection managers process these requirements and it is their job to determine where and how to best get the necessary intelligence.

This step is only a preliminary review of the intelligence available; the J2 staff will continue to levy intelligence requirements throughout the JIPOE process and, in fact, throughout the entire course of the operation.

II. DESCRIBE OPERATIONAL ENVIRONMENT EFFECTS.

The purpose of this step is to determine how the operational environment affects both friendly and enemy operations. It begins with an identification and analysis of all militarily significant environmental characteristics of each operational environment dimension. These factors are then analyzed to determine their effects on the capabilities and broad COAs of both enemy and friendly forces. ***Some parts of this step may not be a J2 responsibility***. For example, in some commands weather and topography may not be specifically J2 functions. The J2 staff will, however, take the lead in coordinating these efforts.

1. Analyze the Factor of Space of the Operational Environment. This step involves an in-depth analysis of the factor space. Generally, only those characteristics of the AO should be considered which affect the preparation, planning, and employment of the enemy or friendly forces and assets. The scope and extent of this analysis at each level of war differs considerably. For example, the tactical commander is rarely concerned with the economic, political, and technological aspects of the situation, whereas the theater of operations and theater of war combatant commanders are concerned with these aspects. Moreover, weather is normally of greater concern for the tactical commander, while the climate receives greater attention at the operational and theater-strategic level. This does not mean, however, that the weather is not taken into account in determining the time and place of attack by the operational commanders, especially in planning and executing an amphibious landing. The focus in this step is to describe briefly the most important features of the situation and their effect on enemy capabilities and in the development of friendly COAs for all of the operational environment dimensions (land,

maritime, air, space, electromagnetic, cyberspace, and human factors). While all of the aspects of a given element are fully considered, only those aspects that have an impact on the tactical, operational, or strategic mission are highlighted.

The *land dimension* is determined through terrain analysis. Terrain analysis consists of an evaluation of the military aspects of the battlefield's terrain to determine its effects on military operations, both friendly and enemy. The most important military aspects of terrain are: Observation and fields of fire; Cover and concealment; Obstacles; Key terrain; and Avenues of approach (**OCOKA**).

The *maritime dimension* pertains to key military aspects of the maritime environment. These include maneuver space and chokepoints; harbors and anchorages; ports, airfields, and naval bases; shipping routes; and the hydrographic and topographic characteristics of the ocean floor and the littoral land mass.

The *air dimension* involves an analysis of all factors of the operational environment that may affect friendly and enemy air operations. Enemy infrastructure that supports either offensive air operations or defense against air attacks should be analyzed. This step will require analysts to consider not only terrain and weather, but aspects such as airspace issues as well.

The *space, electromagnetic, cyberspace dimensions, and human factors* analysis will vary greatly depending on the nature of the threat, the level of command involved, and the time available for planning. Specialized support may be required, such as from elements from the U.S. Strategic Command or the electronic warfare and information operations communities. The J2 staff will need to coordinate with other staff elements that are involved with these areas.

The items listed below are applicable to the entire range of military operations, from SSTR to war. Therefore, describe and analyze only those aspects of the factors of space, time, and forces that are applicable to the mission of the friendly forces.

a. Military geography: The physical environment includes many parameters that affect the combat capabilities and execution of actions of friendly forces and assets (see Figure 1-1). In describing these features the commander and staff should be aware that there are generally accepted descriptions of related conditions as defined by the Universal Joint Task List (UJTL).

(1) *Area:* total area (in sq miles/kilometers) in which the planned operation is to take place; length and width of the area (in miles/kilometers); geographical boundaries (land, maritime, river, lakes).

(2) *Position*: Land or maritime position; insular, peninsular position; exterior or central position, and so forth.

(3) *Distances*: Distances from home bases to the area of combat employment; distances between base of operations to the concentration or assembly area; distances between various physical objectives, and so forth.

(4) *Land Use:* The main characteristics of the land use (arable land; permanent crops, irrigated land, etc.).

(5) *Environment:* Provide an overview of the environmental issues that potentially can affect the employment of military forces on both sides (pollution—air, water, land; natural hazards; destructive earthquakes, volcanoes, etc.).

Land

Terrain Slope

Steep (>10%); Moderate (3 to 10%); Little (<3%)

Vegetation

Jungle (rain forest, canopied); Dense (forested); Light (meadow, plain); Sparse (alpine, semi-desert); Negligible (arctic, desert)

Sea

Ocean Depth

Shallow (<100 fathoms); Limited (100 to 500 fathoms); Deep (500 to 2500 fathoms); Very Deep (>2500 fathoms)

Harbor Depth

Deep (>60 ft); Moderate (30 to 60 ft); Shallow (<30 ft)

Air

Air Temp

Hot (>85^{o}F); Temperate (40^{o} to 85^{o}F); Cold (10^{o} to 39^{o}F); Very Cold (<10^{o}F)

Visibility

WOXOF (<1/4 NM); Low (1/4 to 1 NM); Moderate (1 to 3 NM); Good (3 to 10 NM); High (10 to 20 NM); Unlimited (>20 NM)

Figure 1-1. Examples of Conditions of the Physical Environment

(6) *Topography:* Provide the main features of relief (flat, mountainous, swampy, desert, etc.) and the affect the topography has on the movement and employment of military forces on both sides.

(7) *Vegetation:* The main characteristics of vegetation in the area (barren, woodland, meadows and pastures, hedgerow, rice paddies, etc.) and its affect on the movement and employment of military forces on both sides.

(8) *Hydrography/Oceanography*: Characteristics of sea/ocean areas (size of the area; coastal indentation, coasts and offshore islands/islets; archipelagoes, deltas, straits, narrows, bottom's topography; water depths, salinity, bioluminescence, currents, tides, etc.), and rivers/estuaries, streams, lakes, and artificial inland waterways (canals, lakes, etc.).

(9) *Climate/Weather*: The main features of the climate (temperate, cold, arctic, tropic, subtropics); change of seasons; thaw; duration of the day (sunrise, sunset, twilight, etc. and their general affects on the preparation execution of the forthcoming military action); cloud cover, low ceiling/visibility, fog, precipitation (rainfall, snow, etc.); winds, waves (high seas—sea state 5 and higher), surf height; temperatures (sea, air, mean and extreme temperatures, etc.), humidity and its affect on the use of weapons/equipment and fatigue of personnel; thermal crossover and transmissivity; precipitation (rainfall, snow, etc.) and its affect on off-road trafficability; sea ice, icebergs, currents, tides, and so forth.

b. Demography: Provide the analysis of the main aspects of the demographic situation; total population; age structure; racial composition; regional distribution; urban vs. rural population; average density (per sq mile/km); net migration rate; growth rate; life expectancy at birth; total fertility rate; degree of urbanization; birth rate; mortality rate; infant mortality rate; health and medical, and so forth.

(1) *Ethnicity:* Ethnic composition; national groups and national minorities; ethnic problems or conflicts; and so forth.

(2) *Religion:* Main religions; relations with the state; religious holidays; religious differences or problems; and so forth.

(3) *Languages:* Dominant languages; dialects; languages of the ethnic minorities; alphabet used; and so forth.

(4) *Literacy:* Provide general overview; illiteracy of adults; illiteracy among urban and rural population; and so forth.

c. Politics: The main characteristics of the political system (system of government; executive, judiciary, legislature, etc.); form of government; administrative divisions; legal system; constitutional system and constitutional issues; ruling regime; political parties and leaders; other political or pressure groups; trade unions; human rights; political stability; internal threats (political extremism, terrorism, insurgency, serious crime/drugs, etc.) external threats (border disputes, resource disputes, etc.).

d. Diplomacy: The main characteristics of the country's diplomatic position; relations with foreign countries; alliances/coalitions; bilateral agreements; diplomatic representation; international law issues/problems (maritime claims, neutrality declarations, etc.).

e. Natural Resources: Minerals (iron, zinc, lead, copper, silver, graphite, uranium, etc.); energy resources (thermal—coal, lignite, oil, natural gas, hydroelectric, wind, etc.); water supply, food supply, and so forth.

f. Economy: Key characteristics of economic system; economic policy; economic performance; national product (GNP); real growth of GDP; total budget; budget deficit; inflation rate; currency; debts (external, internal, etc.); external debt servicing payments; foreign investment; foreign aid; aid donors; finance (banking, insurance, etc.); domestic trade; land and maritime trade (coastal, regional, ocean-going, etc.); foreign trade; trade deficit; trading partners; heavy industry (mining, metallurgy, machine building, etc.); defense industry; military R&D; covert programs;

production of weapons of mass destruction (nuclear, biological, chemical); aerospace industries; shipbuilding; ship repair facilities; light industry (consumer goods; chemicals and related products; pharmaceutical industry; food, beverages, tobacco; textile and clothing; wood and paper products; apparel, leather, footwear; etc.) petroleum products; electronics; electricity (by source-thermal, hydroelectric, nuclear, wind, solar; capacity, production, consumption); fisheries; tourism (domestic, foreign, etc.); work force by sectors (agriculture, industry, forestry, banking, education, culture, administration and justice; welfare and education, etc.); migrant workers; unemployment; income per capita; living standards; nutrition level, and so forth.

g. Agriculture: The main characteristics of agricultural production; cereal production; fodder crops; beef and dairy production; livestock production (sheep, cattle, etc.); produce; fruits, and so forth.

h. Transportation: General characteristics of the transportation system (domestic, links with other countries in the region or out of the area); land transportation—roads (paved, unpaved—gravel, earth, etc.); railroads (standard gauge, narrow gauge; electrified; industrial, etc.), inland waterways (rivers, lakes, canals, etc.); maritime transport—merchant marine (merchant vessels by type—passenger ships, ferries; crude oil tankers, liquefied natural gas (LNG) tankers; container ships freighter; bulk-carriers; size, age, speed, etc.); shipping companies; ports; port terminals—oil, container, freight, etc., air transport—civil aviation; air carriers—domestic and international service; business aviation; agricultural aviation; airports (paved or unpaved runways; runway weight bearing capacity; maximum on ground (MOG) capacity; runways by length—>3,600 m 2,400-3,659 m; 1,220-2,439 m; <1,220 m), and so forth.

i. Telecommunications: Wire services, commercial satellite, radio (FM/AM, short-wave), cable, land line, fiber optical lines and other communications facilities in the area of operations that might enhance Command and Control (C2) of military forces.

j. Culture: Describe and analyze the main cultural traits; cultural biases and prejudices; sensitivities; prevalent view of other national groups, races, or nations; cultural differences among various ethnic groups; and so forth.

k. Ideology: Describe and analyze the key characteristics of the political ideology; strengths and weaknesses; vulnerabilities; and so forth.

l. Nationalism: Describe briefly and analyze the key aspects of the nationalism (country or political parties/groups, etc.); nationalistic feelings; strengths and weaknesses/vulnerabilities; and so forth.

m. Sociology: Social conditions run a wide range from the psychological ability of a population to withstand the rigors of war, to the health and sanitation conditions in the area of operations. Language, social institutions and attitudes, and similar factors that may affect selection of a course of action should be considered.

n. Science and Technology: Although little immediate military impact may result from the state of science and technology in a target area, the long-range effects of such factors as the technical skill level of the population and scientific and technical resources in manpower and facilities should be considered in cases where they may affect the choice of a COA.

Summarize the Key Elements of the Factor of Space:

2. Analyze the Factor of Time of the Operational Environment. This part of the analysis should analyze the factor of time in generic terms and how it affects the mission accomplishment on both sides.

a. Preparation Time: Estimate the time required to prepare for war or for the forthcoming military action based on the doctrinal tenets or empirical data.

b. Duration of the Enemy Action: Estimate the time of the expected or pending enemy tactical action, major operation, or campaign.

c. Warning Time: Estimate the warning time for the forthcoming military action for both friendly and enemy forces (based on the existing reconnaissance, intelligence and early warning capabilities).

d. Decision Cycle: Estimate the time required for both sides to make a decision—the time from receipt of the mission to the selection of the optimal COA.

e. Planning Time: Estimate the time required for both sides to issue a directive—the time from the selection of a COA to the issuance of a directive.

f. Time for Mobilization: Estimate the time required for both sides to mobilize ready reserves or complete partial or total mobilization.

g. Reaction Time: Estimate the time for both sides (based on doctrinal tenets or empirical data) to *effectively* react to the enemy's move or action.

h. Time Required for Deployment: Estimate the time both sides require to prepare and move forces from their home stations to the ports or airfields of embarkation.

i. Deployment Transit Time: Estimate the time required to move forces by land, sea, and air from major base or staging/deployment areas into the theater or area of operations; compute distances and transit times for each friendly unit/force, and enemy unit/force.

j. Time for Concentration: Estimate the time both sides require to move and concentrate forces within the operational environment.

k. Time to Prepare and Complete Maneuver: Estimate the time necessary for both sides to prepare, execute, and complete their maneuvering (tactical or operational).

l. Time to Accomplish the Mission: Estimate the time both sides require to accomplish the entire combat mission.

m. Rate of Advance (or Delay): Estimate potential rates of advance (in an offensive) or rate of delaying action (in a defensive) for both sides (applicable only in land warfare).

n. Time for Bringing up Reinforcements: Estimate the time required by both sides to move and employ effectively reinforcements.

o. Time to Commit Reserves: Estimate the time required by both sides to commit effectively tactical or operational reserves.

p. Time to Regenerate Combat Power: Estimate the time both sides need to regenerate combat power (R&R for manpower; replenishment of POL, AMMO, food, water, etc.)

q. Time for Redeployment: Estimate the time both sides require to prepare and complete redeployment of forces to a new area/mission.

r. Time to Reconstitute Forces: Estimate the time required by both sides to reconstitute forces after the end of the hostilities; it encompasses regeneration of combat power and reorganization.

Summarize the Key Elements of the Factor of Time:

3. Assess the Time - Space Relationship. Any key time-space relationships should be identified and assessed with respect to their affect on both enemy and friendly COAs.

4. Determine the Operational Environment Effects on Enemy and Friendly Capabilities and Broad Courses of Action. The analysis that has been conducted in STEP 1 is

combined into a single integrated product that focuses on the total environment's effects on all COAs available to both friendly and enemy forces. The product may take the form of a briefing, set of overlays, intelligence estimate, or any other format the commander deems appropriate. **Regardless of the format, this product is designed to support the development and evaluation of friendly COAs** by providing the J5/J3 and commander with an evaluation and an analysis of the periods of optimal conditions for specific types of military operations.

Example of Operational Environment Effects on Enemy and Friendly COAs

Item: REDLAND is bounded on three sides by neutral nations, and water on the fourth side.	Effect on ECOAs Enemy can minimize Force deployments on those neutral borders.	Effect on friendly COAs Friendly Lines of Operation will be predictable.

Summarize Key Influences of Time/Space on ECOAs and Potential Friendly COAs:

SITUATION	EFFECT ON ENEMY COAs	EFFECT ON FRIENDLY COAs
Item:		
Item:		
Item:		
Item:		

Table 1-1. Influences of Time and Space on ECOAs and Potential Friendly COAs

Charts or overlays that show the important aspects of terrain for all significant dimensions of military operations are the primary products that are developed during this sub-step. **The most important graphic is a Modified Combined Obstacle Overlay (MCOO)** that depicts critical information such as restricted areas, avenues of approach, likely engagement areas, and key terrain. Examples of a Land MCOO, Maritime MCOO, and Air MCOO are provided in Appendix A.

III. EVALUATE THE ENEMY (the Factor of Force).

The third step in the JIPOE process is to identify and evaluate the enemy's forces and its capabilities, limitations, doctrine, and tactics, techniques and procedures (TTP) likely to be employed. In this step, analysts develop models to portray how the enemy normally operates and identifies capabilities in terms of broad ECOAs the enemy might take. Analysts must take care not to evaluate enemy doctrine and concepts by "mirror imaging" U.S. doctrine.

1. Identify Enemy Force Capabilities. At this point the intelligence staff will normally use basic intelligence data that has been produced by theater joint intelligence centers and other analytical organizations to analyze the enemy factor of force. The broader term "means" can be used when not only military forces, but also other sources of power (political, economic, etc.) of a nation or a group of states are brought to bear (see Appendix K for a brief discussion on the PMESII). This part of the estimate may provide a detailed analysis of the armed forces as a whole or as individual services or focus on the combat forces and combat support forces on both sides depending on the scale of the forthcoming military action and the command echelon.

a. Defense System: Provide an overview and analysis of the defense system; components of defense system (armed forces, police, para-military forces/groups; civil defense, etc.); national military organization; civilian control; civil-military relations; defense expenditures; security assistance; arms transfers; arms imports; foreign military aid; military relations with foreign countries; foreign military advisors; and so forth.

b. Armed Forces: Total strength; trained reserve; mobilized manpower; officer corps, NCOs, soldiers/seamen; Services (Army, Navy, Air Force and/or Air Defense, Marine Corps or Naval Infantry, Coast Guard), etc. The following elements should be analyzed: overall numerical strength of forces on both sides; active forces vs. reserves; combat vs. noncombat forces; forces in combat vs. forces assigned for protection of the rear areas; types of forces and force mix; mobility (tactical or strategic); task organization; reconstitution ability; logistic support and supportability; combat readiness; transportation assets; and so forth.

c. Relative Combat Power of Opposing Forces: The *relative combat power* is derived by evaluating the strengths and weaknesses of friendly and enemy forces, their location and disposition, logistics, time and space factors, and combat efficiency (see Appendix B). Normally, the staff will identify relevant factors, tabulate the facts, and then draw conclusions. Comparisons are meaningful only if they reflect the forces that will directly oppose each other. Any strength or weakness factor must reflect directly or indirectly the ability or inability of a force to achieve its assigned objective.

(1) Composition of Forces: This includes Order of Battle (OOB) of major enemy forces or formations; type and forces' mix; major weapons systems and equipment and their operational characteristics.

(2) Reserves: Describe and analyze reserves (tactical, operational, or strategic) for the forthcoming action on both sides.

(3) Reinforcements: Estimate friendly and enemy reinforcement capabilities that can affect the forthcoming action in the area under consideration. This study should include

ground, naval, air, and space elements; Weapons of Mass Destruction (WMD); and an estimate of the relative capacity to move these forces into the area of operations or theater of operations.

(4) Location and Disposition: This includes geographic location of enemy units; fire support elements; C2 facilities; air, naval, and missile forces; and other elements of combat power in, or deployable, to the area of operations or the given theater of operations.

(5) Relative Strengths: List the number and size of enemy units committed and those available for reinforcement in the area. This should *not* be just a tabulation of numbers of aircraft, ships, missiles, or other weapons, *but* rather *an analysis of what strength the enemy commander can bring to bear in the area* in terms of ground (air, naval) units committed and reinforcing, aircraft sortie rates, missile delivery rates, unconventional, psychological, and other strengths the commander thinks may affect the ratio of forces in the employment area.

d. Logistics: Summarize such considerations as transportation, supply, maintenance, hospitalization and evacuation, labor, construction, type of lines of communications (LOCs), to include land, air, sea; and their position (exterior or interior); protection and degree of vulnerability to diverse types of threat, and other elements of logistical support and sustainment.

e. Combat Efficiency: Estimate friendly and enemy state of training, readiness, battle experience, physical condition, morale, leadership, motivation, doctrine, discipline, and whatever significant strengths or weaknesses may appear from the preceding paragraphs.

Summarize the Key Elements of the Factor of Forces (Enemy):

2. DRAW-D. At this point, the analyst begins to consider ***general*** enemy COAs and how the enemy might be expected to act under each of these general COAs. General COAs can be described using the acronym "DRAW-D," which stands for **D**efend, **R**einforce, **A**ttack, **W**ithdraw, or **D**elay.

a. Doctrinal templates. Individual service templates are usually constructed that portray each of the enemy's service or functional area employment patterns. For example, in addition to a ground template that illustrates the enemy's typical land force organization for an offensive, separate templates are constructed for naval, air, space, and cyberspace assets, as appropriate. These templates may be combined into joint doctrinal templates for each of the broad COAs (DRAW-D) the enemy may employ. These templates (see Figure 1-2) are constructed by analyzing all available intelligence on the enemy's doctrine and through an examination of the enemy's past operations and exercises.

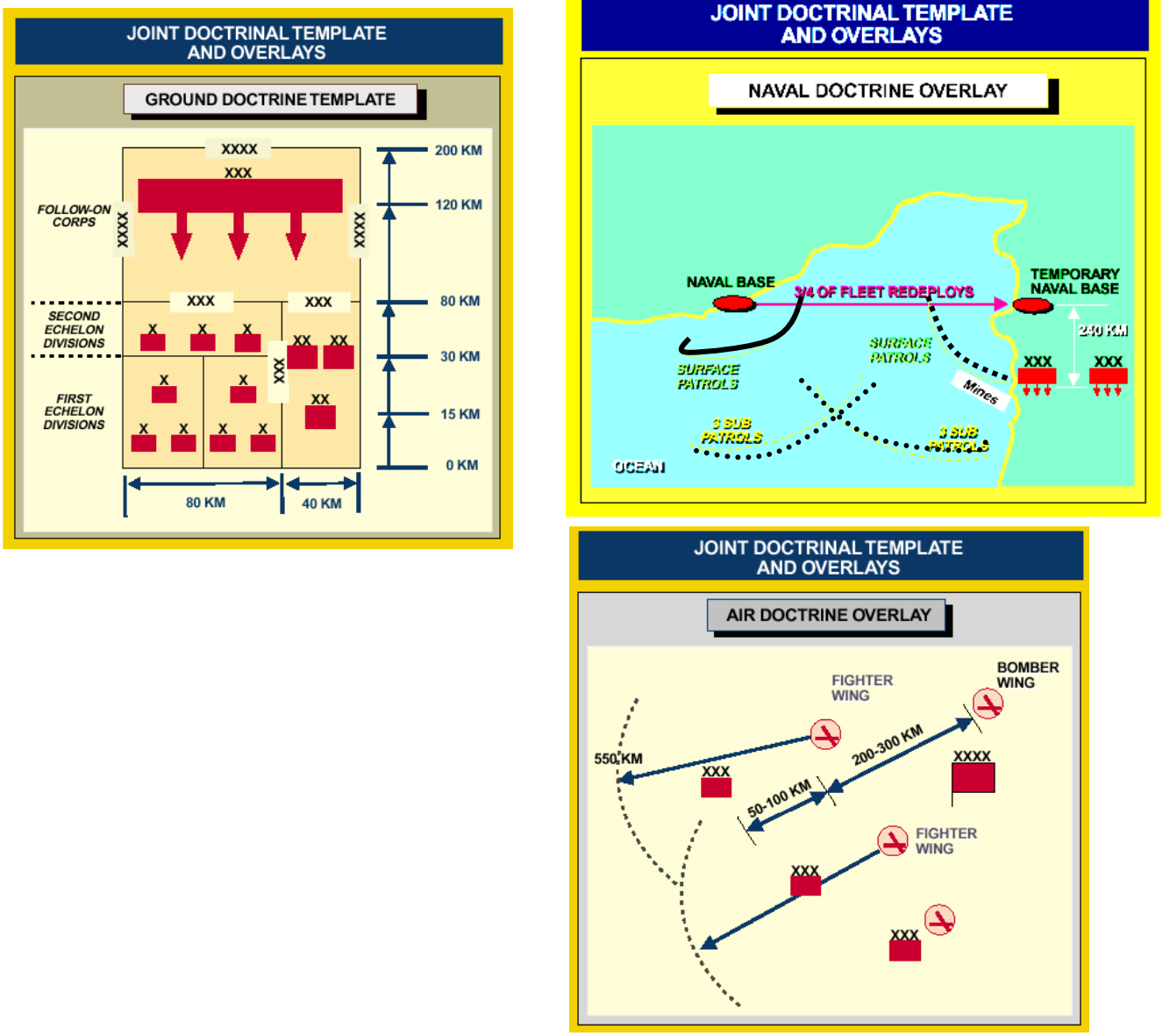

Figure 1-2. Examples of Doctrinal Templates (JP 2-01.3)

b. Description of enemy tactics. In addition to a graphic depiction shown in the template, an enemy model should at a minimum include a written description of an enemy's preferred tactics. These descriptions should answer questions such as: does the enemy typically initiate offensive operations at night; how does the enemy employ reserve forces; and how does weather affect the enemy's operations? Time event matrices may be used to show how the enemy might be expected to sequence and synchronize an operation over time.

c. Identification of High Value Targets (HVTs). The enemy model should include a list of HVTs—those assets ***the enemy commander requires*** for the successful completion of the missions that are depicted on the doctrinal templates. For example, an enemy ground force may be vulnerable to amphibious flanking attacks. In such a situation, the enemy's coastal defense assets, such as artillery and anti-ship cruise missiles, may be HVTs. This list of HVTs is developed in collaboration with the Joint Target Coordination Board (JTCB) or Joint Effects Coordination Board (JECB) and may be used later in the planning process to develop specific target sets.

3. Determine the current enemy situation (Situation Template). The intelligence staff uses all available sources, methods, and data bases to determine the enemy's current situation. This includes all significant elements of space, time, and forces addressed in previous steps. Enemy orders of battle, current force status and composition, and other factors are considered in maintaining a current situation plot, which is continuously updated throughout the planning process and the execution of the operation. See Appendix A for an example of a Situation Template.

4. Identify enemy capabilities. The intelligence staff is ready to determine what *broad* COAs the enemy is capable of taking that would allow him to achieve his objectives. Although the full analysis of the enemy's potential COAs will be done in the next JIPOE step, here the analysts may begin to refine the DRAW-D general COAs. For example, what kind of attack might the enemy conduct—an envelopment, penetration, or another kind? Are there nonconventional capabilities the enemy might use, such as WMD or information operations? One tool is to compare the current enemy situation with each of the enemy doctrinal templates already constructed. Based on this situation, what does the enemy doctrine suggest it may do? As an example, this analysis might lead to a capability statement such as the following: "The enemy has the capability to interdict friendly SLOCs at chokepoints GREY and BLUE after repositioning units of the southern fleet. Current naval deployments preclude an attack before 4 August." The J-2 disseminates this evaluation of enemy capabilities to the other staff sections as soon as possible, typically as a written **intelligence estimate** that can support a wide range of further planning efforts. Depending on time available and the requirements of the JFC, however, the evaluation may be disseminated in a briefing or in other forms as desired.

IV. DETERMINE ENEMY COAs (ECOAs).

Accurate identification of ECOAs requires the commander and his staff to think "as the enemy thinks." From that perspective, it is necessary first to postulate possible enemy objectives and then visualize specific actions within the capabilities of enemy forces that can be directed at these objectives and their impact upon potential friendly operations. This visualization should *consider enemy actions two levels down*. From the enemy's perspective, appropriate physical objectives might include their own forces or their elements, forces being supported or protected,

facilities or LOCs, and geographic areas or positions of tactical, operational or strategic importance.

The commander should not consider ECOAs based solely on factual or supposed knowledge of the enemy intentions. The real COA by the enemy commander cannot be known with any confidence without knowing the enemy's mission and objective—and that information is rarely known. Even if such information were available, the enemy could change or feign his ECOA. Therefore, considering all the options the enemy could physically carry out is more prudent. No ECOA should be dismissed or overlooked because it is considered as unlikely or uncommon, only if impossible.

Potential enemy actions relating to specific physical objectives normally need to be combined to form *statements of ECOAs*. These statements should be broad enough so that the fundamental choices available to the enemy commander are made clear. Once all ECOAs have been identified, the commander should eliminate any duplication and combine them when appropriate.

To develop an ECOA, one should ask the following three questions:

- *Can* the enemy do it?
- *Will* the enemy accomplish his objective?
- *Would it* materially affect the accomplishment of my mission?

The final step in the JIPOE process is designed to produce, **at a minimum**, two ECOAs: the enemy's most likely COA and the most dangerous COA. This gives the commander a "best estimate" and "worst case" scenario for planning. However, if time allows, **other ECOAs are also developed.** Each ECOA usually includes a description of expected enemy activities, the associated time and phase lines expected in executing the COA, expected force dispositions, associated Centers of Gravity, a list of assumptions made about the enemy when projecting the COA, a list of refined HVTs, and a list of Named Areas of Interest (NAIs),[1] which are geographical areas where intelligence collection will be focused. There are six sub-steps involved in determining the ECOAs.

1. Identify the enemy's likely objectives and desired end state. The analyst should begin by identifying the enemy's overall desired end state and strategic objective(s)[2] which will form the basis for identifying subordinate objectives—which may be both tangible and intangible. Because hard intelligence may not be available to answer these questions, assumptions will likely have to be made. These assumptions should be coordinated with the Joint Force Commander, J-3, J-5, and other staff planning sections as necessary.

2. Identify enemy Critical Factors / Centers of Gravity (COGs) / Critical Capabilities (CCs) / Critical Requirements (CRs) / Critical Vulnerabilities (CVs) / Decisive Points

[1] Named Area of Interest—The geographical area where information that will satisfy a specific information requirement can be collected. NAIs are usually selected to capture indications of adversary courses of action, but also may be related to conditions of the operational environment. (JP 2-01.3)

[2] The enemy's Desired End State and Strategic Objective(s) are products of national-strategic analysis and should be provided from those sources.

(DPs).[3] Once the enemy's objectives have been deduced, the staff continues its COG determination by identifying and analyzing the enemy's **critical factors**[4] to determine his **critical strengths** and **critical weaknesses.** These critical factors can be both tangible and intangible and may come from a variety of sources: leadership, fielded forces, resources, infrastructure, population, transportation systems, and internal and external relationships of the enemy, and so forth. To find **critical strengths**, the analyst searches for those key aspects that determine from which elements the enemy derives freedom of action, physical strength, or the will to fight. From these strengths, the analyst should recognize the enemy's COG.

Analysis of COGs (at each level of war as appropriate) is conducted only *after* gaining an understanding of the broad operational environment (paragraphs I, II, and III of the JIPOE above), but before a detailed study is made of the enemy's potential COAs. Analysts must determine whether or not potential COG(s) are truly critical to the enemy's strategy and must thoroughly examine the means by which COG(s) influence and affect enemy strategy and potential COAs. **The determination of the enemy's COG(s) is one of the most critical parts of the JIPOE process** because their proper identification can help the JFC better anticipate enemy COAs and will help shape friendly strategy and plans. The next step for the staff once the COGs are determined is to assess the **critical capabilities**, which are the crucial enablers for the COG to function. Logically following this step is the need to identify the **critical requirements**, which are the essential conditions, resources, and means for a critical capability to be operational. At this point, a vulnerability assessment will help identify the **critical vulnerabilities**, which may be exploited to gain access to the COG. During this step, it is important to note that the CVs can be found within critical strengths, capabilities, requirements, or weaknesses. By identifying the CVs, the commander can focus efforts on those critical vulnerabilities that will achieve decisive or significant results and lead to the enemy's COG.

Planners must remain alert for the tendency to focus on weaknesses that bear no relationship to the COG. These are not critical vulnerabilities and simply serve as a means of wasting friendly forces' resources. Following this, the staff must then categorize the **decisive points**, whose control of offers an advantage to both forces. However, throughout this process, the planner must realize that sometimes a situation may arise in which there are no perceived enemy vulnerabilities and, based on risk assessment, the friendly force must directly focus efforts on the enemy COG. See Appendix C for a more in-depth discussion of COG determination.

[3] See Appendix C for a deeper description of Critical Factors and COG deconstruction.
[4] "Critical Factors" is a cumulative term used in this instance for critical strengths and weaknesses—those military and nonmilitary capabilities considered critical to the accomplishment of the enemy's mission. Critical weaknesses, however, in terms of quantity and / or quality are inadequate to perform their intended function. One should note that JP 5-0 uses the term "critical factors' differently—to refer to critical capabilities, critical requirements, and critical vulnerabilities. See Appendix C of this workbook for a more detailed explanation.

Enemy Center of Gravity Determination

Identify

1a. Strategic Objective(s)

1b. Operational Objective(s)

2a. Critical Strengths	**2b. Critical Weaknesses**

3a. Strategic COG

3b. Operational COG

4. Critical Capabilities

6. Check CVs

5. Critical Requirements

7. Decisive Points

3. Identify friendly objectives and critical factors. Though **not** a product of the JIPOE process, in order for the J2 to properly assess the enemy's potential ECOAs, which should focus on defeating the *friendly* COGs, he needs to have a full appreciation of the *friendly* objectives, critical factors, COGs, critical vulnerabilities, and decisive points.

✯ **ATTENTION**: This sub-step **requires** the intelligence analysts to coordinate with Joint Planning Group and others to determine *friendly* critical factors such as strengths, weaknesses, and COG(s). *We will revisit this information again during Mission Analysis*.

Friendly Center of Gravity Determination

Identify

1a. Strategic Objectives

1b. Operational Objectives

2a. Critical Strengths	**2b. Critical Weaknesses**

3a. Strategic COG

3b. Operational COG

4. Critical Capabilities

6. Check CVs

5. Critical Requirements

7. Decisive Points

4. Identify the full set of ECOAs available to the enemy. In this sub-step, the preliminary list of ECOAs (developed from DRAW-D) is reviewed and analyzed against the lists that have been made of enemy objectives and the friendly critical factors as seen by the enemy. Additional ECOAs are developed and a consolidated list of all potential ECOAs is constructed. Each identified ECOA is examined to determine whether it meets the following tests:

- **Suitability:** does the ECOA have the potential to accomplish the enemy's objective?
- **Feasibility:** does the enemy have sufficient space, time, and forces to execute the ECOA?
- **Acceptability:** is the amount of risk associated with the ECOA likely to exceed the level of risk the enemy will accept?
- **Uniqueness:** each ECOA must be significantly different from the others, or else it should be considered a variation, branch or part of another ECOA.
- **Consistency with doctrine:** does this ECOA appear to be consistent with the enemy's doctrine, TTP, and observed patterns of operations?

(*Joint Pub 2-01.3*)

In applying these tests the analyst must always be careful not to discard an ECOA just because it appears unacceptable, inconsistent with past practices, and so forth, *from our own perspective*. These tests are useful tools in determining which ECOAs the enemy might be likely to follow, but because our understanding of the enemy's thinking will never be perfect, we must be cautious not to apply these tests too stringently. An attempt should be made to anticipate possible "wildcard" ECOAs the enemy might use. Such asymmetric or unexpected ECOAs could be the result of either a careful, deliberate strategy, or of a miscalculation on the part of the enemy—but they can be extremely dangerous in either case. Planners should also be careful not to "mirror image"—assuming the enemy would react as we would.

ECOA #1 REDLAND initially conducts joint operations to disrupt JTF Blue Sword forced entry operations, and upon establishment of the JTF Blue Sword in REDLAND, the REDLAND armed forces disperse into small-unit formations in the mountains and cities and initiate insurgency operations to defeat the JTF ground forces.

Example ECOA

5. Evaluate and prioritize each ECOA. All of the identified ECOAs are evaluated and ranked according to their probability of adoption.[5] This prioritized list is intended to provide commanders and staffs with a starting point for the development of an OPLAN that takes into consideration the most likely, as well as the most dangerous, ECOAs. Developing this list requires an analysis of the situation from the enemy's perspective, using what may be known about the enemy's *intentions*. This knowledge will never be complete and much of this step is based on assumptions rather than facts.

[5] Ranking is recommended by the J2 and approved by the commander.

Rank ECOAs

ECOAs
ECOA #1
ECOA #2
ECOA #3
ECOA #4

Not all potential ECOAs need be retained in this step. Those that would not affect the friendly mission and those that are clearly unfeasible are discarded at this point. Potential ECOAs should not be discarded merely because they are considered unlikely; retain it if an ECOA would affect the mission, but list it low in probability as appropriate. Analysts must also be on guard against enemy deception efforts. The enemy may deliberately adopt a less than optimal ECOA in order to maximize surprise or may gradually increase preparations for a specific ECOA over a lengthy period of time, thereby psychologically conditioning the JIPOE analyst to accept that level of activity as normal and not threatening. **If an ECOA is discarded, to avoid confusion, it is strongly recommended that you do not renumber the ECOAs**.

After listing the ECOAs in the relative probability of adoption, a list of enemy vulnerabilities should be compiled. These are vulnerabilities that could be exploited by friendly forces. This list will aid in later steps of the planning process when friendly COAs are compared against ECOAs and the advantages and disadvantages of each are evaluated.

	Retained ECOAs (Prioritized)	Vulnerability(s)
ECOA #		
ECOA #		
ECOA #		
ECOA #		

Example Prioritization of Retained ECOAs

	Retained ECOAs (Prioritized)	Vulnerability(s)
ECOA # 3	REDLAND conducts a two pronged ground attack against the APOD with the 3rd RGB from the North and the 1st RGB from the South, with supporting air operations. **(Most Likely)**	• No operational Reserves remaining • Extended LOCs • Complex C3, little experience
ECOA # 4	REDLAND conducts a delay and interdicts friendly APODs / SPODs	• Weak maritime interdiction capability • Limited Operational environment for delay
ECOA # 1	REDLAND initially conducts joint operations to disrupt JTF Blue Sword forced entry operations, and upon establishment of the JTF Blue Sword in REDLAND, the REDLAND armed forces disperse into small-unit formations in the mountains and cities and initiate insurgency operations to defeat the JTF ground forces. **(Most Dangerous)**	• Limited popular support • Limited sustainment capability • Centralized C3 required, minimal capability

6. Develop each ECOA in the amount of detail time allows. Depending on the amount of time available for analysis and planning, each ECOA is developed in sufficient detail to describe: the type of military operation involved; the earliest time military action could commence; the location of the sectors, zones of attack, avenues of approach, and objectives that make up the COA; and the expected scheme of maneuver and desired end state. ECOAs will usually be developed in the order of their probability of adoption and should consist of a situation sketch/template, a narrative description, and a listing of HVTs.

The **situation template** (see Appendix A) for each ECOA will normally consist of a Modified Combined Obstacle Overlay, which depicts the operational environment, together with a doctrinal template or model that shows how the enemy would be expected to act in that environment. Whenever possible, Time Phase Lines (TPLs) should be placed on the situation template to depict the expected progress of enemy force movements (such as D+1, D+2, etc.). A **situation matrix** (see Appendix A) that depicts the expected progress of enemy activity across time in a spreadsheet format may also be used. This technique is most often seen in land-centric operations.

The ECOA **narrative description** accompanies the situation template and usually addresses the earliest time the ECOA could be executed, location of the main effort, supporting operations, time, and phase lines. In addition, critical decisions that the enemy commander must make during implementation of the ECOA are described in terms of their location and space as decision points.

HVTs have been initially identified in earlier JIPOE steps. They should be refined and reevaluated at this point, identified on the templates, and coordinated with the staff targeting elements for possible targeting during combat.

7. Identify initial collection requirements. Once the likely ECOAs are determined, the challenge becomes determining which one the enemy will actually adopt. In this sub-step, the analyst attempts to identify specific areas and activities which, when observed, will reveal which COA the enemy has chosen. The geographic areas where you expect key events to occur are called **Named Areas of Interest** and the activities themselves are called **indicators**. Using a situation matrix, an **event template** graphic (see Appendix A), or other tool, the intelligence staff begins to task the appropriate collection systems and analytical assets to watch for indicators in given NAIs.

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PART 2: MISSION ANALYSIS

I. The commander is responsible for analyzing the mission and restating the mission for subordinate commanders to begin their own estimate and planning efforts and for higher headquarters concurrence. **Mission analysis** is used to study the assigned mission and to identify all tasks necessary to accomplish it. Mission analysis is critical because it provides direction to the commander and the staff, enabling them to focus effectively on the problem at hand.

During the mission analysis process, it is essential that the tasks (specified and implied) and their purposes are clearly stated to ensure planning encompasses all requirements; limitations (restraints – can't do, or constraints – must do) on actions that the commander or subordinate forces may take are understood; and the correlation between the commander's mission and intent and those of higher and other commanders is understood.

When the commander receives a mission tasking—normally through a WARNING ORDER (WO) during Crisis Action Planning (CAP) or PLANNING GUIDANCE during Contingency Planning—analysis begins with the following questions:

- **What tasks must my command do for the mission to be accomplished?**
- **What is the purpose of the mission received?**
- **What limitations have been placed on my own forces' actions?**
- **What forces/assets are available to support my operation?**

Once these questions have been answered, the commander should understand the mission. The commander should become familiar with the area and the situation before initiating analysis and issuing planning guidance, particularly if this is a mission not anticipated by the command. Pertinent and significant facts are identified, and the initial assumptions to be used in the estimate process are assessed to decide their current validity.

II. Mission analysis normally contains the following steps:

- Determine planning facts
  - Determine the source(s) of the mission.
  - Determine who are the "supporting" and "supported" commanders.
  - State Higher Commander's mission.
  - State Higher Commander's intent.
  - Identify specified, derive implied, and determine essential tasks.
  - Identify externally imposed limitations affecting the mission.
  - Identify available forces and assets and noted shortfalls (to include subject matter experts).
  - Identify (planning) assumptions.
- Conduct initial risk assessment.
- Develop the restated mission statement.
- Provide a Mission Analysis Brief
- Receive the Commander's Planning Guidance

- Receive the Commander's Intent.
- Issue Commander's Planning Guidance
- Issue WARNING ORDER to subordinate commands.

1. Determine Planning Facts:

The essence of the Mission Analysis step is to ascertain **"What does the organization know about the current situation and status?"** The following paragraphs should lead the staff through the discovery of those facts.

2. The Source(s) of the Mission:

Normally found in a Higher HQ OPORD/OPLAN, planning directive, or WARNING ORDER. Depending on the scope of the operation, consider also reviewing applicable UNSCRs, alliance directives, National Security Presidential Decision Directives, and other authoritative sources for additional information.

3. Identify the "Supported" and "Supporting Commanders" and Agencies:

The staff should be clear in their understanding of support relationships. This information will also be normally found in the Source of Mission document (s).

4. Analyze the Higher Commander's Mission:

The higher commander's mission statement—normally contained in Higher Commander's directive—and the capabilities and limitations of friendly forces must be studied. The commander must draw broad conclusions as to the character of the forthcoming military action. However, the commander should not make assumptions about issues not addressed by the higher commander and if **the higher headquarters' directive is unclear, ambiguous, or confusing, the commander should seek clarification.**

Higher Commander's Mission:

5. State the Higher Commander's Intent:

A main concern for a commander during mission analysis is to study not only the mission, but also the intent of the higher commander. Within the breadth and depth of today's operational environment, effective decentralized control cannot occur without a shared vision. Without a commander's intent that expresses that common vision, unity of effort is difficult to achieve. In order to turn information into decisions and decisions into actions that are "about right," commanders ***must*** understand the higher Commander's Intent. While the Commander's Intent has previously been considered inherent in the mission and concept of operations, most often you will see it explicitly detailed in the plan/order. Successfully communicating the more enduring intent allows the force to continue the mission even though circumstances have changed and the previously developed plan/concept of operations is no longer valid.

A well-devised intent statement enables subordinates to decide how to act when facing unforeseen opportunities and threats, and in situations where the CONOPS no longer applies. This statement deals primarily with the military conditions that lead to mission accomplishment, so the commander may highlight selected objectives and desired and undesired effects. The statement also can discuss other instruments of national power as they relate to the JFC's mission and the potential impact of military operations on these instruments. The commander's intent may include the commander's assessment of the adversary commander's intent and an assessment of where and how much risk is acceptable during the operation.

The higher Commander's Intent is normally found in paragraph 3, Execution, of the higher commander's directive, although its location in the text may vary. Sometimes the higher Commander's Intent may not be transmitted at all. When this occurs, the subordinate commander and staff should derive an intent statement and confirm it with the higher headquarters. The intent statement of the higher echelon commander should then be repeated in paragraph 1, Situation, of your own Operations Plan (OPLAN) or Operations Order (OPORD) to ensure that the staff and supporting commanders understand it. Each subordinate Commander's Intent must be framed and embedded within the context of the higher Commander's Intent, and they must be "nested"[6] both vertically and horizontally to achieve a common military end state throughout the command. The intent statement must be within the framework of the next higher commander.

A Commander's Intent is broader than the mission statement and it is a concise, free form expression of the *purpose of the force's activities, the desired results, and how actions will progress toward that end*. It is a clear and succinct vision, of how to conduct the action. In short, it links the mission and the concept of operations. The intent expresses the broader purpose of the action that looks beyond the "why" of the immediate operation to the broader context of that mission and may include "how" the posture of the force at the end state of the action will transition to or facilitate further operations (sequels).

A Commander's Intent is not a summary of the concept of operations. It does not tell specifically "how" the operation is being conducted. It must be crafted to allow subordinate

[6] Nested refers to the concept of complementary intents among the joint force commands to ensure all are similarly focused.

commanders sufficient flexibility and freedom to act in accomplishing their assigned mission(s) even in the "fog of war." The intent consists of three components:[7]

Purpose: 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. This 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 will understand the purpose of the forthcoming action well enough to act decisively, and within the bounds of the higher commander's intent.

Method: the "key tasks," in doctrinally concise terminology, that explain the offensive form of maneuver, the alternative defense, or other action to be used by the force as a whole. Details as to specific subordinate missions are not discussed.

End State:[8] describes what the commander wants to see in military terms ("military landscape") after the completion of the mission by his own and friendly forces.

The commander is responsible for formulating the single unifying concept for a mission. Having developed that concept, the commander then prepares his intent statement from the mission analysis, the intent of his higher commander, and his own vision to ensure his subordinate commanders are focused on a common goal. The task here is to articulate clearly the intent so it is understandable two echelons below. When possible, the commander delivers it, along with the order (or plan), personally (and/or via VTC). Face-to-face delivery ensures mutual understanding of what the issuing commander wants by allowing immediate clarification of specific points. While intent is more enduring than the concept of operations, the commander can, and should, revise his intent when circumstances dictate.

Higher Commander's Intent:

[7] There is no specified joint format for Commander's Intent, though the offered construct is generally accepted.

[8] This should not be confused with the concept of "Desired End State," which reflects a broader view of all instruments of power and the conditions that the highest political leadership of national or alliance/coalition forces wants in a given theater after the end of hostilities.

6. Determine specified, implied, and essential tasks:

Any mission consists of two elements: the task(s) to be accomplished by one's forces and their purpose. If a mission has multiple tasks, then the priority of each task should be clearly expressed. Usually this is done by the sequence in which the tasks are presented. There might be a situation in which a commander has been given such broad guidance that all or part of the mission would need to be deduced. Deduction should be based on an appreciation of the general situation and an understanding of the superior's objective. Consequently, deduced tasks must have a reasonable chance of accomplishment and should secure results that support the superior commander's objective.

a. State the task(s): The task is the job or function assigned to a subordinate unit or command by higher authority. A mission can contain a single task, but it often contains two or more tasks. If there are multiple tasks, they normally will all be related to a single purpose.

Depending on the objective to be accomplished, tactical, operational, and strategic tasks are differentiated. Examples of **tactical** tasks are: destroy enemy convoy TANGO; seize enemy naval base (airfield) ZULU; destroy enemy submarines in combat zone ROMEO; seize hill BRAVO, etc. Examples of **operational** tasks are: obtain and maintain maritime superiority in operations area ECHO; obtain air superiority in air area of operations HOTEL; conduct amphibious landing operation in BRAVO amphibious objective area (AOA); conduct a blockade of the CHARLIE Strait; conduct amphibious defense in the ALFA area of the coast, and so forth. Examples of strategic tasks are: destroy Purple armed forces in the Theater of Operations; seize control of country RED; destroy RED sea-based nuclear deterrent forces, and so forth. Examples of properly focused tasks, written in appropriate "joint" language are provided for each level of war in CJCSM 3500.04D *Universal Joint Task List (UJTL)*. If access to a .mil account is available, the UJTL is also available in a user-friendly search format on the JDEIS website (https://jdeis.js.mil/jdeis/index.jsp).

(1) ***Specified Task(s)*:** Tasks *listed* in the mission received from higher commander's headquarters are specified or stated (assigned) tasks. They are what the higher commander wants accomplished. The commander's specified tasks are normally found in paragraph 3b (Execution—Tasks) section of the order, but could also be contained elsewhere—for example in coordinating instructions or in annexes (though this should be avoided if possible).

Specified Task(s):

(2) ***Implied Task(s)*:** After identifying the specified tasks, the commander identifies additional major tasks necessary to accomplish the assigned mission. Though not facts, these additional major tasks are implied tasks, which are sometimes deduced from detailed analysis of the order of the higher commander, known enemy situation, and the commander's knowledge of the physical environment. Therefore, the implied tasks subsequently included in the commander's restated mission should be limited to those considered critical to the accomplishment of the assigned mission. *Implied tasks do not include routine or standing operating procedures (SOPs) that are performed to accomplish any type of mission by friendly forces.* Hence, tasks that are inherent responsibilities of the commander (providing protection of the flank of his own unit, reconnaissance, deception, etc.) are not considered implied tasks. The exceptions are only those routine tasks that cannot successfully be carried out without support or coordination of other friendly commanders. An example of an implied task is if your command was given a specified task to seize a seaport facility, the implied task might be the requirement to establish maritime superiority within the area of operations before the assault.

Implied Task(s):

(3) ***Essential Task(s)*:** Essential tasks are determined from the list of both specified and implied tasks. They are those tasks that must be executed to achieve the conditions that define mission success. Depending on the scope of the mission's purpose, some of the specified and implied tasks might need to be synthesized and re-written as an essential task. **Only essential tasks should be included in the mission statement.**

Essential Task(s):

b. State the Purpose: The purpose follows the statement of task(s). To delineate the two, the statement "in order to" should be inserted between the task(s) and purpose. Purpose is normally found at the beginning of the "Execution" section of the superior's directive. If the superior's directive also contains an intent statement, that should also be reviewed to help analyze the "purpose" of the operation. **The purpose always dominates the tasks.** A task or tasks can be

accomplished or changed due to unforeseen circumstances, but the purpose remains essentially the same if the original mission remains unchanged.[9] Purpose should answer the "why" question.

Example: "JTF Blue Sword will seize seaport Y (*task*) **in order to** sever Country Z's Lines of Communication (*purpose*)."[10]

Purpose:

7. Identify Externally Imposed Operational Limitations:

a. Restraints (Can't Do): Restraints or restrictions are things the higher commander prohibits subordinate commander(s) from doing (for example, not conducting reconnaissance flights beyond Latitude 52°, not to approach the enemy coast closer than 30 nautical miles, specific Rules of Engagement (ROE) guidance, etc.).

The commander and staff should consider the impact of the stated ROE on their ability to accomplish the mission (for example, access to or through sovereign land, sea, or airspace as a legal/political consideration). Any requirement to change the ROE, either relaxation or more restrictive, must be considered and addressed when developing the COAs.

Restraints (Can't Do):

b. Identify Externally Imposed Constraints (Must Do): The superior's directive normally indicates circumstances and limitations under which one's own forces will initiate and/or continue their actions. Therefore, the higher commander may impose some constraints on the

[9] Be alert for "Mission Creep." As the operation proceeds and tasks with no linkage to the *purpose* are added, the force is likely experiencing mission creep. The commander should initiate a new planning process at this point to ensure the reliability of the operation.

[10] If the mission statement supports a complex, multi-phased operation or campaign, it may require separate purpose and supporting tasks for each major phase.

commander's freedom of action with respect to the actions to be conducted. These constraints will affect the selection of COAs and the planning process. Examples include tasks by the higher command that specify: "Be prepared to . . . "; "Not earlier than . . . "; "Not later than . . ."; "Use coalition forces . . ." Time is often a constraint, because it affects the time available for planning or execution of certain tasks.

Constraints (Must Do):

Constraints and restraints collectively comprise "operational limitations" on the commander's freedom of action. Remember restraints and constraints do not include doctrinal considerations. <u>Do not include self-imposed limitations during this portion of the process.</u>

8. Analysis of Available Forces and Assets:

a. Review forces that have been provided for planning and their locations (if known). Determine the status of reserve forces and the time they will be available.

b. Referring back to paragraph 6 in which you identified your specified and implied tasks, now determine what broad force structure and capabilities are necessary to accomplish these tasks (e.g., is a Carrier Strike Group or forcible entry capabilities required?). Note: The service component Liaison Officers (LNOs) and planners are critical players in this step.

c. Identify shortfalls between the two.

CAUTION: This is just an initial JTF force structure analysis. More specific requirements will be determined after the Courses of Action have been developed and analyzed!

Forces Available and Noted Shortfalls by Task or Function <u>Example</u>: **Task**: Seize APOD. **Observation:** No forced entry capability (MEU, Airborne)

✯ **REMINDER:** During the JIPOE portion of this Step, the J2 was provided the ***Friendly*** Objectives, Critical Factors, Center(s) of Gravity, Critical Vulnerabilities, and Decisive Points. These are Joint Planning Group (JPG) products from the Mission Analysis. If not already accomplished, this friendly information should now be identified. See pages 1-20 thru 1-21. ✯

9. Identify Higher Command's Assumptions and Create Your Own Assumptions:

An assumption is used in the absence of facts that the commander needs to continue planning. It is a supposition on the current situation or a presupposition on the future course of events, either or both assumed to be true in the absence of positive proof, necessary to enable the commander in the process of planning to complete an estimate of the situation and make a decision on the course of action (Joint Pub 1-02). An assumption encompasses the issues over which a commander normally does not have control. If you make an assumption, you must direct resources towards turning that assumption into a fact (i.e., directing intelligence collection, RFIs, etc.) and/or developing a branch plan.

Assumptions are made for both friendly operations and the enemy. The commander can assume the success of friendly supporting actions that are essential for success, but **cannot assume success for the actions of his own forces**—no matter which COA he chooses. Planners should normally expect that the opponent will use every capability at his disposal and will operate in the most efficient manner possible. To dismiss enemy options as unlikely could dangerously limit the depth and validity of planning. Planners should not assume away an enemy capability. They cannot assume a condition simply because of a lack of accurate knowledge of friendly forces or a lack of intelligence about the enemy.

Key characteristics of assumptions are that they are reasonable suppositions— **logical** and **realistic**; and they must be **essential** for planning to continue. Existing capabilities should not be treated as assumptions. Examples of inappropriate assumptions include: "Our forces will flow into theater without delay"; "necessary logistics resources, including support to available operational forces . . . will be provided from CONUS as required," "communications will be provided as required," and so forth. An appropriate assumption might be, "Country Orange will remain neutral during the operation."

Subordinate commanders must treat assumptions given by the higher headquarters as facts. If the commander or staff does not concur with the higher commander's planning assumptions, they should be challenged before continuing with the planning process. All assumptions should be continually reviewed.

Assumptions are used in the planning process at each command echelon. Usually, commanders and their staffs should make assumptions that fall within the scope of their operational environment. We often see that the higher the command echelon, the more assumptions that will be made. Assumptions enable the commander and the staff to continue planning despite a lack of concrete information. They are artificial devices to fill gaps in actual

knowledge, but they play a crucial role in planning. A poor assumption may partially or completely invalidate the entire plan—to account for a possible wrong assumption, planners should consider developing branches to the basic plan. Assumptions should be kept at a minimum. For examples of planning assumptions see Appendix D to this workbook.

Assumptions are not rigid. Their validation will influence intelligence collection. They must be continuously checked, revalidated, and adjusted until they are proven as facts or are overcome by events.

Higher Command's Assumptions:

Own Assumptions:

Tests for an Assumption:

Is it logical?
Is it realistic?
Is it essential for planning?

10. Conduct an Initial Risk Assessment:

In order to advise the Commander of initial apparent risks, the staff should conduct an initial risk assessment. Risks, and their mitigation, are addressed again in STEP 2 Developing COAs. See Appendix E Risk Assessment for more information.

a. There may be risks associated with:

(1) Mission (risks the Commander is willing to take for mission accomplishment, e.g., forward presence vs. risk of provocation).
(2) Force protection issues (e.g., a high risk of significant casualties, medium risk of fratricide, low risk of terrorist activities in the JOA).
(3) Time available as provided by Higher HQ-imposed limitations.

b. Higher HQ might state or imply acceptable risk (e.g., could be addressed in the Higher Commander's intent, concept of operations, additional guidance).

c. Individual staff sections determine risks from their own situational analysis and provide them to the Joint Planning Group / Operational Planning Group (JPG/OPG)[11] through their representatives.

d. The JPG/OPG determine the overall risks and consider potential methods for risk mitigation.

Initial Risk Assessment:

11. Develop Restated Mission Statement:

The product of the mission analysis is the restated mission. It must be a clear, concise statement of the essential (specified and implied) tasks to be accomplished by the command and the purpose(s) of those tasks. Multiple tasks are normally listed in the sequence to be accomplished. Although several tasks may have been identified during the mission analysis, the restated mission includes only those that are essential to the overall success of the mission. The tasks that are routine or inherent responsibilities of a commander are not included in the restated mission. The external limitations, assumptions and facts identified in STEP 1 are used later during the formulation of COAs. **The restated mission becomes the focus of the commander's and staff's estimates**. It should be reviewed at each step of the planning process to ensure planning is not straying from this critical focus (or that the mission requires adjustment). It is contained in paragraph 1 of the commander's estimate and paragraph 2 of the basic OPLAN or OPORD.

All efforts by the commander and the staff should be mission-oriented. Losing sight of the assigned mission will result in a confused analysis, which may ultimately lead to failure. The mission statement must contain all of the following elements:

- Who (organization, group of forces) will execute the action?
- What type of action (for example, deterrence, defeat, evacuation, etc.) is contemplated?
- When will the action begin?
- Where will the action occur (area of operations and objectives)?
- Why (the purpose of the operation)?

[11]OPG—Operational Planning Group. JPG—Joint Operational Planning Group. Those members of the service components and joint staff engaged in the planning process. These planning teams can be referred by a variety of titles.

The element of "what" states the mission essential tasks. The unit mission statement will include on-order missions; be-prepared missions will be in the concept of operations.[12]

On order, JTF Blue Sword conducts operations to seize lodgments in REDLAND and defeat the REDLAND armed forces in order to eliminate terrorist safe havens in the region.

Sample Proposed Mission Statement

Restated Mission Statement:

MISSION ANALYSIS BRIEF

Upon conclusion of the Mission Analysis and JIPOE, the staff will present a Mission Analysis Brief to the commander. The purpose of the Mission Analysis Brief is to provide the commander with the results of the staff's analysis, offer a forum to surface issues that have been identified, and provide an opportunity for the commander to refine his guidance to the staff and to approve or disapprove the staff's analysis. Though unit Standard Operating Procedures (SOPs) may dictate the specific format for a Mission Analysis Brief, the following example format (see Figure 1-3) is provided:

[12] An on-order task is a task that will be executed; only the timing of the execution is unknown. A be-prepared task is a task that **might** be executed, and as a contingency, the tasked unit will be prepared to execute the task if so directed. Since a be-prepared task is by definition a contingency, it cannot be considered an essential task and as such, should not appear in the mission statement.

MISSION ANALYSIS BRIEFING

BRIEFER	SUBJECT
Chief of Staff or J5/J3	- Purpose and agenda - Area of Operations (Joint Operations Area)
J2	- Initial intelligence situation brief (could also include elements of the Joint Intelligence Preparation of the Operational Environment)
J5/J3	- Commander's mission, intent and concept of operations - Forces currently available (U.S. and multinational) - Assumptions - Limitations — Must do and cannot do - Centers of gravity/decisive points — Enemy and friendly - Tasks to be performed — Specified — Implied — Essential - *Initial* JTF force structure analysis - Risk assessment - End state - Restated mission statement - Proposed Initial CCIR* - Time analysis—Including projected planning milestones
J1**	- Facts, assumptions, conclusions — Personnel actions — Personnel services — Other personnel related support

J4**	— Facts, assumptions, conclusions — Supply — Services — Health services — Transportation — Others
J6**	- Facts, assumptions, conclusions
Others**	- Others as appropriate to the mission

* Optional—depends on SOP.
** Should only be amplifications that each of these staff sections believe necessary for the commander to hear. The COS is the deciding authority.

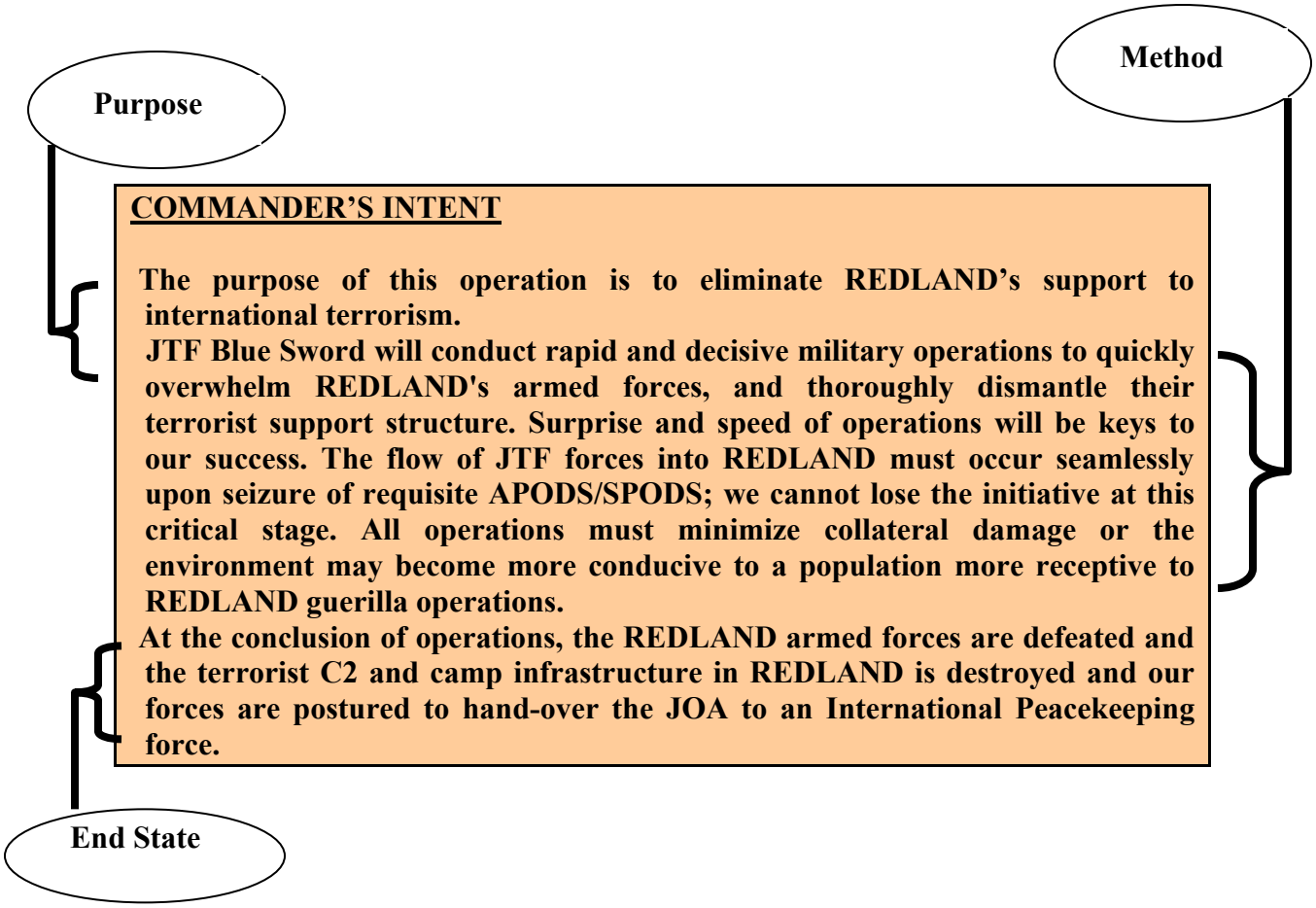
Figure 1-3. Example Mission Analysis Briefing Format

COMMANDER'S GUIDANCE AND INTENT

1. Commander's Intent:

The commander will normally issue an **initial intent** (see discussion, pp. 1-29 through 1-30) with the planning guidance and in the WARNING ORDER. The commander's intent should focus on the purpose of the forthcoming action for subordinate units two levels down. The intent statement in an OPORD or OPLAN is placed in paragraph 3, Execution.

Remember, the Commander's Intent must be crafted to allow subordinate commanders sufficient flexibility in accomplishing their assigned mission(s). It must provide a "vision" of those conditions that the commander wants to see after the military action is accomplished. The commander must define how the "vision" will generally be accomplished by forces and assets available, and the conditions/status of friendly and enemy forces with respect to the operational environment as the end state. The commander, and not his staff, writes the best Commander's Intent. There are a variety of techniques which may be used in crafting intent; one is offered below.



Sample Commander's Intent Statement for a JTF Commander

Commander's Initial Intent:

2. Commander's Critical Information Requirement:

An element of information personally required and approved by the commander that directly affects his decision-making. CCIRs result from the analysis of Information Requirements (IR) against the mission and Commander's Intent and are normally limited in number (often 5 or fewer items) to enhance comprehension. They help the commander filter information available to him by defining what is important to mission accomplishment. They also help focus the efforts of his subordinates and staff in allocating resources and to assist staff officers in making recommendations. The CCIRs directly affect the success or failure of the mission and they are time-sensitive in that they drive commanders' decisions at decision points. The CCIRs contain two key subcomponents of information requirements:

- **Priority Information Requirements—**What do I need to know about the enemy (as discussed in the JIPOE section of this workbook)?
- **Friendly Force Information Requirements (FFIR)—**What do I need to know about the capabilities of our own and adjacent friendly forces (what information must we track on our own forces)?

The key question is, "What does the commander need to know in a specific situation to make a particular decision in a timely manner?" The commander decides what information is critical, based on his experience, the mission, the higher Commander's Intent, and input from the staff. CCIRs are situation-dependent and specified by the commander for each operation. He must continuously review the CCIRs during the planning process and adjust them as situations change. During the planning process, initial CCIRs are identified in Step 1, Part 1, "JIPOE." The staff often nominates proposed initial CCIRs for the Commander's approval during the Mission Analysis briefing. The CCIRs will be revised and updated in Step 3, "Analyze Friendly COAs."

Initial CCIR:

3. Commander's Planning Guidance:

The commander approves or modifies the restated mission and provides his staff and the subordinate commanders and their staffs initial planning guidance. The purpose of the Commander's Guidance is to focus staff effort in a meaningful direction to develop courses of action that reflect the commander's style and expectations. The content of planning guidance varies from commander to commander and is dependent on the situation and time available. **This guidance is essential for timely and effective COA development and analysis.** The guidance

should precede the staff's preparation for conducting their respective staff estimates. The commander's responsibility is to implant a desired vision of the forthcoming operation into the minds of the staff. Enough guidance (preliminary decisions) must be provided to allow the subordinates to plan the action necessary to accomplish the mission consistent with the intent of the commander two echelons above. The Commander's Guidance must focus on the essential military tasks and associated objectives that support the accomplishment of the assigned mission.

The commander may provide the planning guidance to the entire staff and/or subordinate commanders or meet with each staff officer or subordinate unit commander individually as the situation and information dictates. The guidance should be published in written form. No format for the planning guidance is prescribed; however, the guidance should be sufficiently detailed to provide a clear direction and to avoid unnecessary effort by the staff or subordinate commanders. The more detailed the guidance is, the more specific staff activities will be. And, the more specific the activities, the more quickly the staff can complete them. Yet, the more specific the activity, the greater is the risk of overlooking or inadequately examining other details that may affect mission execution.

Commander's Planning Guidance should ***consider*** addressing:

- Specific course(s) of action to consider or not to consider, both friendly and enemy, governing factors to use for COA assessment, and the priority for addressing them.
- Mission success criteria.
- Initial CCIR.
- Initial intent.
- Initial risk assessment.
- Intelligence, Surveillance and Reconnaissance (ISR) priorities.
- Military deception guidance (this guidance may be limited in dissemination for OPSEC purposes).
- Fires (lethal and non-lethal) direction.
- Effects (lethal and non-lethal) direction.
- Targeting direction.
- Security measures to be implemented.
- The time plan (back briefs, rehearsals, movement, etc.).
- The type of order to be issued.
- Collaborative planning sessions to be conducted.
- Deployment priorities.
- The type of rehearsal to conduct.
- Additional specific priorities for sustainment.
- Any other information the commander wants the staff and/or components to consider.

Commander's Planning Guidance can be very explicit and detailed, or it can be very broad, allowing the staff and/or subordinate commander's wide latitude in developing subsequent COAs. However, regardless of its scope, the content of planning guidance must be arranged in a logical sequence to reduce the chances of misunderstanding and to enhance clarity. Moreover, it must be recognized that all the elements of planning guidance are only tentative.

The commander may issue additional planning guidance during the decision making process. The focus should remain upon the framework provided in the initial planning guidance. There is no limitation as to the number of times the commander may issue his planning guidance. However, when guidance radically changes prior communications, the commander should clarify why the guidance has changed since some other aspect of the planning process may also be compromised.

Commander's Planning Guidance:

WARNING ORDER (WARNORD)

Once the commander approves the mission following the Mission Analysis briefing and evaluates the factors affecting mission accomplishment, a WARNORD will normally be issued to subordinate commanders using the five-paragraph format (SMEAC).

1. Situation	**(S)**
2. Mission	**(M)**
3. Execution	**(E)**
4. Admin and Logistics	**(A)**
5. Command and Control	**(C)**

It serves as a preliminary notice of a forthcoming military action with an understanding that more information will follow after the COA is selected. It is normally issued as a brief written message that lists the available information and required instructions.

The commander and his staff also refine their initial planning timeline for the use of available time. They compare the time needed to accomplish essential tasks to the higher headquarters' time line to ensure mission accomplishment is possible in the allotted time.

The commander and staff specify when and where they will conduct the various briefings that are the result of the planning process, whether they will conduct collaborative planning sessions and, if so, when and by what means, and when, where, and in what form they will conduct rehearsals. The commander can maximize available planning time for his own staff and subordinate units by sending additional WOs as detailed planning develops. This allows parallel planning by subordinate units. The commander also frequently uses LNOs to stay abreast of planning at higher headquarters.

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STEP 2: DEVELOPMENT OF FRIENDLY COURSES OF ACTION

A COA is any concept of operation open to a commander that, if adopted, would result in the accomplishment of the mission. For each COA, the commander must envision the employment of his forces and assets *as a whole—normally two levels down*—taking into account externally imposed limitations, the factual situation in the area of operations, and the conclusions previously drawn up during STEP 1 (JIPOE and Mission Analysis).

This step should begin with a review of some key Step 1 information:

- Mission
- Commander's Intent
- Assumptions
- Objectives (enemy & friendly)
- Centers of Gravity (enemy & friendly)
- Decisive Points (enemy & friendly)

After receiving guidance, the staff develops COAs for analysis and comparison. The commander must involve the entire staff in their development. Commander's Planning Guidance and Commander's Intent focus the staff to produce a comprehensive, flexible plan within the time constraints. Direct commander participation helps the staff get quick, accurate answers to questions that occur during the process. COA development is a deliberate attempt to design unpredictable COAs (difficult for the enemy to deduce). A good COA will position the force for future operations and provide flexibility to meet unforeseen events during execution. It also provides the maximum latitude for initiative by subordinates.

The order from higher headquarters normally provides the what, when, and why for the force as a whole. The "who" in the COA does not specify the designation of units; it arrays assets by component (for example, naval, ground, air, space) and by function (intelligence, maneuver, fires, logistics, command and control, protection).

There are normally four steps in COA development:

- Generate options.
- Test for validity.
- Recommend command relationships.
- Prepare COA statements and sketches.

1. Generate Options:

A good COA should be capable of defeating all retained enemy COAs. In a totally unconstrained environment, the goal is to develop several such COAs. Since there is rarely enough time to do this, the commander often limits the options with his commander's guidance. The options should focus on enemy COAs arranged in order of probable adoption.

Brainstorming is the preferred technique for generating options. It requires time, imagination, and creativity, but it produces the widest range of options. The staff must be unbiased and open-minded in evaluating proposed options. Staff members can quickly identify COAs not obviously feasible in their particular areas of expertise. They can also quickly decide if they can modify a COA to accomplish the requirement or eliminate it immediately. If one staff member identifies information that might affect another's analysis, he shares it immediately. This eliminates wasted time and effort. As discussed in STEP 1 when developing possible ECOAs, the staff may wish to use the **DRAW-D**[13] concept to consider ***general*** friendly COAs.

There are several techniques that may be considered during this step as the staff develops tentative COAs. The Joint Advanced Warfighting School (JAWS) offers the following TTPs:

a. A critical first decision in COA development is whether to conduct simultaneous or sequential development of the COAs. Each approach has distinct advantages and disadvantages. The advantage of simultaneous development of COAs is potential time savings. Separate groups are simultaneously working on different COAs. The disadvantage of this approach is that the synergy of the JPG may be disrupted by breaking up the team, the approach is manpower intensive and requires component and directorate representation in each COA group, and there is an increased likelihood that the COAs will not be distinctive. While there is potential time to be saved, experience has demonstrated that it is not an automatic result. The simultaneous COA development approach can work, but its inherent disadvantages must be addressed and some risk accepted up front.

b. Planning cells with land, maritime, air, space, information operations, and special operations planners as well as Joint Interagency Coordination Group (JIACG) reps (and others as necessary) should initially develop ways to accomplish the essential tasks. Regardless of the eventual COA, the staff should plan to accomplish the higher CDR's intent by understanding its essential task(s) and purpose and the intended contribution to the higher CDR's mission success. The staff must ensure that all the COAs developed will fulfill the command mission and the purpose of the operation by conducting a review of all essential tasks developed during mission analysis. They should then consider ways to accomplish the other tasks. A technique is for these planners to "think two levels down" (e.g., how could the MARFOR's component commands, MEF, or appropriate subordinate, accomplish the assigned tasks). See Figure 2-1.

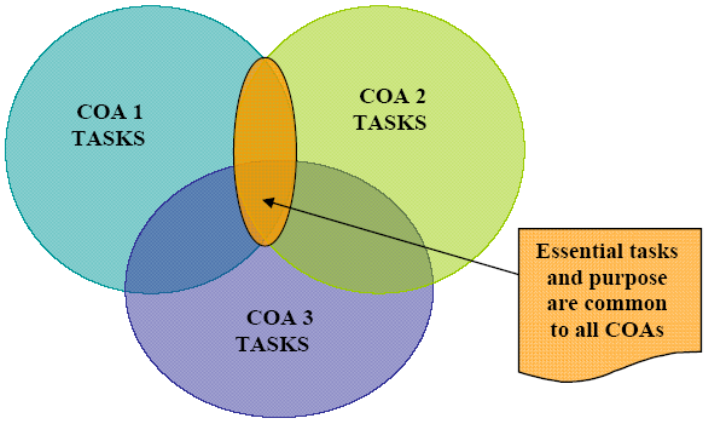


Figure 2-1. Essential Tasks and Purpose should be Common to all COAs

[13] DRAW-D may be a less useful technique during the planning for Stability, Security, Transition, and Reconstruction (SSTR), since this planning may focus on actions other than those implied by DRAW-D.

c. Once the staff has begun to visualize a tentative COA, it should see how it can best synchronize (arrange in terms of time, space, and purpose) the actions of all the elements of the force. The staff should estimate the anticipated duration of the operation. One method of synchronizing actions is the use of phasing as discussed earlier. Phasing assists the CDR and staff to visualize and think through the entire operation or campaign and to define requirements in terms of forces, resources, time, space, and purpose. Planners should then integrate and synchronize these ideas (which will essentially be Service perspectives) by using the joint architecture of maneuver, firepower, protection, support, and command and control (see the taxonomy used in the Universal Joint Task List). **See the questions below:**

(1) **Land Operations**. What are ways land forces can integrate/synchronize maneuver, firepower, protection, support, and command and control with other forces to accomplish their assigned tasks? Compare friendly against enemy forces to see if there are sufficient land forces to accomplish the tasks.

(2) **Air Operations**. What are ways air forces can integrate/synchronize maneuver, firepower, protection, support, and command and control with other forces to accomplish their assigned tasks? Compare friendly against enemy forces to see if there are sufficient air forces to accomplish the tasks.

(3) **Maritime.** What are ways maritime forces can integrate/synchronize maneuver, firepower, protection, support, and command and control with other forces to accomplish their assigned tasks? Compare friendly against enemy forces to see if there are sufficient maritime forces to accomplish the tasks.

(4) **Special Operations**. What are ways special operations forces can integrate/synchronize maneuver, firepower, protection, support, and command and control with other forces to accomplish their assigned tasks? Compare friendly against enemy forces to see if there are sufficient special operations forces to accomplish the tasks.

(5) **Space Operations.** What are the major ways that space operations can support maneuver, firepower, protection, support and establishment of command and control?

(6) **Information Operations (IO).** What are the ways joint forces can integrate the core capabilities of electronic warfare, computer network operations, psychological operations, military deception, and operations security, in concert with specified supporting and related capabilities, to influence, disrupt, corrupt or usurp adversarial human and automated decision making while protecting our own.

d. The tentative COAs should focus on where Center(s) of Gravity (COGs) and decisive points (or vulnerabilities, e.g., “keys to achieving desired effect on centers of gravity”) may occur. The CDR and the staff review and refine their COG analysis begun during mission analysis based on updated intelligence, JIPOE products and initial staff estimates. The refined enemy and friendly COGs and critical vulnerabilities are used in the development of the initial COAs. The COG analysis helps the CDR orient on the enemy and compare his strengths and weakness to those of the enemy. The staff takes the CDR’s operational design, reviews it, and focuses on the friendly

and enemy COGs and critical vulnerabilities. By looking at friendly COG's and vulnerabilities, the staff understands the capabilities of their own force and those critical vulnerabilities that will require protection. Protection resource limitations will probably mean that the staff cannot plan to protect each asset individually, but rather look at developing overlapping protection techniques. The strength of one asset or capability may provide protection from the weakness of another.

f. Identify the sequencing (simultaneous/sequential/or combination) of the operation for each COA. This is not required for each COA, but may be included.

g. Identify main and supporting efforts, by phase, the purposes of these efforts, and key supporting/supported relationships within phases.

h. Identify component level mission/tasks (who, what and where) that will accomplish the stated purposes of main and supporting efforts. Think of component tasks from the perspective of movement and maneuver, firepower, protection, support and C2. Display them with graphic control measures as much as possible.

i. Develop the IO/IW mission/tasks. Since the results of deception operations may influence the positioning of units, planners should conceive major elements of the story before developing any COAs. Prioritize core/related/supporting IO capability areas to support main effort by phase. Determine C2 for IO planning and execution (is IO controlled by the JFC (J39?) or a functional component (e.g. JFMCC) or a new component (JIOTF)? Is there a need to establish a Joint Psychological Operations Task Force (JPOTF) or Electronic Warfare Coordination Cell (EWCC), based on the COA?

j. Task-Organization. The staff should develop a detailed task-organization (two levels down) [14] to execute the COA. The CDR and staff determine appropriate command relationships to include operational mission assignments and support relationships.

k. Logistics. No COA is complete without a plan to sustain it properly. The logistic concept is more than just gathering information on various logistic functions. It entails the organization of capabilities and resources into an overall theater campaign or operation sustainment concept. It concentrates forces and material resources strategically so that the right force is available at the designated times and places to conduct decisive operations. Think through a cohesive sustainment for joint, single service and supporting forces relationships, in conjunction with multinational, interagency, non-governmental, or international organizations.

l. Deception. Planners should consider military deception operations for their potential influence on COAs since aspects of the deception operation may influence unit positioning.

m. Array Forces. Planners next make the initial array of friendly forces (two levels down). The initial array of forces focuses on generic units without regard to specific units or task organization, and then considers all force multipliers (i.e., airpower, IO, etc.) they must allocate to accomplish the mission. The initial array identifies the total number of units or assets needed,

[14] The intent of arraying forces two levels down is to assess force requirements and not to micromanage subordinates.

develops a base of knowledge to make decisions, and identifies possible methods of dealing with the enemy during scheme-of-maneuver development. If the number arrayed is greater than the number available, the shortfall becomes a possible requirement for additional resources or a place to possibly accept risk. See Appendix E for a discussion on risk assessment.

Planners should compare friendly forces against enemy forces to see if there are sufficient forces to accomplish the tasks. Planners should not develop and recommend COAs based solely on mathematical analyses of relative combat power and force ratios. Although some numerical relationships are used in this process, the estimate is largely subjective. It requires assessing both **tangible and intangible factors**, such as friction or enemy will and intentions. Numerical force ratios do not include the human factors of warfare that, many times, are more important than the number of tanks, ships, or airplanes. The staff must carefully consider and integrate the intangible factors into their comparisons using relative combat power analysis (RCPA). See Appendix B for a discussion on force ratios and relative combat power.

COA development planning should consider all joint force capabilities and focus on contributing to the defeat / neutralization of the enemy's Center of Gravity and the protection of the friendly COG. As identified in STEP 1, Part 1, "JIPOE," access to **both** of these COGs is found through the control/neutralization /defeat of identified critical vulnerabilities and decisive points. The COA should mass the effects of overwhelming combat power at these points to achieve a result with respect to the enemy's COG.

The massing of effects on the COG is considered the **decisive operation**. Next, the staff determines **shaping operations**—those operations that set conditions for the decisive operation to succeed. The **decisive operation's** purpose directly relates to the mission of the unit; the **shaping operation's** purpose relates directly to the decisive operation. The staff then determines the essential tasks for the decisive, shaping, and **sustaining operations—**those operations that enable shaping and decisive operations through logistics/supporting activities and operational environment management—to achieve these purposes.

Once staff members have explored each COA's possibilities, they can examine each (by changing, adding, or eliminating COAs as appropriate) to determine if it satisfies the COA-selection criteria. The staff must avoid the common pitfall of presenting one good COA among several "throwaway" COAs. Often the commander will combine COAs or move desirable elements from one to another.

COA#1: On order, JTF Blue Sword conducts airborne and amphibious operations to seize REDLAND airbase and project ground forces into REDLAND defeats the 23^{d} Red Guard Division and destroys terrorist sites in order to reestablish the preconflict borders and set the conditions for regional stability. Air and maritime forces conduct supporting operations and neutralize REDLAND air and naval capabilities.

Sample Tentative COA Statement

List *Tentative* Courses of Action:
COA #1:
COA #2:
COA #3:
COA #4:

2. Test for validity.

Before going any further in COA development, the staff should review the tentative COAs for their validity. Test for validity address: adequacy, feasibility, acceptability, distinguishability, and completeness.

- **Adequate.** It must accomplish the mission and comply with higher command guidance. However, the commander may modify his guidance at any time. When the guidance changes, the staff records and coordinates the new guidance and reevaluates each COA to ensure it complies with the change.

- **Feasible.** The unit must have the capability and resources to accomplish the mission in terms of available time, space, and resources, within constraints of the physical environment, logistics and sustainability, and in the face of extreme enemy opposition. This requires a visualization of the COA against each ECOA. Innovative COAs take full advantage of the situation and *all* available forces and assets. Any assessment of the feasibility at this point in the estimate is only tentative. The intent here is to discard COAs that are clearly not feasible because available forces and assets are inadequate.

- **Acceptable.** The advantage gained by executing the COA must justify the cost in resources, especially casualties. A COA is considered acceptable if the estimated results are worth the estimated costs—losses of friendly forces versus the mission's purpose—and it complies with higher commander's guidance. Moreover, losses in regard to time, position, or opportunity must be estimated as well. In order to determine whether a COA is acceptable it must be considered from both the commander's view and the view of the commander's superior. The COA must also be reconciled with external constraints and ROE requirements. A COA that does not meet this test must be modified to make it acceptable or discarded at this point in the estimate. This assessment is largely subjective. Like the feasibility test, the acceptability of a specific COA can only be tentative at this stage. The prospect of risk needs to be taken into account, and may have to be accepted.

- **Distinguishable.** Each COA must differ *significantly* from the other COAs. The significant differences of each COA is ensured by emphasizing distinctions in regard to: direction/type of the main effort; direction/type of supporting effort; scheme of maneuver (air, land, sea); task organization; phasing/sequencing; anticipated use of reserves; timing (simultaneous or sequential); principal method of combat employment or method of mission accomplishment; and logistics considerations.

- **Complete.** A COA is complete if it includes the following: WHO? (which component commander(s) is/are to conduct operation(s); WHAT? (the type of operation: DRAW-D); WHEN? (the time the action will begin); WHERE? (the location of action); HOW? (the method or scheme of employment of forces and assets); and WHY? (the purpose of operation).

3. Recommend Command and Control Arrangements:

Planners next establish preliminary command and control arrangements to groupings of forces for each COA. This structure should consider the types of units to be assigned to a headquarters or component and its span of control. If planners need additional headquarters, they note the shortage and resolve it later. C2 arrangements take into account the entire operational environment organization. It also accounts for the special C2 requirements of operations that have unique requirements, such as amphibious landings or special operations.

4. Develop the Course of Action statement and sketch for each COA.

a. The course of action statement describes how the forces will accomplish the commander's Intent. It concisely expresses the commander's concept for operations and governs the design of supporting plans or annexes. Planners develop a concept by refining the initial array of forces and using graphic control measures to coordinate the operation and to show the relationship of friendly forces to one another, the enemy, and the operational environment. During this step, units are converted from generic to specific types of units, such as armored or mechanized divisions. The purpose of this step is to clarify the commander's initial intent about the deployment, employment, and support of friendly forces and assets and to identify major objectives and target dates for their attainment. In drafting the tentative concept of operations for each COA should state, in broad but clear terms, what is to be done, the size of the forces deemed necessary, and time in which force needs to be brought to bear.

A course of action statement should be simple, clear, and complete. It should address all the elements of organizing the operational environment. Depending on the time available and the complexity of the operations, the statement may include some of the following:

- The purpose of the operation.
- When forces will be deployed.
- A statement of where the commander will accept operational (and/or tactical) risk.
- Identification of critical friendly events and phases of the operation (if phased). [15]
- How and where joint forces will be employed.
- Designation of the decisive operation, along with its task and purpose.
- Designation of shaping operations, linked to how they support the decisive operation.
- Designation of reserve, to include location, composition, task, and purpose.
- ISR and protection operations.
- Identification of options that may develop during an operation.
- Assignment of subordinate areas of operations.
- Concept of operational fires.[16]
- Determined IO concept of support and objectives.
- Prescribed formations or dispositions when necessary.
- Priorities for each operational function in support of the operation.
- Considerations of the effects of enemy WMD on the force (as applicable).

Planners nominate control measures to control subordinate units during the operation. [17] Planners base control measures on the array of forces and the scheme of maneuver to defeat probable enemy courses of action. Control measures clarify responsibilities and synchronize combat power at decisive points while lessening the risk of fratricide. All control measures impose some constraints on subordinate commanders. Control measures used should be the minimum required to exercise necessary control over the operation while allowing as much freedom of action as possible to subordinates. Planners should also develop phase lines to implement expected branches and sequels.

b. The COA sketch provides a picture of the joint force employment concept of the COA. Together, the statement and sketch cover the "who" (generic task organization), "what" (tasks), "when," "where," "how," and "why" (purpose of the operation) for each subordinate unit/component command; and any significant risks for the force as a whole.

The sketch could include the array of generic forces and control measures, such as:

- Component command boundaries that establish the JOA/AO/AI.
- Unit deployment/employment.
- Control graphics.
- Lines of Operations (axes of advance, zones of action, etc.)

[15] These critical events will be used later in Step 3, "Analyze Friendly COAs (War Game)."
[16] Operational Fires—fires applied to achieve a decisive impact on the outcome of a campaign or major operation. They can be lethal or nonlethal.
[17] Some examples are identifying Joint Special Operations Area (JSOA), Amphibious Objective Areas, specific Areas of Operations for ground and/or maritime components, Joint Rear Areas, specific fire control measures, and so forth.

- Intermediate Staging Bases (ISBs), Bases of Operation (BOOs), Lines of Communication (LOCs), and Objectives (OBJs).
- Sea Ports of Debarkation (SPODs) and Air Ports of Debarkation (APODs)
- Named Areas of Interests (NAIs)
- Sequencing of events.
- Designation of the decisive (i.e., main effort), and shaping (i.e., supporting effort) operations.
- Enemy known or templated locations.

Planners can enhance the sketch with identifying features such as cities, rivers, and roads to help orient the commander and staff. The sketch may be on any media; what it portrays is more important than its form (see figure 2-1).

At this stage of the process, the staff might propose, or the commander might require, a briefing on the COAs developed and retained. The purpose of this briefing is to gain the commander's approval of the COAs to be further analyzed, to receive guidance on how COAs are to be compared and evaluated, or to receive guidance for revision of briefed COAs or the development of additional COAs. This is another place where a collaborative session may facilitate subordinate planning.

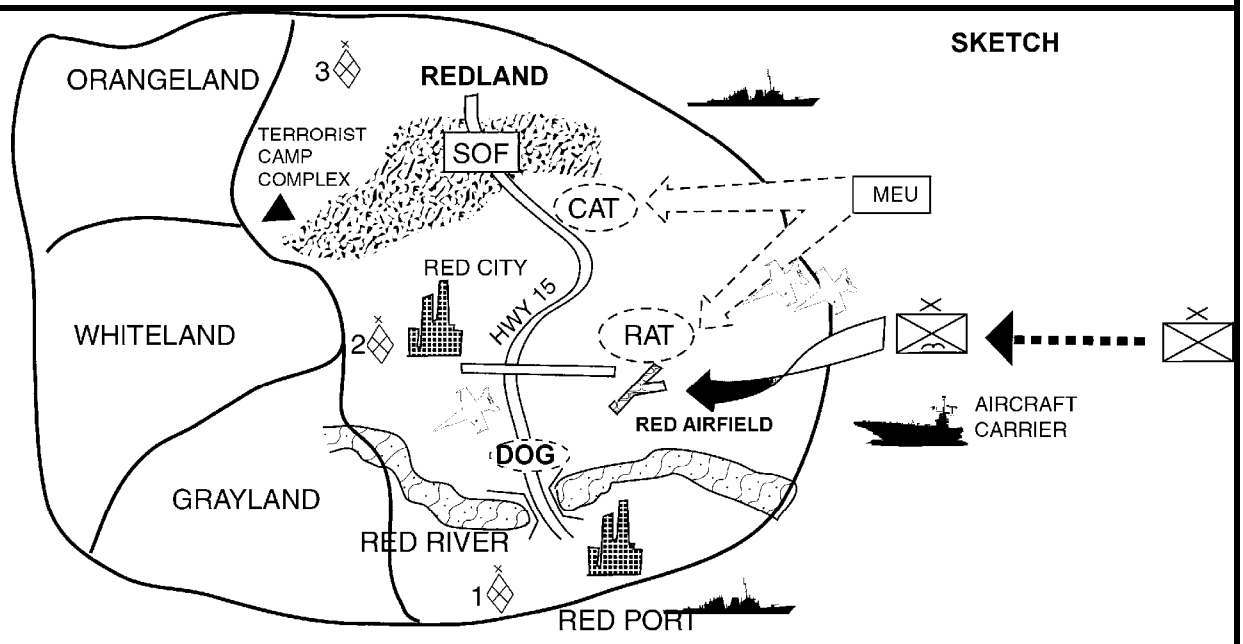
The COA briefing includes:

- Updated JIPOE.
- Possible ECOAs.
- The unit mission statement.
- The Commander's Intent and the higher Commander's Intent.
- The COA statements and sketches.
  The rationale for each includes: considerations that might affect ECOAs; deductions resulting from a relative combat power analysis; the reason units are arrayed as shown on the sketch; the reason the staff used the selected control measures; assumed risk; and updated facts and assumptions.

After a decision is made concerning which COAs are to be further analyzed, the commander should provide additional planning guidance to subordinate commands and also request their analysis of the COAs. During Crisis Action Planning, this process may be verbal, via a change to the original WARNING ORDER and/or through the release of a COMMANDER'S EVALUATION REQUEST message. If he rejects all COAs, the staff begins again. If he accepts one or more of the COAs, staff members begin the wargaming process.

Figure 2-2 is an example of a COA. In this case the detailed shaping operations in the early phases are what would differentiate this COA from other proposed COAs.

Proposed Course of Action __1___: (Airborne Forced Entry)



COA STATEMENT: The Airborne Forced Entry COA is an aggressive offensive operation aimed at destroying the RGB and associated terrorist infrastructure. This COA is conducted in 5 Phases.

Phase 1: The first phase's focus is to shape the conditions for the subsequent decisive operations. During Phase 1, the JFACC will conduct operations to: ensure air superiority in the objective areas, destroy REDLAND Military and Terrorist C2 nodes, neutralize enemy forces in the vicinity of RED CITY AIRFIELD, and OBJ DOG, and delay enemy movement towards the AIRFIELD, in priority, of 2d, 3d, and 1st RED GUARD Bdes (RGB). JFSOCC will support with surveillance and targeting upon the 3 RGB. JFMCC will destroy REDLAND maritime capability and support deception operations, which will portray an amphibious assault in the vicinity of RED PORT. Information Operations will support the deception and shape the REDLAND public response to the operation. Phase 1 will end when the JFACC has gained air superiority over the objective areas and the enemy threat at the AIRFIELD and DOG are neutralized. **Phase 2** begins with the main effort, a Brigade-size airborne assault to seize the RED CITY AIRFIELD and establish a blocking position at OBJ DOG. JFACC continues to support objectives of Phase 1, and expands air superiority throughout REDLAND. JFSOCC continues to support 3 RGB operations and expands surveillance to suspected terrorist training camps. JFMCC continues to support Phase 1 objectives and positions to support JTF operations if the MEU is committed. IO operations remain unchanged. The MEU is the JTF reserve with priority of employment first to OBJ RAT (blocking position if 3 RGB deploys) and then CAT (if 2 RGB deploys). Phase 2 ends with the AIRFIELD secured. **Phase 3** begins with the deployment of follow-on, air-landed forces, and ends when the second Brigade-size force is in the JOA. **Phase 4** becomes the decisive operation, when the JFLCC, main effort, accepts the MEU, and completes the destruction of the RGBs and remaining terrorists. **Phase 5** is hand-over and redeployment.

Figure 2-2. Example COA Sketch and Statement

Proposed Course of Action _____: ( )
SKETCH:
COA STATEMENT:

Table 2-1. Course of Action Sketch and Statement

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STEP 3: ANALYSIS OF FRIENDLY COURSES OF ACTION (WAR GAME)

The heart of the commander's estimate process is the *analysis of opposing courses of action*. Analysis is nothing more than wargaming—either manual or computer assisted. In the previous steps of the estimate, ECOAs and COAs were examined relative to their basic concepts—ECOAs were developed based on enemy capabilities, objectives, and our estimate of the enemy's intent and COAs developed based on friendly mission and capabilities. In this step we conduct an analysis of the probable effect ***each ECOA has on the chances of success of each COA***. The aim is to develop a sound basis for determining the *feasibility* and *acceptability* of the COAs. Analysis also provides the planning staff with a greatly improved understanding of their COAs and the relationship between them.

The COA analysis identifies which COA best accomplishes the mission while best positioning the force for future operations. It helps the commander and staff to:

- **Determine how to maximize combat power against the enemy while protecting the friendly forces and minimizing collateral damage.**
- **Have as near an identical visualization of the operation as possible.**
- **Anticipate events in the operational environment and potential reaction options.**
- **Determine conditions and resources required for success.**
- **Determine when and where to apply the force's capabilities.**
- **Focus intelligence collection requirements.**
- **Determine the most flexible COA.**

COA analysis is conducted using wargaming. The war game is a disciplined process, with rules and steps that attempts to visualize the flow of the operation. The process considers friendly dispositions, strengths, and weaknesses; enemy assets and probable COAs; and characteristics of the physical environment. It relies heavily on joint doctrinal foundation, tactical judgment, and operational experience. It focuses the staff's attention on each phase of the operation in a logical sequence. It is an iterative process of action, reaction, and counteraction. Wargaming stimulates ideas and provides insights that might not otherwise be discovered. It highlights critical tasks and provides familiarity with operational possibilities otherwise difficult to achieve. Wargaming is a critical portion of the planning process and should be allocated more time than any other step**. Each retained COA should, at a minimum, be war gamed against both the most likely and most dangerous ECOAs.**

During the war game, the staff takes a COA statement and begins to add more detail to the concept, while determining the strengths or weaknesses of each COA. Wargaming tests a COA and can provide insights that can be used to improve upon a developed COA. The commander and his staff (and subordinate commanders and staffs if the war game is conducted collaboratively) may change an existing COA or develop a new COA after identifying unforeseen critical events, tasks, requirements, or problems.

Planners need to follow these general rules during the conduct of the war game:

- Remain objective, not allowing personality or their sensing of "what the commander wants" to influence them. Planners must avoid defending a COA just because they personally developed it.

- Accurately record advantages and disadvantages of each COA as they become evident.
- Continually assess suitability, feasibility, and acceptability of the COA. If a COA fails any of these tests during the war game, they must reject it.
- Avoid drawing premature conclusions and gathering facts to support such conclusions.
- Avoid comparing one COA with another during the war game. This must wait until STEP 4 (Comparison of Friendly COAs).

The OPG/JPG Chief is normally responsible for coordinating actions of the staff during the war game.[18] The OPG/JPG Chief is the unbiased controller of the process, ensuring the staff stays on a timeline and accomplishes the goals of the wargaming session. In a time-constrained environment, the OPG/JPG Chief ensures that, at a minimum, the decisive action is war gamed.

The J3 (for short-term planning) or J5 (for long-term planning) normally selects the techniques and methods that the staff will use for wargaming. The J3 role-plays the friendly commander during the war game. The J3 staff must ensure that the war game of the COA covers every operational aspect of the mission, records each event's strengths and weaknesses, and annotates the rationale. When staff members are available, the J3 should assign different responsibilities within the J3 section for wargaming. The rationale for actions during the war game is annotated and used later to compare COAs in addition to the Commander's Guidance.

The J1 analyzes COAs to project potential personnel battle losses and determine how Combat Service Support (CSS) provides personnel support during operations.

The J2 role-plays the enemy commander (unless a Red Cell is used for that role). He develops critical enemy decision points (not to be confused with decisive points) in relation to the friendly COA, projects enemy reactions to friendly actions, and projects enemy losses. When staff members are available, the J2 should assign different responsibilities to individual staff members within the section for wargaming—such as enemy commander, friendly J2, and enemy recorder. The J2 must capture the results of each enemy action and counteraction and the corresponding friendly enemy strengths and vulnerabilities. By trying to win the war game for the enemy, he ensures that the staff fully addresses friendly responses for each enemy COA. For the friendly force, he identifies information requirements and refines the event template to include Named Areas of Interest (NAIs) that support decision points and refines the event matrix with corresponding decision points, Target Areas of Interest (TAIs), and high-value targets; refines situation templates; and participates in the targeting meetings and determines High-Payoff Targets (HPTs)[19] based on JIPOE.

The J4 analyzes each COA to assess its transportation and sustainment feasibility. He estimates how long it will take for assets to arrive in theater and he determines critical requirements for each sustainment function by analyzing each COA to identify potential problems and deficiencies. He assesses the status of all sustainment functions required to support the COA and compares this to available assets.

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[18] This role is sometimes filled by the J5, J3, or Chief of Staff depending on a variety of factors—not the least of which is time available. Whoever fills this role should have a clear understanding of the Commander's Intent.

[19] High Payoff Targets (HPT) are those targets whose loss to the enemy will significantly contribute to the success of the friendly course of action. HPTs are those high value targets (Step 1 JIPOE) identified through wargaming that must be acquired and successfully attacked for the success of the friendly commander's mission. (JP 2-01.3)

He identifies potential shortfalls and recommends actions to eliminate or reduce their effect for that COA. While improvising can contribute to responsiveness, only accurate prediction or requirements for each sustainment function can ensure the continuous sustainment of the force. In addition, the J4 ensures that available movement times and assets will support the COA.

The Civil Affairs (CA) staff analyzes each COA for effectively integrating civil considerations into the operation. The CA staff focuses on the operational areas, but like the J1 and J4, they must also focus on the combat support and combat service support issues, particularly those regarding foreign nation support and the care of displaced civilians. The staff's analysis of each COA considers the impact of operations on public order and safety, potential for disaster relief requirements, Noncombatant Evacuation Operations (NEO), emergency services, and protection of culturally significant sites. If the unit does not have an assigned CA staff, these CMO responsibilities should be assigned to another staff section.

Special staff officers help the coordinating staff by analyzing the COAs in their own areas of expertise (legal, public affairs, etc.), indicating how they could best support the mission. Every staff member must determine the force requirements for external support, the risks, and each COA's strengths and weaknesses. This can be greatly facilitated and refined when wargaming is done collaboratively. In addition, when conducted collaboratively, wargaming allows subordinate units to immediately see refinements to the concept of the operation that emerge with the war game process; thus the units tailor their own concepts accordingly and speed up the process.

The staff follows eight steps during the wargaming process:

- Organize for the War game.
- List all friendly forces.
- List and review enemy forces, ECOAs, and outstanding RFIs.
- Review assumptions.
- List known critical events.
- Determine Governing Factors.
- Select the war game method.
- Record and display results.
- War game the operation and assess the results.

1. Organize for the War game:

Gather the necessary tools, materials, and data for the war game. Units need to war game on maps, sand tables, computer simulations and other tools that accurately reflect the nature of the terrain. The staff then posts the COA on a map displaying the JOA/AO and other significant control measures. Tools required include, but are not limited to:

- Display Critical Mission Analysis Information: Higher and own—Mission, Commander's Intent, Assumptions and CCIRs.
- Event template.
- Recording method.

- Completed COAs, to include maneuver and ISR.
- Means to post enemy and friendly unit symbols.
- Chart or Map of AO/JOA (either paper or digital).
- Updated estimates and Common Operating Picture.

2. List all Friendly Forces:

The commander and staff consider all units that can be committed to the operation, paying special attention to support relationships and limitations. The friendly force list remains constant for all COAs that the staff analyzes. Note—friendly forces should also include available Information Operations assets as applicable.

NOTE: Friendly Force information should have been recorded during STEP 1—Mission Analysis.

Friendly Forces			
Ground	**Maritime**	**Air**	**SOF**

3. List and review enemy forces and outstanding RFIs:

The commander and staff consider all enemy units and capabilities that can be committed to the operation, paying special attention to the ECOAs (**as developed in the JIPOE**) that will be wargamed. The staff should also review the outstanding RFIs that could bear on the forthcoming analysis.

4. Review Assumptions.

The commander and staff review assumptions (**as developed in STEP 1**) for continued validity and necessity.

5. List Known Critical Events:

These are essential tasks, or a series of critical tasks, conducted over a period of time that require detailed analysis (e.g., the series of component tasks to be performed on D-Day). This may be expanded to review component tasks over a phase(s) of an operation (e.g., lodgment phase) or over a period of time (C-Day through D-Day). The planning staff may wish at this point to also identify Decision Points (those decisions in time and space that the commander must make to ensure timely execution and synchronization of resources). These decision points are most likely linked to a critical event (e.g., commitment of the JTF Reserve force).

Critical Events:

- Forced entry ops, seizure of Red Airbase
- JTF deception operation
- Achievement of air superiority
- Achievement of maritime superiority

(Example List of Critical Events)

Critical Events:

6. Determine the Governing Factors:[20]

Governing Factors are those criteria the staff uses to measure the effectiveness and efficiency of one COA relative to other COAs following the war game. They are those aspects of the situation (or externally imposed factors) that the commander deems *critical* to the accomplishment of his mission. Potential influencing factors include elements of the Commander's Guidance and/or Commander's Intent, selected principles of war, external constraints, and even anticipated future operations for involved forces or against the same objective. Governing Factors change from mission to mission. Though these factors will be applied in the next step when the COAs are compared, it will be helpful during this wargaming step for all participants to be familiar with the factors so that any insights into a given COA which influence a factor are recorded for later comparison. The criteria may include anything the commander desires. If not received directly from the commander, they are often derived from his intent statement. See Appendix F for a list of possible Governing Factors. Examples include:

- The Commander's Guidance and Commander's Intent.
- Mission accomplishment at an acceptable cost.
- The principles of war/SSTR (MOOSEMUSS).
- Doctrinal fundamentals for the type of operation(s) being conducting.
- The level of residual risk in the COA.

The factors should look at both what will create success and what will cause failure. They may be used to determine the criteria of success for comparing the COAs in STEP 4.

7. Select the Wargaming Method:

There are varieties of wargaming methods that can be used, with the most sophisticated being computer-aided modeling. Though many of the wargaming techniques have been developed primarily for ground force operations, they can be adapted for the purpose of wargaming a naval operation. There are four basic wargaming methods available to the operational commander: the sequence of essential tasks, avenue in depth, belts, and box methods. The sequence of essential tasks method, which focuses on critical events, is probably the most useful wargaming method

[20] The JPG/OPG may include the suggested governing factors in their Mission Analysis brief at the end of Step 1 in order to receive the Commander's Guidance/modification.

at the operational and theater-strategic levels of war and is the method illustrated in this publication.

a. Sequence of Essential Tasks Method

The sequence of essential tasks, also known as the critical events method, highlights the initial shaping actions necessary to establish a sustainment capability and to engage enemy units in the deep battle area. At the same time, it enables the planners to adapt if the enemy executes a reaction that necessitates the reordering of the essential tasks. This technique also allows war gamers to analyze concurrently the essential tasks required to execute the CONOPS.

b. Avenue in Depth Method

Avenue in depth focuses on one avenue of approach at a time, beginning with the main effort. This technique is good for offensive COAs or for defensive situations when operating space inhibits mutual support.

c. Belts Method

Belts divide the operating space into areas that span the width of the AO. This technique is based on the sequential analysis of events in each belt; that is, events are expected to occur more or less simultaneously. This type of analysis often is preferred because it focuses on essentially all forces affecting particular events in one time frame. A belt normally includes more than one event.

d. Box Method

The box technique is a detailed analysis of a critical area, such as a landing beach or strike target. When using it, the planning team isolates the area and focuses on the critical events within that area. The assumption is that the friendly units not engaged in the action can handle the situation in their region of the operational environment and the essential tasks assigned to them.

Time and resources available to support wargaming undoubtedly influence the method selected. However, wargaming also can be as simple as using a detailed narrative in conjunction with a map/chart or situation sketch. Each critical event within a proposed COA should be wargamed based upon time available using the action, reaction, and counteraction method of friendly and enemy interaction.

7. Record and Display Results:

Recording the war game's results gives the staff a record from which to build task organizations, synchronize activity, develop decision support templates, confirm and refine event templates, prepare plans or orders, and analyze COAs based on identified strengths and weaknesses. The **War game Worksheet** (Table 3-1) can be used by staff members to record any remarks regarding the strengths and weaknesses they discover (see Figure 3-1 as an example). The amount of detail depends on the time available. Details and methods of recording and displaying war game results are best addressed in unit Standard Operating Procedures.

The War game Worksheet allows the staff to synchronize the COA across time and space in relation to the enemy COA. The War game Worksheet uses a simple format that allows the staff to game each critical event using an action/reaction/counter-action method, with an ability to record the timing of the event, force/assets requirements and remarks/observations.

8. War game the Operation and Assess the Results:

During the war game, the commander and staff try to foresee the dynamics of an operation's action, reaction, and counteraction. The staff normally analyzes each selected event by identifying the tasks the force must accomplish two echelons below. Identifying the COAs' strengths and weaknesses allows the staff to make adjustments as necessary.

Each game turn usually consists of three moves— two by the friendly force, one by the enemy force. The friendly force has two moves because the activity is intended to validate and refine the friendly force's COA, not the enemy's. If necessary, additional moves may be required to achieve desired effects.

- **Friendly Actions.** The war game begins with the first friendly action. The war game then proceeds as each warfighting function representative gives the details of the friendly COA. Representatives explain how they would predict, preclude, and counter the enemy's action.

- **Enemy Reactions.**[21] Normally the J2 (or a selected RED Cell) will speak for the enemy and respond to friendly actions. He will use an enemy synchronization matrix and event template to describe the enemy's activities. The event template will be updated as new intelligence is received and as a result of the war game. These products will depict the locations of NAIs and when to collect information that will confirm or deny the adoption of a particular COA by the enemy and will serve as a guide for collection planning. The J2 will describe enemy actions by warfighting function. He should present the enemy's concept of operations, and concept of reconnaissance and surveillance. What intelligence collection assets does the enemy have? How and when will he employ them? Also, the J2 should describe how the enemy would organize its operational environment. He should identify the location, composition, and expected strength of the enemy reserve, as well as the anticipated decision point and criteria that the enemy commander might use in committing his reserve. Other enemy decision points that he might identify include likely times, conditions, and areas for the enemy use of weapons of mass destruction and friendly NBC defense requirements, when the enemy could begin a withdrawal, where and when the enemy will use unconventional forces, and so forth. Based on the experience level of the J2, he might also offer insight on the likely effectiveness of friendly actions. The friendly commander will want to know what decisions the enemy commander will have to make and when those decisions will be made—"Are they event driven?" When a deception plan is being war gamed, the J2 should outline target biases

[21] At a minimum, the staff should war game all friendly COAs against both the enemy's most likely and most dangerous ECOAs. If time permits, all ECOAs should be war gamed against all friendly COAs.

and predispositions, how and when the enemy would receive the desired misleading indicators and enemy actions that will indicate the deception has been successful.

- **Counteractions**. After the enemy reaction is executed, friendly forces will provide a counteraction and the various Operational Functions' activities will be discussed and recorded before advancing to the next series of events. If necessary, the war game facilitator authorizes more "moves" by both sides in order to achieve the desired fidelity.

The staff considers all possible forces including templated enemy forces outside the AO/JOA/AOR that could react to influence the operation. The staff evaluates each friendly move to determine the assets and actions required to defeat the enemy at each turn. The staff should continually evaluate the need for branches to the plan that promote success against likely enemy moves in response to the friendly COA. The staff lists assets used in the appropriate columns of the worksheet and lists the totals in the assets column (not considering any assets lower than two command levels down).

The commander and staff look at many areas in detail during the war game, including all enemy capabilities, deployment considerations and timelines, ranges and capabilities of weapon systems, and desired effects of fires. They look at setting the conditions for success, protecting the force, and shaping the operational environment. Experience, historical data, SOPs, and doctrinal literature provide much of the necessary information. During the war game, staff officers conduct a risk assessment in their area of expertise and responsibility for each COA.

The staff continually assesses the risk to friendly forces from catastrophic threats, seeking a balance between mass and dispersion. When assessing WMD risk to friendly forces, the planners view the target that the force presents through the eyes of an enemy target analyst. They must consider ways to reduce vulnerability and determine the mission-oriented protective posture (MOPP) level needed for protection consistent with mission accomplishment. They must also consider deployment of nuclear, biological, and chemical (NBC) decontamination assets.

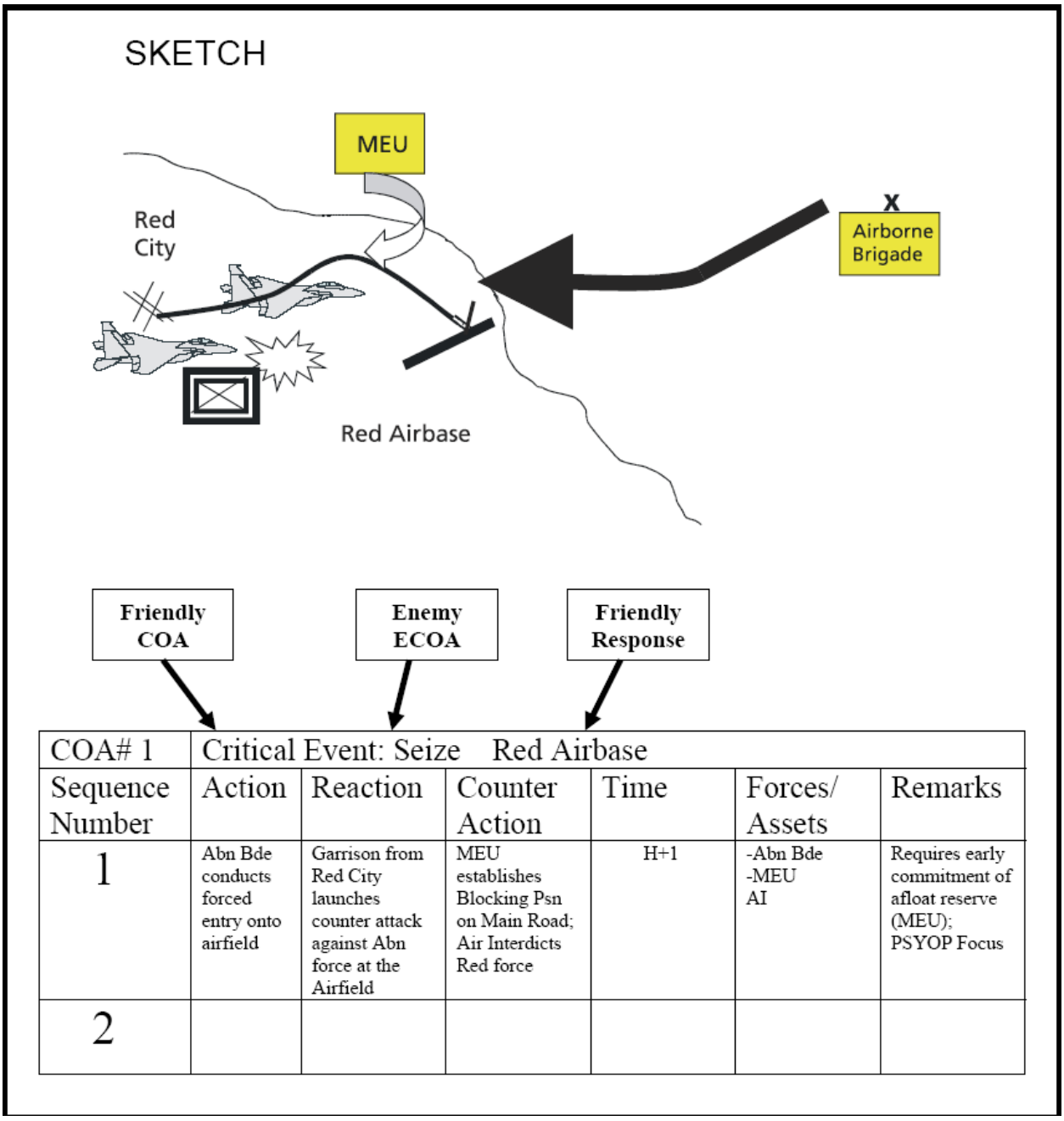
The staff identifies the operational functions required to support the scheme of maneuver and the synchronization of the sustaining operation. If requirements exceed available assets, the staff recommends the priority for use to the commander based on his guidance and intent, and on the situation. To maintain flexibility, the commander may decide to withhold some assets for unforeseen tasks or opportunities. He uses this analysis to determine his priorities of support.

During the war game, the commander can modify the COA based on how the operation develops. When modifying the COA, the commander should validate the composition and location of decisive and shaping operations and reserve forces, based on the **M**ission, **E**nemy, **T**errain (Operational environment) effects, **T**roops and Equipment Available, **T**ime available, and **C**ivil Considerations (METT-TC) factors, and adjust control measures as necessary. The commander may also identify combat situations or opportunities or additional critical events that require more analysis. This should be conducted expeditiously and incorporated into the final results of the war game.

If more time is available, the staff should use the more detailed **War Game Synchronization Matrix** (Table 3-2). This recording tool allows the staff to better focus the

analysis within specific components and operational functions, as well as other planning considerations (see Figure 3-2 as an example). Though its takes longer to complete, this tool will prove more helpful when the staff begins developing the detailed concept of operations upon the completion of the planning process.

Figure 3-1. Example War Game Worksheet



COA# 1	Critical Event: Seize Red Airbase					
Sequence Number	Action	Reaction	Counter Action	Time	Forces/ Assets	Remarks
1	Abn Bde conducts forced entry onto airfield	Garrison from Red City launches counter attack against Abn force at the Airfield	MEU establishes Blocking Psn on Main Road; Air Interdicts Red force	H+1	-Abn Bde -MEU AI	Requires early commitment of afloat reserve (MEU); PSYOP Focus
2						

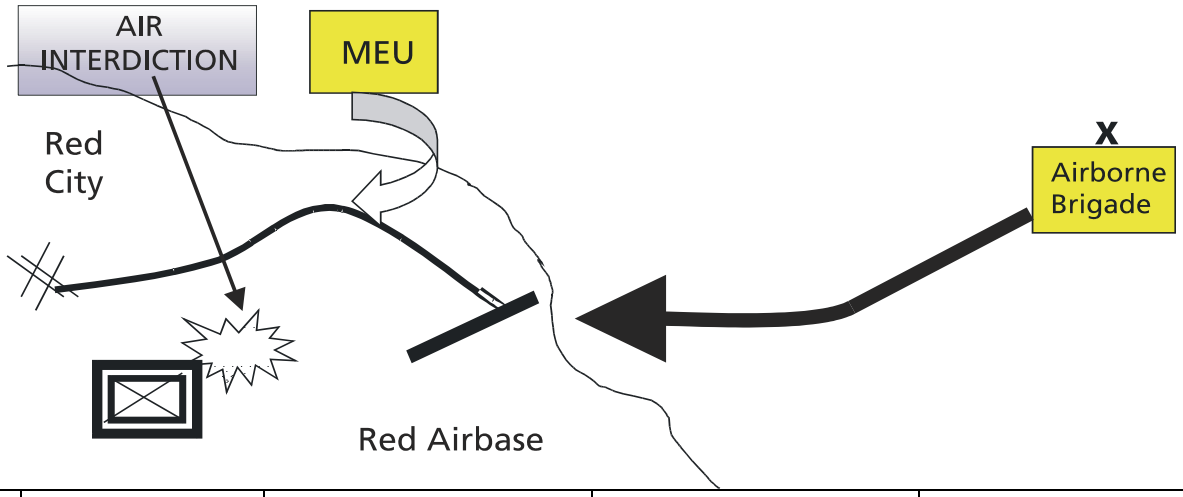
Sketch:

COA #	Critical Event:					
Sequence Number	Action	Reaction	Counter Action	Time	Forces/ Assets	Remarks
1						
2						
3						

Table 3-1. Sample War Game Worksheet

Friendly COA #1 Short Name: **Forced Entry**
Enemy COA-Most Likely/~~Most Dangerous~~
~~Time/Phase/~~ Critical Event: **Seize Airfield**

Figure 3-2 Wargame Synchronization Matrix



	COMPONENTS/ FUNCTIONS	ACTION	REACTION	COUNTERACTION
COMPONENTS	JFLCC	Abn Bde conducts airborne forced entry on Red Airfield	Garrison from Red City launches Counter-attack against Abn force at afld	Completes Airfield seizure; establishes hasty defense
	MARFOR	MEU positioned afloat — JTF Reserve		MEU establishes blocking psn on Red City MSR
	JFMCC	CVGB provides air cap over objective area		AI focus on delay of Red Garrison Force
	JFACC	Coord forced entry air ops and CAS		Coord CAS and AI ops
	JFSOCC	SR forces in psn at airfield and Red MSR NLT H-4		Report status of Garrison Force counter attack
	JPOTF	PSYOP Theme per OPORD- spt forced entry		PSYOP teams with MEU, focus on Garrison force
OPERATIONAL FUNCTIONS	INTELLIGENCE	NAIs 1 &2		Status of Garrison Force
	FIRES	CVGB provides air support		CAS / AI support continues
	LOGISTICS	Abn Force has 3 DOS		MEU has 15 DOS
	COMMAND & CONTROL	JTF HQ afloat		O/O MEU is passed TACON to the Abn force.
	PROTECTION	Deception theme: no impending U.S. ops		
OTHERS	DECISION POINTS		Commitment of MEU (JTF Reserve)	
	CCIR	Enemy Disposition at the airfield		Movement of the Garrison Force
	BRANCHES			Early Commitment of MEU; Joint Force Coord Required
	REMARKS			Add additional PSYOPS Tm to MEU. Change to CCIR AI against Garrison Force

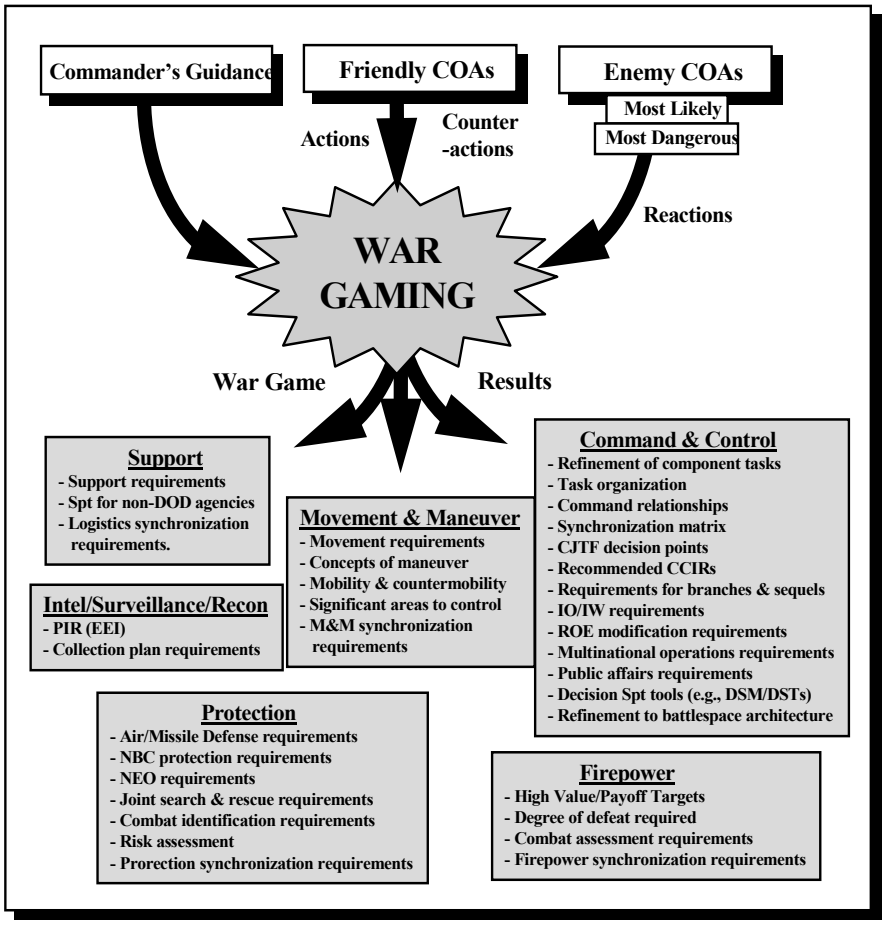
Figure 3-2. Example War Game Synchronization Matrix

Friendly COA # _____ Short Name: _____
Enemy COA- (Most Likely / Most Dangerous)
Time / Phase / Critical Event: _____

	COMPONENTS/ FUNCTIONS	ACTION	REACTION	COUNTERACTION
COMPONENTS	ARFOR/JFLCC			
	MARFOR			
	NAVFOR/JFMCC			
	AFFOR/JFACC			
	JFSOCC			
	JPOTF			
OPERATIONAL FUNCTIONS	INTELLIGENCE			
	FIRES			
	LOGISTICS			
	COMMAND & CONTROL			
	PROTECTION			
	MOVEMENT & MANEUVER			
OTHERS	INFORMATION OPERATIONS			
	DECISION POINTS			
	CCIR			
	BRANCHES			
	REMARKS			

Table 3-2. Sample War Game Synchronization Matrix

Figure 3-3. Wargaming Summary



An effective war game **may** also produce some of the following results[22]

- Refining or modifying the COA, to include identifying branches and sequels that become on-order or be-prepared missions.
- Highlighting insights into the COAs that will support the next planning process step, which will be to compare the COAs.
- Identifying key or decisive terrain and determining how to use it.
- Refining the enemy event template and matrix.
- Refining task organization, to include forces retained in general support of the command.
- Identifying tasks the unit must retain and tasks to be assigned to component commands.
- Allocating operational function assets to component commands to accomplish their missions.
- Developing, identifying or confirming the locations of decision points as well as the NAIs, TAIs, and IR needed to support the decision points.

[22] As mentioned at the beginning of this step, the purpose of the war game is to provide insights into each COA in order to support the eventual commander's COA decision. Though this appears to be a lengthy list, if the war game is properly resourced with both knowledgeable participants and adequate time, the war game will also provide the commander and the staff with substantial preliminary information that will be required for the later CONOPS development.

- Developing a synchronization matrix;
- Developing a decision support template.
- Developing IO objectives and tasks.
- Estimating the duration of each critical event as well as of the entire operation.
- Projecting the percentage of total enemy forces defeated in each critical event as well as overall.
- Identifying likely times and areas for enemy use of WMD and friendly NBC defense requirements.
- Identifying the location and commitment of the reserve.
- Identifying / confirming the most dangerous enemy COA.
- Identifying the location of the commander, unit command posts, and IO nodes.
- Identifying additional critical events.
- Identifying additional requirements for operational function support with supporting plans and graphics.
- Determining requirements for deception and surprise.
- Refining C2 requirements, to include control measures and updated operational graphics.
- Refining CCIR and IR, to include the last time information is of value, and incorporating them into the ISR plan.
- Developing the intelligence collection and dissemination plan and the resulting ISR plan and graphics.
- Determining the timing of force concentration and initiation of the attack or counterattack.
- Determining deployment times for critical assets.
- Identifying, analyzing, and evaluating strengths and weaknesses of the COA.
- Integrating the targeting process, to include identifying or confirming HPTs and determining attack guidance.
- Identifying additional hazards, assessing their risk, developing control measures to reduce risk from all identified hazards, and determining residual risk.

STEP 4: COURSES OF ACTION COMPARISON AND THE DECISION

The fourth step in the planning process is a comparison of the remaining COAs. The commander and staff develop and evaluate a list of important governing factors, consider each COA's advantages and disadvantages, identify actions to overcome disadvantages, make final tests for feasibility and acceptability and weigh the relative merits of each. This step ends with the commander selecting a specific COA for further CONOPS development.

The COA comparison starts with each staff officer analyzing and evaluating the advantages and disadvantages of each COA from his perspective. Each staff member presents his findings for the others' consideration. The goal is to identify the strengths and weaknesses of COAs so that a COA with the highest probability of success can be selected or developed. Using revised staff estimates and the governing factors developed as evaluation criteria earlier, the staff then outlines each COA, highlighting its advantages and disadvantages. Comparing the strengths and weaknesses of the COAs identifies their advantages and disadvantages with respect to each other.

The actual comparison of COAs is critical. The staff may use any technique that facilitates reaching consensus on the bet recommendation, so that the commander can make a decision in choosing the best COA. A common technique is the decision matrix, which uses evaluation criteria (governing factors) to assess the effectiveness and efficiency of each COA (see Table 4-1). Each staff officer may use his own matrix, using the same evaluative criteria, for comparison in his own functional area. Decision matrices alone cannot provide decision solutions. Their greatest value is to provide analysts a criteria to compare several competing COAs against criteria, which, when met, will produce success. The matrix should use the evaluation criteria developed earlier.

1. Governing Factors.

The comparison of COAs begins with governing factors—these factors were selected during STEP 3. For selected examples of governing factors, see Appendix F.

The techniques for conducting the comparison vary, but all of them must assist the commander in reaching a sound decision. Sometimes, a "decision matrix" (Table 4-1) is used to facilitate this process. This matrix numerically portrays *subjectively* chosen and *subjectively* weighted governing factors. Each staff member may use his own matrix or recommend his own choice of governing factors based on his respective functional area.

The commander reviews this list and deletes or adds to it as he sees fit. The number of governing factors may vary, but there should be enough to differentiate COAs.

Some general comments for creating the decision matrix:

- Once the governing factors are determined, define each so they are all clearly understood by the entire staff. (For example, if MASS is used as a governing factor, does MASS help

achieve the objective—as in massing effects, or does it have an adverse effect as in complicating operational protection.)
- Ensure that redundant governing factors are eliminated. (For example, if one governing factor is assessing "Risk to Force" and another is assessing "Casualties," the planning group is likely double counting the same issue.)
- Weighting of governing factors (if used) should occur before the comparison begins.
- Determine how you will measure the advantages or disadvantages of a governing factor. (For example, again using achievement of MASS—as in massing effects as a governing factor, then what do you assess as strength? Does the ability to achieve greater than a 6:1 ratio of ground forces at a decision point, coupled with local air superiority define strength, while anything less might be considered weakness?)
- Prioritize the governing factors by overall importance. (This assists in determining if weights should be assigned.)
- Determine the range of values, which may be assigned. The higher number in the range indicates the better value. Keep the numbers manageable in order to be meaningful.

As demonstrated in the completed decision matrix of Appendix G, the governing factors may be evaluated on their individual merits (all weights equal) or each factor may be weighted for importance.

- When assigning weights, you should ask the question "is this factor *really* two (or three) times more important than that factor?"
- The weights are multiplied by the initially assigned score in each column; the results are then totaled.

The Chief of the OPG/JPG, sometimes the Chief of Staff (COS) normally determines the weight of each criterion based on its relative importance. The commander may also designate importance of some criteria that result in weighting those criteria. The staff officer responsible for a functional area scores each COA using those criteria. Multiplying the score by the weight yields the criterion's value. The staff officer then totals all values. However, he must be cautious in portraying subjective conclusions as being the objective results of quantifiable analysis. Comparing COAs by category is more accurate than attempting to aggregate a total score for each COA.

The result obtained is not meant to be absolute or objective in nature. However, if the same criteria are ruthlessly applied to all COAs, the relative ranking and the merits (or faults) of each should be readily apparent. Each situation is different and requires a different set and number of governing factors to be established. See Appendix G for an example of a completed matrix.

2. List Advantages and Disadvantages of Each COA.

This is perhaps the most valuable part of the comparison, because it is here that the tradeoffs between the COAs should be most apparent. The advantages and disadvantages of any particular COA could be quite lengthy and detailed. Any advantages and disadvantages should be carried forward from the conception and analysis steps. Table 4-2 provides a format.

The staff compares feasible COAs to identify the one that has the highest probability of success against the most likely enemy COA and the most dangerous enemy COA. The selected COA should also:

- Mitigate risk to the force and mission to an acceptable level.
- Place the force in the best posture for future operations.
- Provide maximum latitude for the initiative by subordinates.
- Provide the flexibility to meet unexpected threats and opportunities.

GOVERNING FACTORS	**WT**	**COA #1**		**COA #2**		**COA #3**		**COA # 4**	
TOTAL									
WEIGHTED TOTAL									

Table 4-1. Sample Decision Matrix
(See Appendix G for a Sample Completed Matrix)

COA	ADVANTAGES	DISADVANTAGES	MODIFICATIONS

Table 4-2. Comparison of Advantages / Disadvantages with Modifications

3. Compare the Merits of COAs.

The staff compares the various remaining COAs in order to determine which one best satisfies the requirements of the mission. The staff should seek to answer the question, "Is this the best we can do to carry out the mission and achieve the objective?" This question requires a resounding "yes!" The remaining COAs should not be discarded—they may be retained as possible branches and sequels, alternate plans or deception plans.

However, during the final decision, the commander may find none of the COAs analyzed to be valid. Consequently, new COAs would need to be developed. They must also be tested for adequacy and then analyzed against each ECOA in order to predict the outcomes of the new COAs against each ECOA. If, after all analysis and comparison, no COAs are found to be adequate, feasible, acceptable, distinguishable, or complete the commander should present the examined options along with supporting facts to his higher commander. The commander should point out what could be accomplished under the circumstances and estimate what additional forces would be required to accomplish the original mission. It is then the responsibility of the superior commander to either order that a selected COA be carried out despite the consequences or change the original mission statement.

4. COA Decision.

After completing its analysis and comparison, the staff identifies its preferred COA and makes a recommendation. The staff then briefs the commander. The Chief of the OPG/JPG highlights any changes to the COAs as a result of the wargaming process. Component commanders may be present, but are not required, for the decision brief; their participation, either in person or via VTC, enhances the planning process. The **decision-briefing format** includes:

- The intent of the higher headquarters (two levels up).
- The mission.
- The status of friendly forces.
- An updated JIPOE.
- COAs, including the assumptions used in planning, results of staff estimates, and advantages and disadvantages (including risk) of each COA (with decision matrix or table showing COA comparison).

After the decision briefing, the commander selects the COA that most effectively accomplishes the mission. The commander will rely heavily on the staff for their professional judgment and experience; however, it is ultimately the commander's decision to make. Once the commander has selected a COA, written his intent statement, and identified his CCIRs, the selected COA may need refinement. It is this COA that the staff will continue to refine, analyze and synchronize to produce the concept of operations. The commander then issues any additional guidance on priorities for operational functions (particularly for resources he needs to preserve his freedom of action and to ensure continuous service support), orders preparation, rehearsal, and preparation for mission execution.

Having already identified the risks associated with the selected COA, the commander decides what level of residual risk he will accept to accomplish the mission and approves control measures that will mitigate the risks. If there is time, he discusses the acceptable risks with adjacent, subordinate, and senior commanders. However, the higher commander's approval to accept any risk that might imperil the higher commander's intent must be obtained. Based on the commander's decision, the staff immediately issues a Warning Order with essential information so subordinate commands can refine their plans. This Warning Order confirms guidance issued by the commander and expands on details not covered by the commander personally. At this point, the Commander may be required to release a JOPES formatted Commander's Estimate of the Situation message to either the Geographic Combatant Commander (GCC), if a JTF, or to the SecDef if the drafter is the GCC.

5. Joint Synchronization Matrix.

Based on the commander's decision and final guidance, the planning process is completed, and the staff now refines the COA and completes the plan and prepares to issue the order. The staff prepares the order or plan to implement the selected COA by turning it into a clear, concise concept of operations. The staff development of the order/plan is often aided by completing a **joint synchronization matrix**. This internal staff planning tool is used in much the

same manner as the wargaming synchronization matrix (see Appendix H for more information and a recommended format). The commander can use the COA statement as his concept of operations statement. The COA sketch can become the basis for the operation overlay. The staff assists subordinate staffs with their planning and coordination as needed.

6. Concept of Operations.

Using the joint synchronization matrix, the staff builds the concept of operations. This is the commander's clear, concise statement of who, what, where, when, why, and how he intends to concentrate combat power to accomplish the mission according to his higher Commander's Intent. It broadly outlines considerations necessary for developing a scheme of maneuver. It includes designation of the decisive operation and key shaping operations, the Commander's plan to defeat the enemy, and specific command and support relationships. These relationships are then included in the task organization and organization for combat in plans and orders. It can also include:

- Physical Objective(s)
- Commander's Intent
- Scheme of Maneuver
- Designation of Main Effort
- Designation of Supporting Effort
- Phasing
- Deception
- Employment of force elements (ground, naval, air, special forces, space, etc.)
- Fires (type, purpose, priorities)
- Allocation of sustainment assets
- NBC (offensive and/or defensive)
- Reserves (designation, purpose, location, and anticipated employment)

From this expanded concept of operations, the staff is ready to move to the next step, Development of Plans/Orders.

STEP 5: DEVELOPMENT OF PLANS/ORDERS

In this step, the staff will use the Commander's Guidance, Commander's Intent, and CONOPS to develop the required plan or order. A plan is prepared in anticipation of operations and it normally serves as the basis of a future order. An order is a written or oral communication that directs actions and focuses a subordinate's tasks and activities towards accomplishing the mission. While various portions of the plan or order have been developed during the planning process, this is the step to put them into the approved military format. Since a plan or an order will normally contain only critical or new information, not routine matters found in SOPs, a well written plan or order should be clear, as concise as possible, and focused on the mission. When developed, the military directive (as it is also known) should be synchronized, understood, and in total support of the higher commander's intent. It should also contain the following characteristics:

1. Characteristics.

- **Clarity.** Each executing commander should be able to understand the directive thoroughly. Wording should be simple, straightforward, using proper military (doctrinal) terminology.
- **Brevity.** The directive should be concise, avoiding extra words and unnecessary details; however, this should not be at the expense of completeness.
- **Authoritativeness.** Write the directive in the active voice and authoritative form of expression whenever possible.
- **Simplicity.** All elements should be as simple as possible in order to reduce misunderstandings.
- **Flexibility.** A good directive allows for adjustments that arise do to unexpected operating conditions.
- **Timeliness.** It is critical to disseminate the directive to allow adequate planning and preparation by subordinate commands. Through the use of Warning Orders as discussed in earlier steps, subordinate units can begin planning prior to receipt of the final order or plan.
- **Completeness.** It must contain all necessary information to coordinate and execute the mission, and it must provide control measures that allow for and maximize the subordinate commander's initiative.
- **Command Organization.** It must establish a clear command structure with clearly delineated responsibilities.

2. Format of Military Plans and Orders.

Plans and orders can come in many varieties from the very detailed Campaign Plans and Operations Plans to simple verbal orders. They also include Operation Orders, Warning Orders, Planning Orders, Alert Orders, Execute Orders, and Fragmentary Orders. The more complex directives will contain much of the amplifying information in appropriate annexes and appendices. However, the directive should always contain the essential information in the main body. The form may depend on the time available, the complexity of the operation, and the levels of command involved. However, in most cases, the directive will be standardized in the

five-paragraph format that was introduced back in step one. Following is a brief description of each of these paragraphs.

- **Paragraph 1 – Situation.** The commander's summary of the general situation that ensures subordinates understand the background of the planned operations. Paragraph 1 will often contain sub paragraphs describing the higher Commander's Intent, friendly forces, and enemy forces.
- **Paragraph 2 – Mission.** The commander inserts his restated mission (containing essential tasks) developed during the mission analysis.
- **Paragraph 3 – Execution.** This paragraph contains Commander's Intent, which will enable commanders two levels down to exercise initiative while keeping their actions aligned with the overall purpose of the mission. It also specifies objectives, tasks, and assignments for subordinates (by phase, as applicable—with clear criteria denoting phase completion).
- **Paragraph 4 – Administration and Logistics.** This paragraph describes the concept of support, logistics, personnel, public affairs, civil affairs, and medical services.
- **Paragraph 5 – Command and Control.** This paragraph specifies the command relationships, succession of command, and overall plan for communications.

3. Commander Approval of the Plan/Order.

The commander reviews and approves orders before the staff reproduces and briefs them unless the commander has delegated that authority to the Deputy Commander, XO, COS or J3/5. Once the plan or order is released, the command must ensure the plan or order is clearly understood by both the staff elements and subordinate commands that will be responsible for its execution. The measures taken to assure this clear understanding of the plan or order are contained in the final step, **Transition**.

See the following publications for assistance with specific formats:

NWP 5-01, Navy Planning.
MCWP 5-1, Marine Corps Planning Process.
JOPES Volume I, Planning Policies and Procedures.
JOPES Volume II, Planning Formats and Guidance.
U.S. Army FM 5.0 Army Planning and Orders Production.

STEP 6: TRANSITION[23]

Transition is critical to the overall planning process. It is an on-going, concurrent process that is especially important at the operational level where typically there are separate staff sections responsible for planning and execution.

Transition is an orderly turnover of a plan or order as it is passed to those tasked with the execution of the operation. It provides information, direction and guidance relative to the plan or order that will help to facilitate situational awareness. Additionally, it provides an understanding of the rationale for key decisions necessary to ensure there is a coherent shift from planning to execution. These factors coupled together are intended to maintain the intent of the concept of operations, promote unity of effort, and generate tempo.

Successful transition ensures that those charged with executing the order have a full understanding of the plan. Regardless of the level of command, such a transition ensures that those who execute the order understand the Commander's Intent and the concept of operations. Transition may be internal or external in the form of briefs or drills. Internally, transition occurs between future plans or future and current operations. Externally, transition occurs between the commander and his subordinate commands.

1. Transition Brief

At the higher levels of command, transition may include a formal transition brief to subordinate or adjacent commanders and to the staff supervising execution of the order. At lower levels, it might be less formal. The transition brief provides an overview of the mission, Commander's Intent, task organization, and enemy and friendly situation. It is given to ensure that all actions necessary to implement the order are known and understood by those executing the order. The commander, deputy commander, chief of staff, or organizational SOP provides transition brief guidance, which may prescribe who will give the brief, the briefing content, the briefing sequence, and who is required to attend. Time available dictates the level of detail possible in the transition brief. Orders and supporting materials should be transmitted as early as possible before the transition brief. The brief may include items from the order or plan such as:

- Higher headquarters mission (tasks and intent).
- Mission.
- Commander's Intent.
- CCIRs.
- Task organization.
- Situation (friendly and enemy).
- Concept of operations.
- Execution (including branches and potential sequels).
- Planning support tools (such as synchronization matrix, JIPOE products, etc.).

[23] This chapter draws heavily from MCWP 5-1.

2. Confirmation Brief

A confirmation brief is given by a subordinate commander after he receives his order or plan. Subordinate commanders brief the higher commander on their understanding of commander's intent, their specific task and purpose, and the relationship between their unit's missions and the other units in the operation. The confirmation brief allows the higher commander to identify gaps in his plan, identify discrepancies between his and subordinate commander's plans, and learn how subordinate commanders intend to accomplish their mission.

3. Transition Drills.

Transition drills increase the situational awareness of the subordinate commanders and the staff and instill confidence and familiarity with the plan. Sand tables, map exercises, and rehearsals are examples of transition drills. A common term used to describe transition drills is a "rock drill."[24] See Appendix I for a detailed discussion on rehearsals.

[24] One will encounter two variants of this term. While some organizations refer to transition drills as a "rock drill" from the image of moving rocks around on a sand table or the ground as a means of replicating unit movements, others use the acronym of "ROC drill," which stands for Rehearsal of Concept. No matter which term is used, the purpose of the drill is identical.

APPENDIX A: JIPOE Products

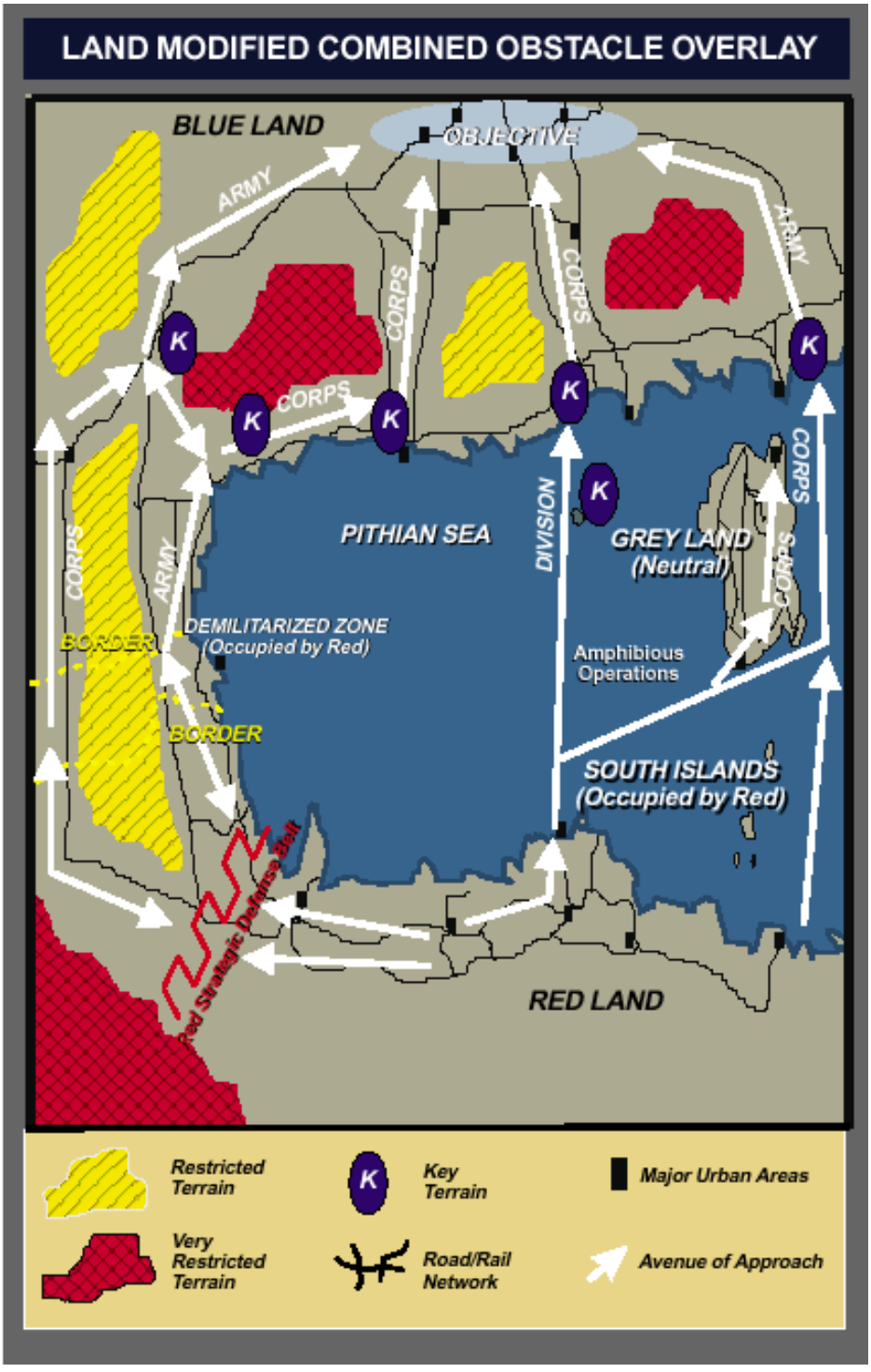


Figure A-1. Example of a Land MCOO (JP 2-01.3)

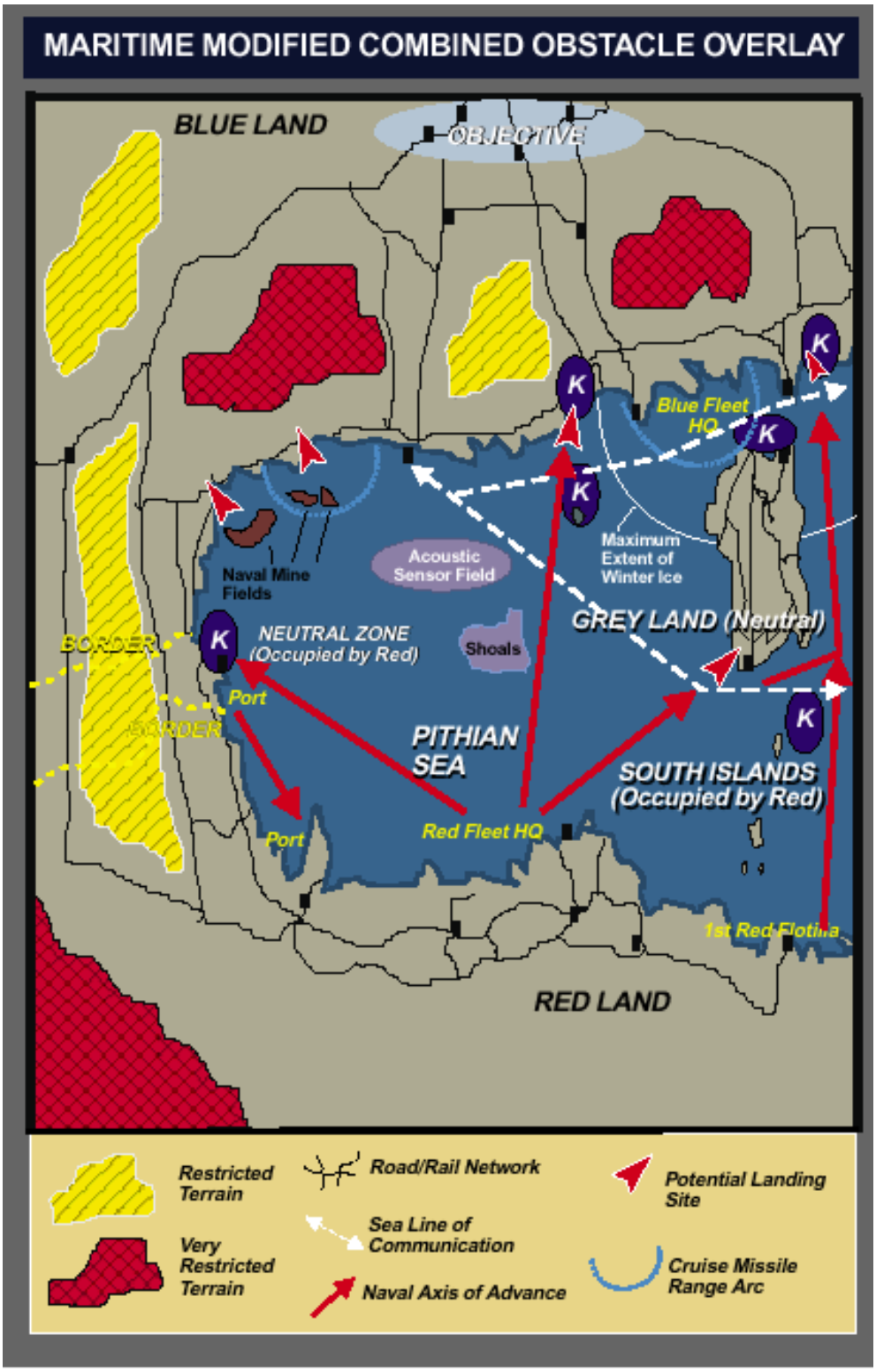


Figure A-2. Example of a Maritime MCOO (JP 2-01.3)

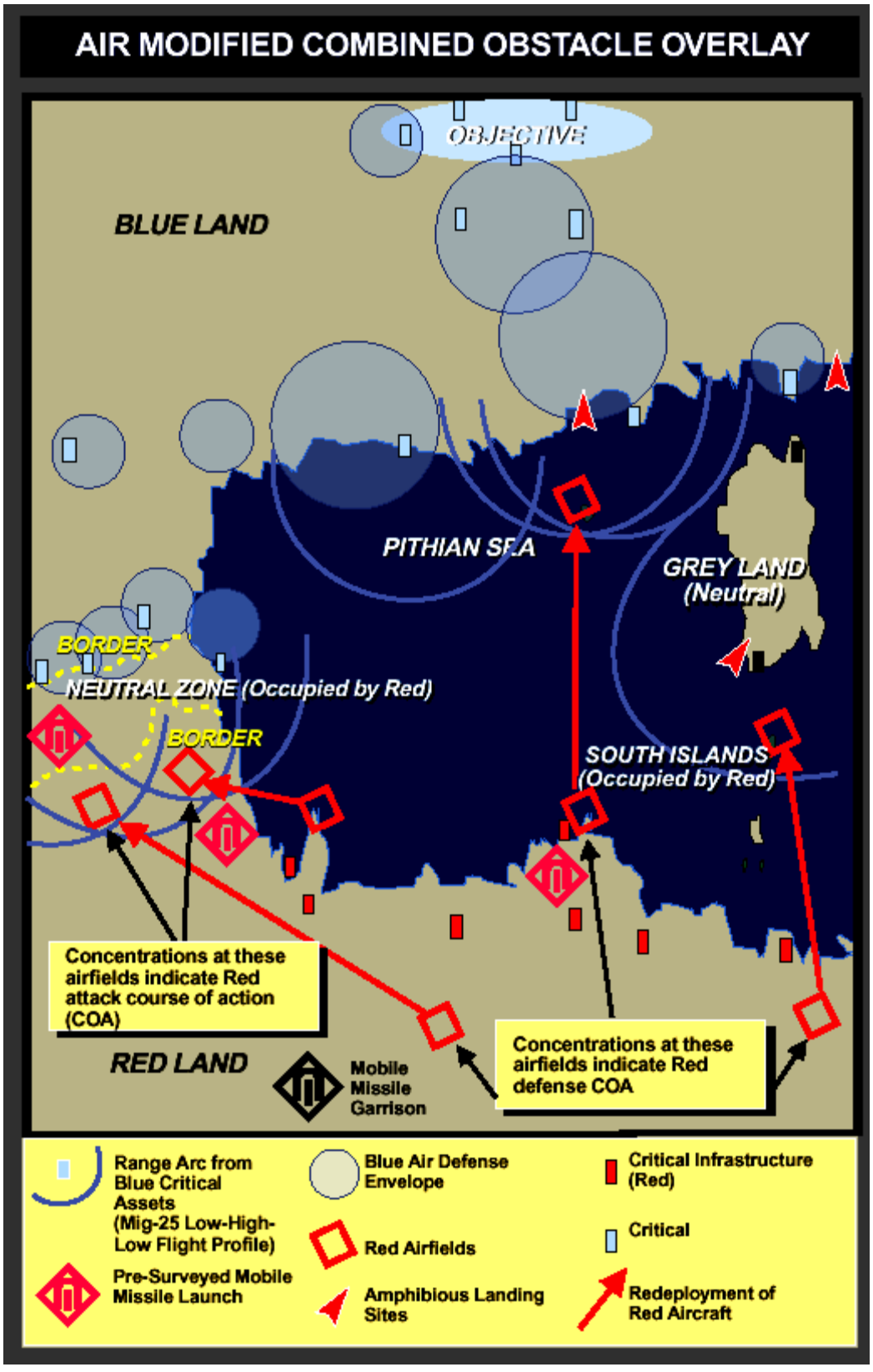


Figure A-3. Example of an Air MCOO (JP 2-01.3)

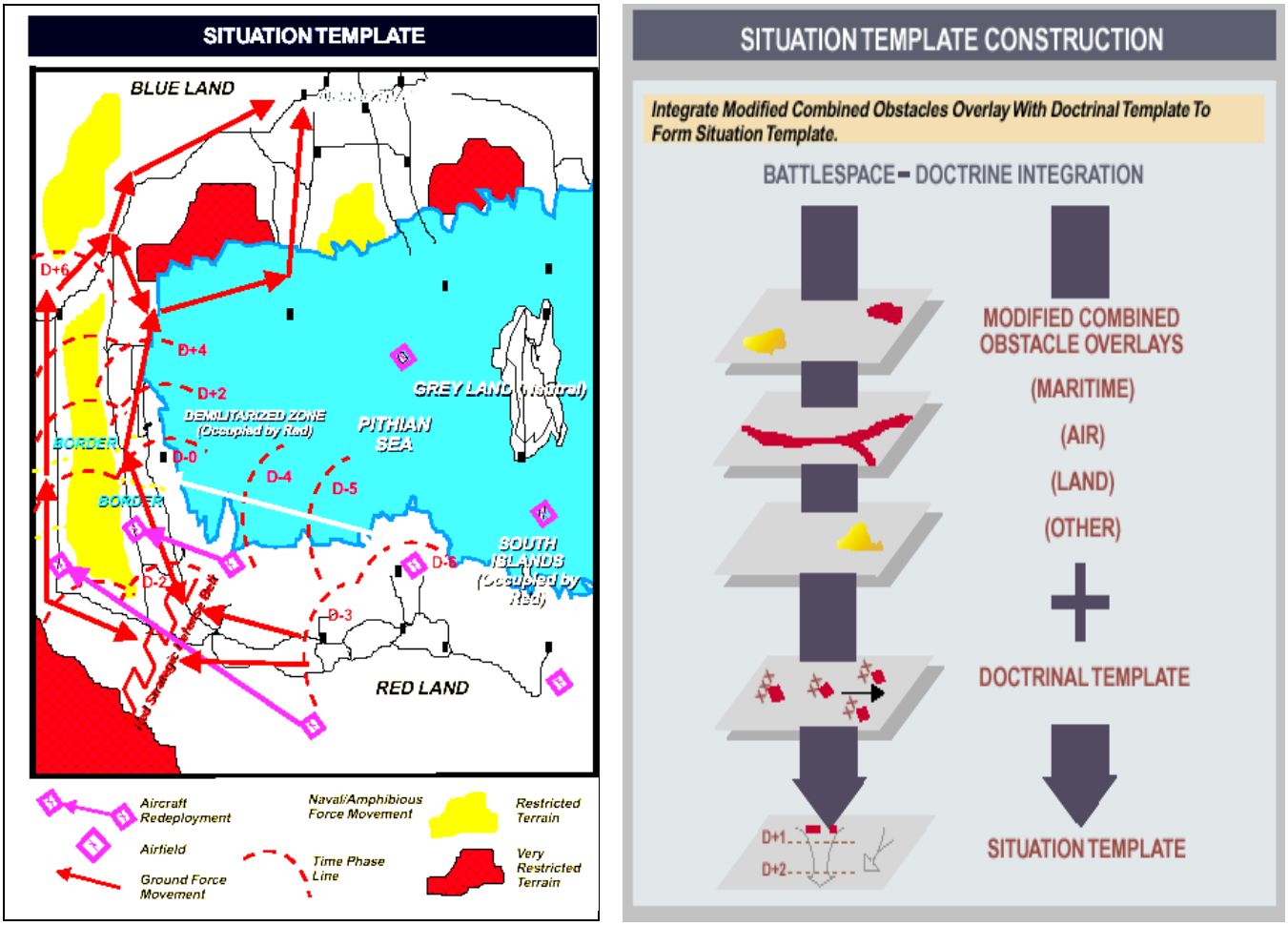


Figure A-4. Situation Template Construction and Example (JP 2-01.3)

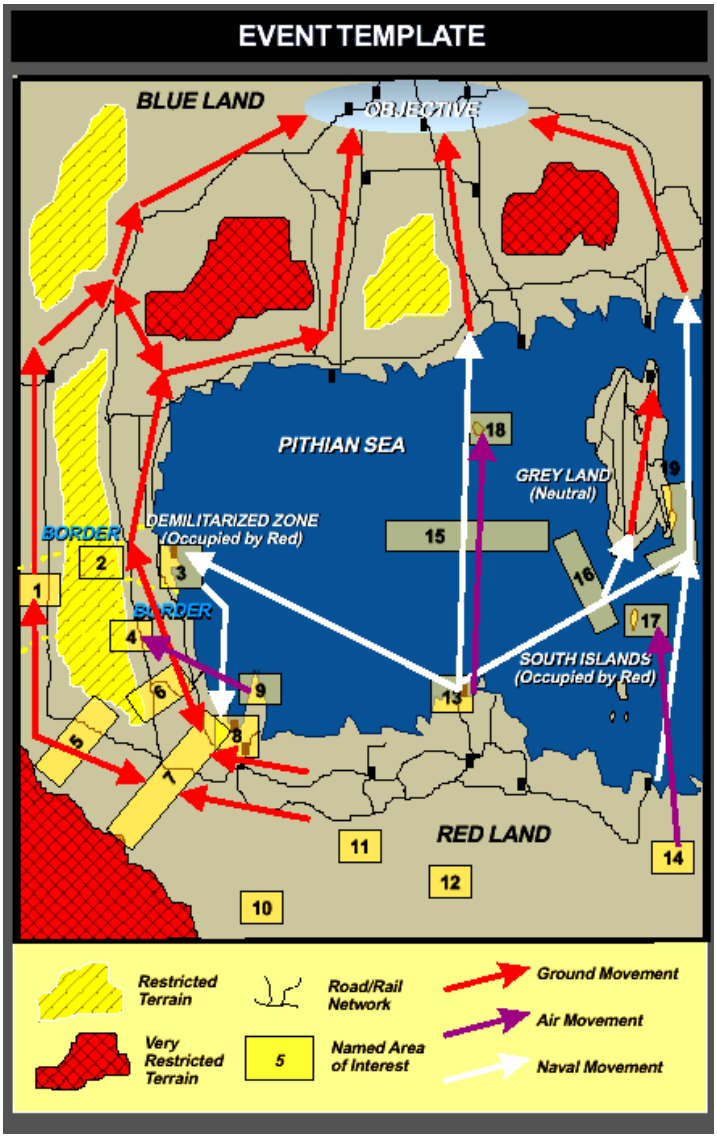


Figure A-5. Example Event Template Showing NAIs (JP 2-01.3)

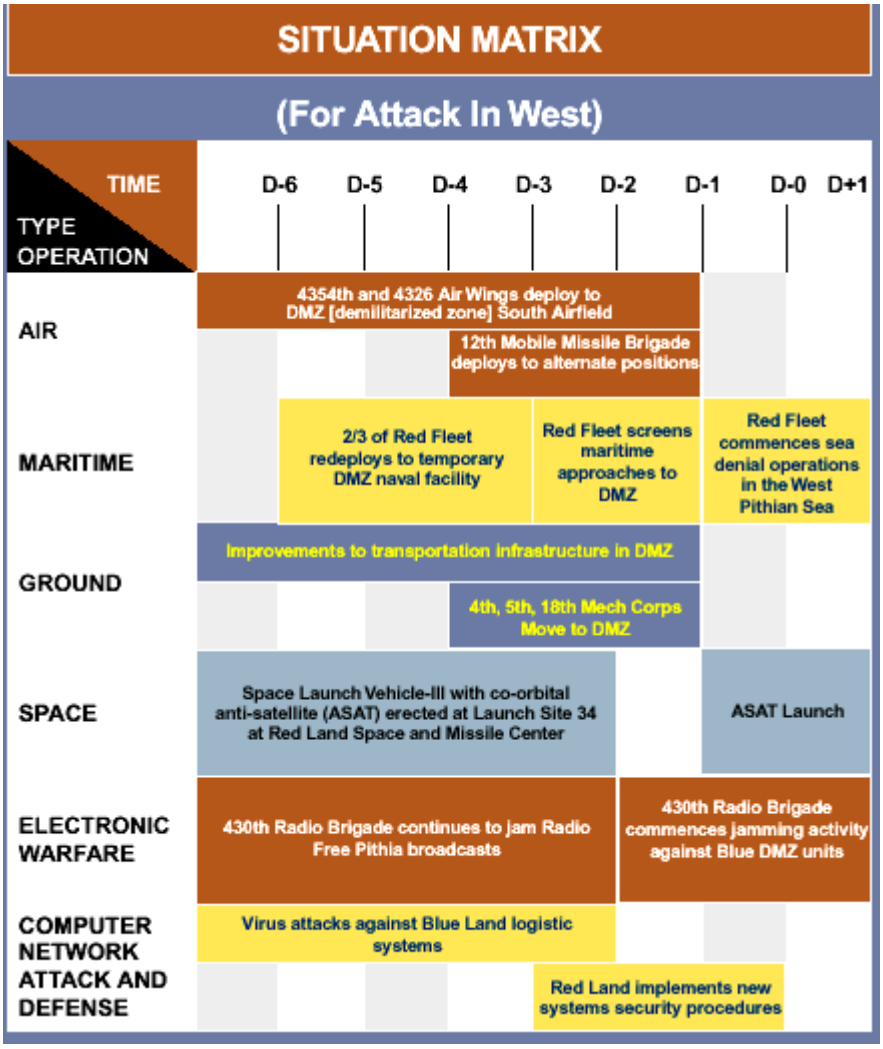


Figure A-6. Example of a Situation Matrix (JP 2-01-3)

Many different formats and methods may be used. An example of one type of collection matrix is provided below.

NAI	Est Time	Indicators ECOA1	Indicators ECOA2	Indicators ECOA3
1	D-3	Surface combatants missing from port		Forward movement of corps size force
2	D-2		Forward deployment of combat aircraft	Laying of minefields
3	D-1	Increased reconnaissance along coastal areas	Increased IADS readiness and activity	
4	H-12	Naval SOF activity		Artillery assault

APPENDIX B: Force Ratio / Force Multiplier Data

Summary:

This appendix lays out two methods of conducting Relative Combat Power Analysis (RCPA). Both methods are rough analysis techniques, which give planners a starting point for considering force requirements for a given operation. The first technique is a simple comparison of like type forces with little further refinement. The second technique adjusts like type force comparison based upon differing force structures. Each technique requires increasingly more time to construct the supporting data. However, no matter which technique is used, the planners must also consider the impact of other tangible and intangible factors as well as the influence of other joint forces on the force ratios.

I. ANALYZING RELATIVE COMBAT POWER[25]

Combat power is the effect created by combining maneuver, firepower, protection, and leadership, the dynamics of combat power, in combat against the enemy. By integrating and applying the effects of these elements with any other potential force multipliers (logistics, morale, experience, doctrine, etc.) as well as other joint forces available against the enemy, the commander can generate overwhelming combat power to achieve victory at minimal cost. This task is difficult, at best. It requires an assessment of both tangible and intangible factors as well as consideration of an inordinate number of those factors either directly or indirectly affecting the potential outcome of the battle.

However, by analyzing relative-force ratios and determining and comparing each force's most significant strengths and weaknesses as a function of combat power, planners can gain some insight into:

- Friendly capabilities pertaining to the operation.
- What type operations may be possible from both friendly and enemy perspectives?
- How and where the enemy may be vulnerable?

Although some numeric relationships are used in this process, it nevertheless remains a largely subjective estimate. The COAs must not be based strictly on mathematical analyses. Pure, logical approaches are often predictable, sacrificing the surprise that bold, audacious action can achieve.

1. Equal Value Force Ratios.

Planners can initially make a rough estimate of relative-force ratios. Figure B-1 shows an analysis in which planners are counting land-centric forces as roughly equal to enemy equivalents.

[25] This appendix draws heavily from the Army CGSC ST 100-3 Battle Book DTD JUL99 and FM 34-130 *Intelligence Preparation of the Battlefield*, Appendix B. See NWP 5-01 *Navy Planning* for maritime examples of combat power analysis.

Friendly Force Unit	#	Enemy Force Unit	#
Armored Division	3	Armored Division	4
Airborne Brigade (1 ea)	(1/3 of a Div)	Airborne Regt. (1ea)	(1/3 of a Div)
TOTAL Ratio = 3.33 : 4.33 or 1.0 : 1.3	**3.33**	**TOTAL**	**4.33**

Figure B-1. Example of Equal Value Force Ratios (Equal Values)

2. Equivalent Relative Force Ratios.

Seldom will the United States face a force that has equal force values as we see in Figure B-1. In order for the planners to adapt this rough planning tool they must have a means to adjust enemy force values to an equivalency to U.S. forces. The intelligence staff is responsible for producing these enemy equivalency values. For example, though REDLAND may have fielded Armored Divisions, their Divisions may be smaller, with fewer tanks of lesser capability than the U.S. Armored Division. As such, the intelligence staff may assess the REDLAND Division at a lesser value than the U.S. Armored Division, possibly a .55 value. The same analysis would follow for each REDLAND combat capability. A further refinement of this process would be using a single base combat element (in this case an Armored Division) and providing an *equivalent relative value* to each force element (both enemy and friendly). For example, a U.S. Airborne Brigade's relative strength to a U.S. Armored Division is .30 and a REDLAND Airborne Regiment might have an assessed value of .25. See Figure B-2 for an example of relative combat power computations.

Friendly Force Unit	#	Enemy Force Unit	#
Armored Division (3)	3	Armored Division (4)	1.20
Airborne Brigade (1)	.30	Airborne Regiment (1)	.25
Attack Avn Brigade (1)	.50	Aviation Regiment (1)	.30
Field Arty Brigades (4)	1.20	Field Arty Regiments (3)	.90
		Anti-Tank Regiment (1)	.20
TOTAL Ratio = 5 : 2.85 or 1.0 : .6 NOTE: Using Armored Division Equivalents	**5**	**TOTAL**	**2.85**

Figure B-2. Example of Equivalent Relative Force Ratios (Relative Values)

This form of calculation is normally only applied between like services, since assessing an Armored Division Equivalent (or other single service combat force) value to a Carrier Battle Group or Air Superiority Squadron becomes complex and diminishes the value of this rough analytic tool. Techniques that integrate other joint force assets are addressed later in this appendix.

3. Other Force Ratio Considerations.

When the staff finishes its computations, it draws conclusions about friendly and enemy relative capabilities and limitations as they pertain to the operational situation. These computations give the staff a feel for relative strengths and weaknesses, but not absolute mathematical answers as to what friendly or enemy forces will do. Numerical relative-force ratios do not include the human factors of warfare. Many times human factors may be more important than the number of tanks or tubes of artillery. Therefore, the staff must carefully consider and integrate them into their comparisons. By using historical minimum-planning ratios for various combat missions and carefully considering terrain and enemy templating assumptions, planners can generally conclude what type of operations they can conduct (Figure B-3).

Friendly Mission	Friendly: Enemy	Position
Delay	1 : 6	N/A
Defend	1 : 3	Prepared or fortified
Defend	1 : 2.5	Hasty
Attack	3 : 1	Prepared or fortified
Attack	2.5 : 1	Hasty
Counterattack	1 : 1	Flank

Figure B-3. Example of Historical Minimum Planning Ratios

A planner first compares the relative force ratios with the ratios in column 2 of Figure B-3. He can then determine if his unit has the odds that would give him the flexibility to conduct any type of operation he desires. The J2/G2/N2 will also assess if the enemy has that capability. In a defensive situation, the planner would know the enemy must conduct a penetration. In an offensive situation, he would know he could not conduct offensive operations without massing his forces and accepting risk in some area. He would be able to use this information when he begins developing a scheme of maneuver. If he identifies a ratio closer to one of the other planning ratios, he could draw other conclusions indicating another type of possible operation. This step provides the planner with a notion of “what to,” not “how to.” There is no direct relationship between force ratios and attrition or advance rates. Relative-force ratios do not necessarily indicate the chance for success.

II. REFINE ANALYSIS AND DETERMINE RELATIVE COMBAT POWER

The values calculated earlier are empirical values based solely on relative technological levels, equipment capabilities, and manning levels of the affected units. Other factors such as weather, morale, leadership, training, terrain, cultural and societal limitations, relative technological levels between the forces, and surprise can greatly influence the relative combat power of units.

> "A unit can achieve effects beyond its absolute combat power by maximizing relative combat power potential. Through the application of strengths against weaknesses and the minimization of weaknesses against enemy strengths, the maneuver-oriented unit can attain a relative combat power advantage against a numerically superior force."[26]

The J2/G2/N2 must incorporate subjective factors into the analysis to more precisely determine the relative combat power between friendly and threat forces. When realistically conducted, the wargaming phase of the decision making process is particularly useful in determining some of the additional factors that will influence the combat power of a unit. Some factors that may affect relative combat power potential:

1. Force Capabilities.

Air, Naval, and Space Superiority: Air, naval, and space superiority generally allow the dominant power to deliver more effectively munitions against land threat forces, and conduct more efficient resupply operations. Bad weather, favorable terrain for the threat forces, lack of suitable port facilities or airfields, or an effective concealment and deception plan can mitigate these advantages.

Information Operations (IO): Information operations include military deception, counter-deception, OPSEC, electronic warfare capabilities, information assurance, psychological operations, counterintelligence, and counterpropaganda operations. The threats ability to conduct or counter friendly efforts in the IO spectrum can decisively influence the relative combat potential of a threat force.

Information Superiority: Relative advantages in intelligence and command and control can decisively influence the outcome of combat and substantially increase the lethality of friendly forces. Initiative in the areas of digitalization, automation, and intelligence provide a significant advantage to U.S. forces due to significant advantages in situational awareness. The availability of other assets such as JSTARS and tactical UAV can drastically improve targeting. On the other hand, loss of these systems or an effective threat deception plan can neutralize the advantages of these assets.

CBRNE Capabilities: The presence of CBRNE munitions, delivery systems, their use or indications of imminent use may significantly affect the relative combat power potential. Also

[26] Army CGSC ST 100-3, pp. 15-17.

considered under this category is whether the threat force possesses the national will to use CBRNE weapons.

Special Operations Forces (SOF): Both threat and friendly special operations forces are a force multiplier, the effects of whose actions cannot be quantified through the calculation of a Relative Combat Power Value. For example, the presence of a small threat SOF unit in the friendly force's rear area, although relatively ineffective in terms of combat power, may divert significant forces for rear area security. Several threat countries maintain a robust SOF capability, which through sabotage and other operations may profoundly affect friendly force combat and resupply operations.

Threat Leadership and C2: Command and control may also influence threat capabilities, especially if threat leadership has either positively or negatively influenced morale. Charismatic leadership may greatly improve threat unit capabilities, whereas either poor leadership or successful efforts by friendly forces to undermine threat command-and-control may diminish the relative capabilities of threat units.

2. Environmental Effects.

Terrain: Terrain affords each force certain mobility or positional advantages and disadvantages. The relative advantages and disadvantages will further define how effectively each unit is able to bring its combat power to bear. Each unit's knowledge of the area of operation can also influence the relative combat power of each. In most instances, the force most familiar with the terrain will be able to use its existing combat power most effectively.

Weather: Weather conditions may provide an advantage to either friendly or threat forces that could improve or diminish their relative combat power. For example, under certain environmental conditions such as heavy fog or smoke obscuration, the U.S. force may have a relatively greater capability to detect threat movement at longer ranges due to a technological advantage in thermal sight capability or ground-surveillance radar. Under those specific conditions, forces may have a greater force value than originally assigned. The intelligence officer for the U.S. force under these weather conditions may choose to subjectively downgrade the values for the opposing units to reflect these conditions.

3. Combat Effects.

Experience: Relative levels of combat experience of the threat commander will influence the combat effectiveness of the units and therefore the relative force ratios.

NBC Posture: Operations in an NBC environment or by personnel in NBC defensive gear may significantly degrade due to the physical and psychological limitations of operating in an NBC environment.

Reconstitution: The ability of a force to reconstitute itself during a campaign will significantly affect the combat strength of the unit. Additionally, a reconstituted force will possess somewhat

less combat power than the original force due to the effects of integrating new personnel, losses in leadership and experience, combat damage to equipment, and so forth.

Tactical Surprise: Surprise may significantly influence the relative combat power resulting in a significantly higher value for the surprising force. The intelligence analyst must subjectively determine how drastically the element of surprise will affect the force ratio.

Threat Morale: Morale is an intangible that may greatly affect the combat power of a unit. An assessment of the threat forces' morale may be based on human intelligence (HUMINT) or communications intelligence (COMINT) reporting, observed threat behavior, or other forms of reporting and can be difficult to discern reliably except under extreme circumstances. For example, threat forces defending their homeland, although under demoralizing conditions, may be highly motivated and be capable of defending at a higher level than represented in the assigned force values. Conversely, friendly psychological or combat operations may substantially degrade the morale of a threat force.

4. Other Factors.

Other factors such as training, cultural, societal, or seasonal limitations may further affect threat and friendly unit relative capabilities.

The scope of the calculations for absolute force ratios and relative combat force potential is limited only by time and analytical resources. Contingency planning may allow for a more thorough calculation of force ratios, while the analyst in a high OPTEMPO environment may be able to complete only a rudimentary calculation during the decision making process.

At the end of this analysis, the intelligence analyst should be able to succinctly state the relative combat potential for the threat force. For example, "although the absolute force ratio between the U.S. force and the 23^{d} Guards Division is 1.96: 1.00, REDLAND, has superior knowledge of the terrain and has occupied heavily fortified defensive positions along the high ground in vicinity of the capital city. According to HUMINT reporting, the morale of 23^{d} Guard's units is mostly high. Their leadership has participated in four other battles against U.S. forces, and has likely learned from those experiences."

APPENDIX C: Center of Gravity Determination

While primarily a strategic and operational level concern, the identification of both the enemy and friendly centers of gravity is an essential element of any plan. If the staff gets this part wrong, the operation will at best be inefficient and, at worst, end in failure. The commander and staff should be deeply involved in a dialogue with the higher joint force headquarters planning staff during this critical analysis. While tactical-level organizations may not be party to the formulation of a COG analysis, they most certainly will be participants in the execution of the resulting tactical objectives and tasks that are derived from the analysis. Therefore, even tactical commanders and their planning staffs should be familiar with the process and reasoning used for the COGs analysis in order to place their own operations in the proper context.

The purpose of this appendix is to provide the planner with a brief review of each of the information requirements displayed in the COG worksheet described in Chapter 1. This appendix is not intended to replace the extensive study of the nuances of COG analysis that all planners should strive to master; rather, it is intended to identify information requirements and to offer some considerations in the application of the collected data. The reader will note that the JOPP has the staff collecting information for both the enemy and friendly COGs. Neither can be identified nor considered in a vacuum—a common staff planning mistake. The struggle between opposing forces employing their unique means and ways to achieve their respective ends (objectives) is a dynamic that can only be appreciated if they are viewed collectively. While the explanations and examples provided below are for enemy COGs analysis, the process is the same for determining and analyzing friendly COGs. The only differences are in the planning actions taken once the analysis is completed. Planners develop courses of action that focus on defeating the enemy's COG while at the same time mitigating risks to their own COG.

Figure C-1 illustrates the flow used to identify a COG and to determine the ways in which it can be attacked. Each step of the process, as it corresponds to the numbers in Figure C-1, is described below. Later in this appendix an example, Desert Storm Enemy COG Analysis, is provided in Table C-1.

C.1 IDENTIFY THE OBJECTIVE(S)

Identifying the objective is a critical first step. Before one can determine a COG, the objective(s) must be identified. If this portion of the analysis is flawed, then the error infects the remainder of the process. The planner should first determine the ultimate (strategic or operational) objectives and then the supporting intermediate (operational or major tactical) objectives. The operational objectives should show a direct relationship to the strategic objectives. If this linkage between strategic and operational objectives cannot be established, the objectives are suspect. Objectives, and particularly strategic objectives, usually have requirements/tasks that fall primarily into the responsibility of instruments of power other than the military. These are still important to identify since the military may have a supporting role in their accomplishment.

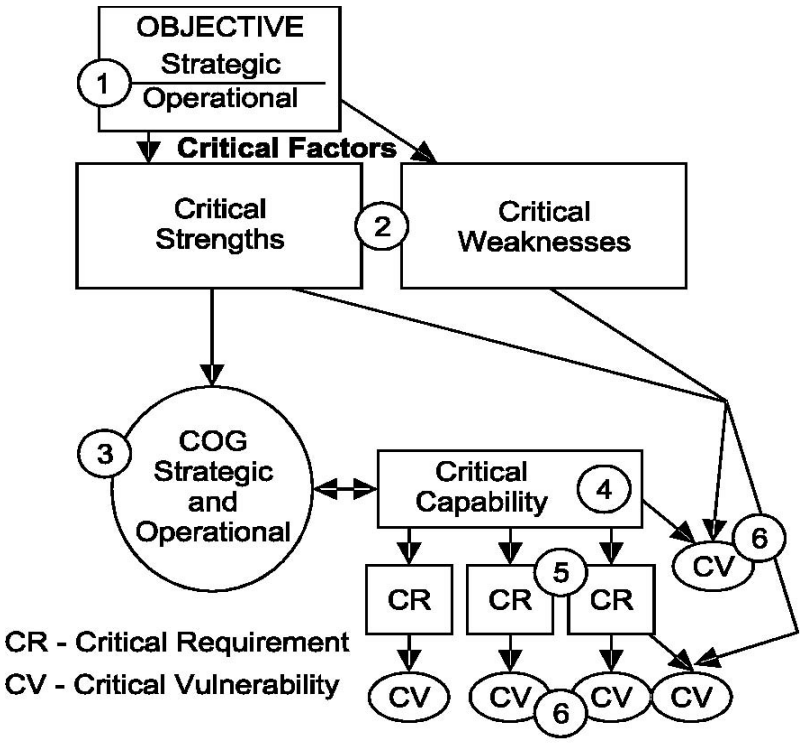


Figure C-1. Center of Gravity Flow Chart

C.2 IDENTIFY CRITICAL FACTORS

Critical factors are those attributes considered crucial for the accomplishment of the objective. These factors that in effect describe the environment (in relationship to the objective) must be identified and classified as either sufficient (critical strength) or insufficient (critical weakness). Critical factors are a cumulative term for critical strengths and critical weaknesses of a military or nonmilitary source of power; they can be quantifiable (tangible) or unquantifiable (intangible); critical factors are present at each level of war; they require constant attention because they are relative and subject to changes resulting from the actions of one's forces or of the enemy's actions. It is important while conducting the analysis for this step that planners maintain a sharp eye on the objectives identified in the first step—each level of war has critical factors that are unique to that level. The questions that should be asked when determining critical factors for the enemy are: "What are the attributes, both tangible and intangible, that the enemy has and must use in order to attain his strategic (operational) objective?" These are critical strengths. The second question is, "What are the attributes, both tangible and intangible, that the enemy has and must use in order to achieve his strategic (operational) objective, but which are weak and may impede the enemy while attempting to attain his objective?" These are critical weaknesses. The answers to these two questions will produce a range of critical strengths and critical weaknesses associated with specific levels of war. One should note that, like the close relationship expected to be found between strategic and operational objectives, there will undoubtedly be some critical strengths and critical weaknesses that have a similar close relationship between the corresponding critical factors. For example, a strategic critical weakness, such as a strategic

leader having a tenuous communications link to his fielded forces, may also create an operational critical weakness for fielded forces unable to reliably communicate with their higher command.

C.3 IDENTIFY THE CENTERS OF GRAVITY

Joint doctrine defines a COG as "The source of power that provides moral or physical strength, freedom of action, or will to act." (JP 3-0) While the definition is helpful for assisting in the identification of the operational COG, when considering the strategic COG, a planner should be alert to the fact that the definition is not focused upon only the military aspects of the analysis. In view of the discussion in the first step, when strategic objectives are being identified planners should consider the broader application of the definition, remembering that the role of instruments of power other than the military may prevail.

The COGs at each level of war should be found among the listed critical strengths identified within the critical factors of Step Two. While all of the identified strengths are critical, the planner must deduce which among those capabilities identified rise(s) above all others in importance in accomplishing the objective (that is, those tangible and intangible elements of combat power that would accomplish the assigned objectives)—this critical strength is the COG. This does not diminish the importance of the other critical strengths; however, it forces the planner to examine closely the relationships of the various critical strengths to one another and the objective. This close examination of interrelationships could be improved by using a systems perspective of the operational environment. Such a study may well offer the planner an enhanced understanding of an adversary's COG and its interdependencies. See JP 5-0 for more information on the systems approach to COG refinement. This analysis of these relationships will prove important in the next step.

C.4 IDENTIFY CRITICAL CAPABILITIES

Joint doctrine defines a critical capability as "a means that is considered a crucial enabler for a COG to function as such and is essential to the accomplishment of the specified or assumed objective(s)."(JP 3-0) (See Figure C-2.) If the COG is a physical force (often the case at the operational level), the commander and staff may wish to begin their examination of critical capabilities by reviewing the integration, support, and protection elements of the enemy's combat power as they apply to the COG. Many of these elements are often found in the joint functions as described in the Universal Joint Task List (C2, intelligence, sustainment, protection, fires, and movement and maneuver). Moreover, these capabilities often are located within the critical strengths and weaknesses identified in Step Two. The planner should be alert for two major

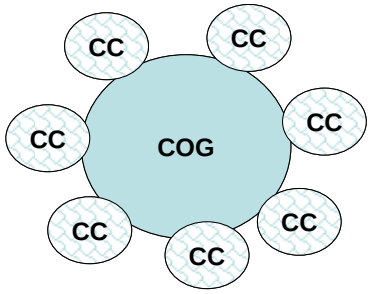


Figure C-2. Center of Gravity (COG) is enabled by Critical Capabilities (CC)

considerations. First, although a capability is a critical strength, if it bears no relationship to the identified COG, it cannot be considered a critical capability. The second consideration is that although some capability may be perceived as a critical weakness, if it is an essential enabler for the enemy COG, then it is a critical capability, albeit weak in nature. An example of this phenomenon could be the same communications circumstance offered earlier in Step Two. A critical capability for an operational COG to accomplish its mission might be its ability to exert C2—its ability to receive direction as well as communicate directives to subordinates. The fact that this capability has been deduced to be a weakness does not diminish its importance to the COG for accomplishment of its assigned mission. This insight of a capability's weakness is applied at a later step.

C.5 IDENTIFY CRITICAL REQUIREMENTS

Once a COG's critical capabilities are identified, the next step is for the staff to identify those essential conditions, resources, and means for a critical capability to be fully operational (see Figure C-3). These are the critical requirements that support each of the critical capabilities. This is essentially a detailed view of what comprises a critical capability. Using the C2 example as a critical capability, the critical requirements might include tangible requirements such as: communication nodes, antennas, frequency bands, individual command posts, spare parts, bandwidth, specific satellites, and so forth. It may also include intangibles such as commander's perceptions and morale.

Planners should be cautious at this point. One is often presented with a wealth of potential targets or tasks as each critical capability is peeled back and the numerous supporting critical requirements are identified. There is often a temptation to stop at this point of the analysis and begin constructing target lists. Such an action could result in a waste of resources and may not be sufficient to achieve the desired effects. The planner should find the sixth step as a more effective way to achieve the defeat of a COG.

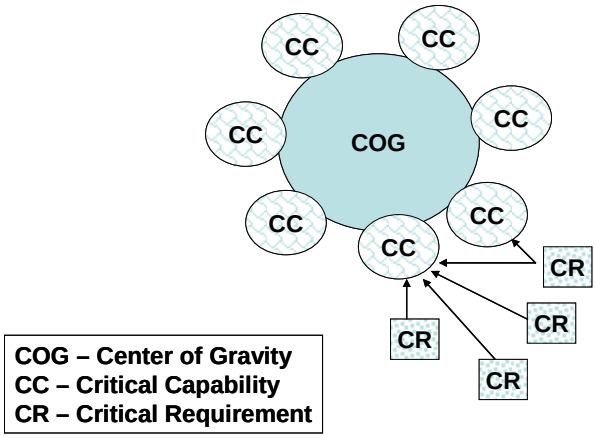


Figure C-3. A Critical Capabilities (CC) is composed of Critical Requirements (CR)

C.6 IDENTIFY CRITICAL VULNERABILITIES

Joint doctrine defines a critical vulnerability as "an aspect of a critical requirement which is deficient or vulnerable to direct or indirect attack that will create decisive or significant effects." (JP 3-0) (See Figure C-4.) The planner should contemplate those critical capabilities and their supporting critical requirements in this regard, keeping in mind that these weaknesses must bear a direct relationship to a COG and its supporting critical capabilities for it to be assessed as a critical vulnerability. Striking a weakness that bears no such relationship is simply a measure taken to harvest "low hanging fruit" that offers no decisive benefit. The planner should also take

this opportunity to consider the previously assembled lists of critical strengths and critical weaknesses from Step Two to determine if there are any critical factors with a close relationship to the COG that were not captured in the previous critical capability/critical requirement steps (steps four and five).

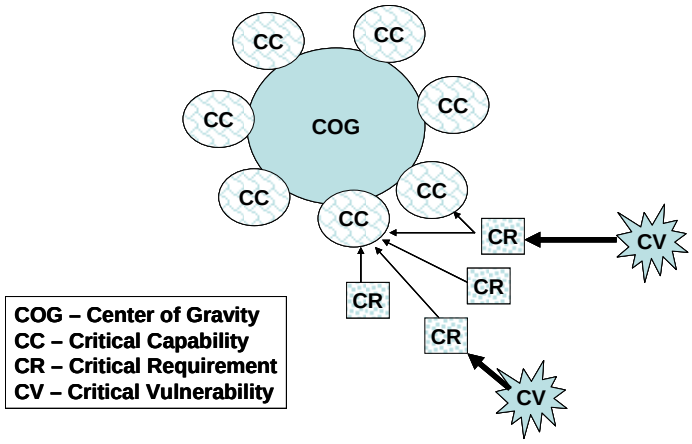


Figure C-4. A Critical Requirement (CR) may be assessed as a Critical Vulnerability (CV)

While the planner first seeks critical weaknesses within the critical capabilities and supporting critical requirements as implied by the definition, there might be opportunities found in critical strengths that provide decisive or significant results disproportionate to the military resources applied. An example might be the integrated air defense (IAD) that is protecting an operational COG. While this critical capability might be assessed as a strength, its neutralization and the subsequent opening of the COG to direct attack may be assessed by the commander as more favorable in regard to the amount of resources and time expended to achieve the desired effects.

C.7 IDENTIFY DECISIVE POINTS

Though not reflected in Figure C-1, identification of decisive points (DP) remains an important feature of the COG analysis and its subsequent defeat or neutralization. Joint doctrine defines decisive points as "a geographic place, specific key event, critical factor, or function that, when acted upon, allows commanders to gain a marked advantage over an adversary or contribute materially to achieving success."(JP 3-0) As with all previous steps, the value of a DP is directly related to its relationship to a COG and its objective (see Figure C-5). In the example shown in Figure C-5, from a friendly COG perspective, DPs 1 and 4, which provide access to the friendly COG, must be protected from attacks by the enemy COG. Decisive Points 2 and 3, which provide decisive access to the enemy COG, become friendly objectives or tasks. If there is no relationship, it is not a DP. A DP is

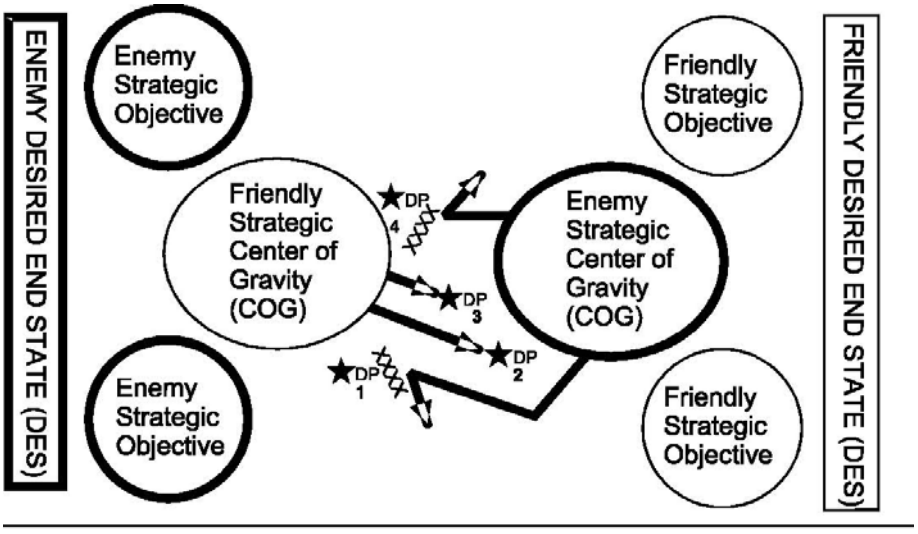


Figure C-5. Theoretical Relationship of Two Opposing COGs and Their Decision Points

neutral in nature; that is, it is by definition as important to both the enemy and friendly commanders. If, for example, an APOD/SPOD complex is a DP for a friendly commander, enabling that commander to project the COG through it on the way to the objective, then the enemy commander will also assess the complex as a threat to the enemy COG and should attempt to deny the friendly force commander control of the DP. In both cases, this DP, if within the capability of the force, will undoubtedly become an objective or task assigned to both enemy and friendly subordinate commands. Failure to do address potential DPs becomes an identified risk to one's COG. For the tactical commander and staff, operational-level DPs invariably translate into tactical objectives and/or tasks. Using the APOD/SPOD DP example mentioned above, one might find the friendly joint force commander assigning the JFMCC the tactical task of "Seize Redland SPOD NLT D+2 in order to support the flow of JTF Blue Sword forces into Redland."

The planner must remember that this is a dynamic process. Any changes in the information considered in the first two steps of this process require the staff to revalidate its conclusions and subsequent supporting operations. As objectives change, the sources of power required to achieve the desired end state might also change. As new sources of strength appear in the operational environment, how do they interact?

Table C-1 provides an example enemy COG analysis using the worksheet provided in Chapter 1 (note that the same must be done for the friendly COG to ensure measures are taken to protect one's own COG). This example is not intended to be exhaustive and serves only as an illustrative example, exploring only a single critical capability and its associated critical requirements, and offering simply a selection of DPs.

Enemy Center of Gravity Determination

Table C-1. Desert Storm Enemy COG Analysis

Identify

1a. Strategic Objective(s)

- Retain Kuwait as 19th Province
- Enhance Saddam Hussein's hold on power
- Increase Iraq's political and military influence in the Arab world.
- Increase Iraq's power and influence within OPEC

1b. Operational Objective(s)

- Defeat or neutralize a coalition attack to liberate Kuwait
- Prevent coalition forces from obtaining air superiority
- Prevent coalition forces from obtaining sea control in the northern part of the Persian Gulf

2a. Critical Strengths

- Integrated Air Defense (IAD)
- WMD
- Land-based ballistic missiles (Scuds)
- Republican Guards in the Kuwait Theater of Operations (KTO)
- Forces are in defensive positions
- Saddam and his strategic C2
- Combat experienced units and commanders
- Missile-armed surface combatants
- Sea Mine inventories and delivery platforms

2b. Critical Weaknesses

- World Opinion; Arab world outrage
- Long and exposed Land LOCs from IRAQ to KTO.
- Combat skills and readiness of the Air Force
- Numerical and qualitative inferiority of naval forces
- Low morale and poor discipline of regular forces
- Class IX for weapon systems
- Inadequate forces to protect the Iraq-Iranian border

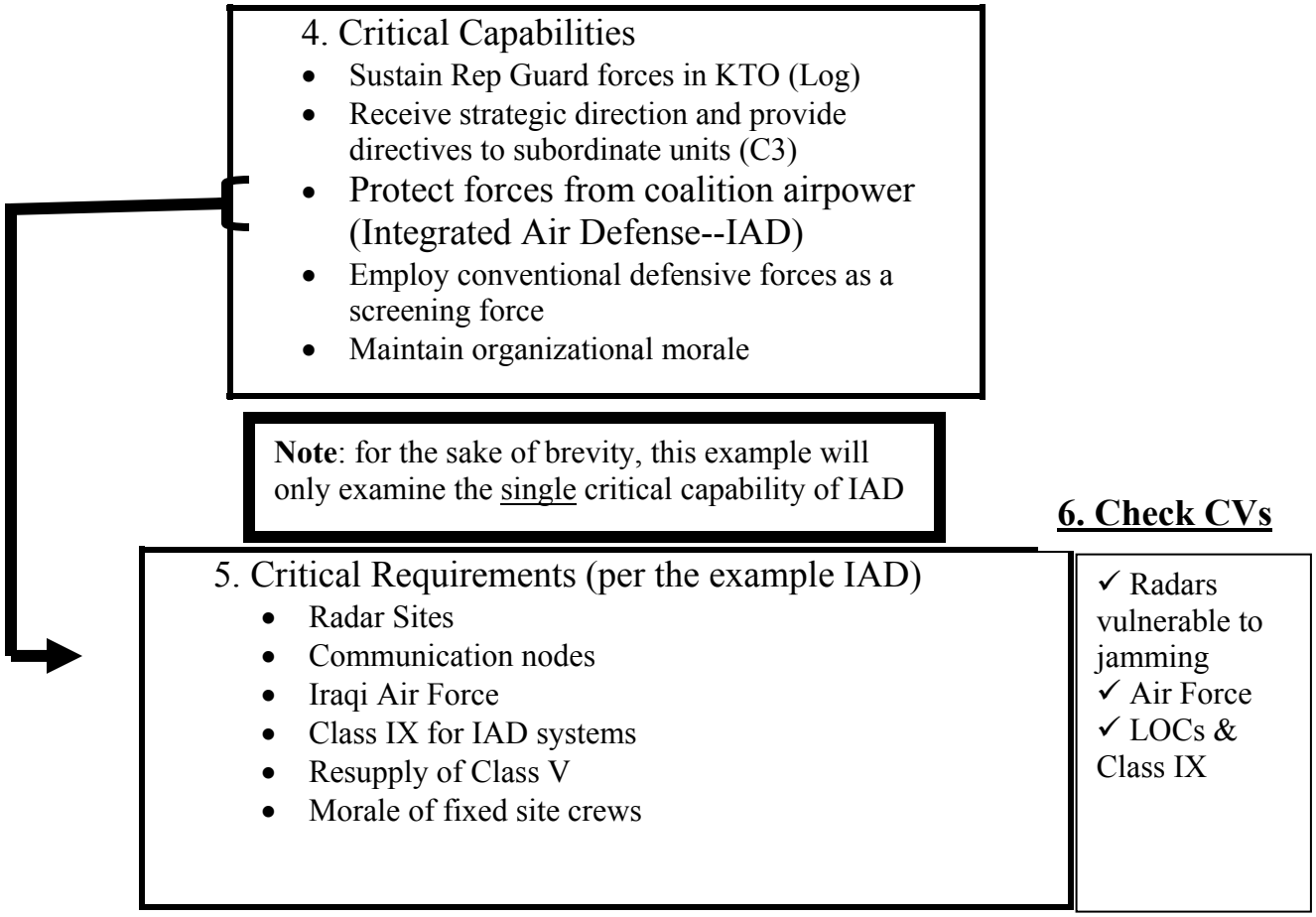
3a. Strategic COG

Saddam and his inner circle security apparatus

3b. Operational COG

Republican Guards in the Kuwait Theater of Operations (KTO)

Note: for the sake of brevity, this example will only examine the Operational COG



Decisive Points

(NOTE—SELECTED EXAMPLES, NOT AN EXHAUSTIVE LISTING)

Figure C-1

- APODS & SPODS in Saudi Arabia
- Strait of Hormuz
- APODS in Turkey
- Kuwait SPOD

APPENDIX D: Sample Planning Assumptions

- Shipping and air augmentation assets will be available when the country YELLOW becomes involved in the hostilities.
- Country YELLOW will remain neutral, but will deploy the major part of its forces along the border of country BRAVO.
- Country GREEN will (not) allow use of its ports and air heads for transit of BLUE forces.
- Canal ZULU will remain open during hostilities for all U.S. shipping.
- Country PURPLE and YELLOW will (not) remain neutral.
- Country GREEN will (not) allow over flight rights to U.S. aircraft.
- Country ORANGE will (not) provide basing rights for U.S. ships carrying nuclear weapons.
- Country CRIMSON will (not) allow basing of U.S. ships and aircraft if they do (not) conduct combat missions against country RED.
- Country BROWN will not grant basing rights to the enemy forces.
- RED will (not) use weapons of mass destruction (WMD).
- No RED reinforcements are expected in the Bravo area.
- RED Force ALFA will (not) use air surveillance/targeting aircraft.
- Ratios of forces will (not) remain unchanged for the next 48 hours.
- Reserves will be fully mobilized NLT _____.
- Forces will deploy with _____ Days of Supply.

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APPENDIX E: Risk Assessment

Uncertainty and risk are inherent in any use of military force or routine military activity. Commanders cannot be successful without the capability of acting under conditions of uncertainty while balancing various risks and taking advantage of opportunities. Earlier, in STEP 1, the commander conducted his initial risk assessment. In STEP 2 the staff will develop a more focused assessment of the operational risks and offer means to mitigate them. There are several types of risk. However, the risk discussed in relation to the plan/concept is associated with the dangers, which exist due to the presence of the enemy, the uncertainty of the enemy intentions, and the potential rewards, or dangers of friendly force action in relation to mission accomplishment.

Where resources are scarce, the commander may accept risk by applying the principle of economy of force in one area (supporting effort) in order to generate "massed effects" of combat power elsewhere (main effort). In an effort to effect surprise or maintain tempo he may begin action prior to the closure of all units or sustainment assets. To maneuver or move the force for further actions, force protection may be sacrificed somewhat by maneuvering a part of the force through a contested area. Rarely will forces be so mismatched that the commander is not concerned with risk to the mission, and even in these situations he will still desire to minimize the individual risk to his forces. All these are examples of risk—risk a commander alone determines how and where he is willing to accept.

While risk cannot be totally eliminated, it can be "managed" by a systematic approach that weighs the costs—time, personnel, resources—against the benefits of mission accomplishment. Planners identify potential hazards to mission accomplishment and assess the probability and severity of each hazard. Commanders determine the acceptable level of risk and express this determination in their planning guidance. The staff uses the commander's risk guidance as a guide and incorporates it into each COA to develop control measures to reduce identified hazards. Risk management won't prevent losses but, properly applied, it will allow the commander to take necessary and prudent risks without arbitrary restrictions, and while maximizing combat capabilities.

Accepting risk is a function of both risk assessment and risk management. This entails:

- ***Identification of threats.*** Identify threats to the force. Consider all aspects of **M**ission, **E**nemy, **T**errain, **T**ime, **T**roops, and **C**ivil Considerations (METT-TC) for current and future situations. Sources of information about threats include reconnaissance, intelligence, experience/expertise of the commander and staff, and so forth.

- ***Assessment of threats.*** Assess each threat to determine the risk of potential loss based on **probability** (frequent–occurs often, continuously experienced; likely–occurs several times; occasional–occurs sporadically; seldom–unlikely, but could occur at some time; unlikely–can assume it will not occur) and **severity** (catastrophic–mission is made impossible; critical–severe mission impact; marginal–mission possible using alternate options; negligible–minor disruptions to mission) of the threat. Determining the risk is

more an art than a science. Use historical data, intuitive analysis, and judgment to estimate the risk of each threat. Probability and severity levels are estimated based on the user's knowledge of probability of occurrence and the severity of consequences once the occurrence happens. The *level of risk* is assessed by a combination of the threat, its probability of occurring, and *degree of severity*. The levels of risk are extremely high–loss of ability to accomplish mission; high–significantly degrades mission capabilities in terms of required mission standard; moderate–degrades mission capabilities in terms of required mission standards; and low–little or no impact on accomplishment of the mission.

- ***Address risk, determine residual risk, and make risk decision.*** For each threat, develop one or more options that will eliminate or reduce the risk of the threat. Specify who, what, where, when, and how. Determine any residual risk and revise the evaluation of the level of risk remaining. The commander alone then decides whether or not to accept the level of residual risk. If the commander determines the risk is too great to continue the mission or a COA, he directs the development of additional measures to account for the risk or he modifies (or rejects) the COA.

- ***Define indicators.*** Think through the threat—what information will provide indication that the risk is no longer acceptable? Ensure subordinates and staff are informed of the importance of communicating the status of those indicators.

- ***Observe and evaluate.*** In execution, monitor the status of the indicators and enact further options as warranted. After the operation, evaluate the effectiveness of each option in reducing or eliminating risk. For options that were not effective, determine why and what to do the next time the threat is identified.

Applying risk management requires a clear understanding of what constitutes "unnecessary risk," when the benefits actually do outweigh costs, and guidance as to the command level to make those decisions. When a commander decides to accept risk, the decision must be coordinated with the affected units—where and how the commander is willing to accept risk is detailed in each COA. Another way to compensate for increased risk is to allocate time and resources for developing the situation to subordinate elements.

Bottom Line: Planners must identify risks inherent to the operation and offer specific measures in their COAs/CONOPS to mitigate the risks. The commander must be aware of the residual risk after mitigating measures have been applied.

APPENDIX F: Examples of Governing Factors

(Potential governing factors include elements of the commander's guidance; wargaming results; selected principles of war; external constraints or any other criteria the commander desires)

- Which COA is most *decisive*?
- Which COA requires the *least time*?
- Which COA is least complicated by *Rules of Engagement*?
- Which COA allows the greatest flexibility in selecting the best *time and place* of the action?
- Which COA offers the greatest *flexibility*?
- Which COA offers the least *operational risk*?
- Which COA is easiest to support from the perspective of *command and control.*
- Which COA offers the best logistics/sustainability?
- Which COA makes the enemy's *logistic support* most difficult?
- Which COA is most dependent on *weather conditions and the terrain*?
- Which COA offers best use of our *transportation or communication nodes*?
- Which COA has the most adverse affect on the enemy's *center of gravity*?
- Which COA best protects our center of gravity?
- Which COA allows the accomplishment of the assigned objective in the *shortest time*?
- Which COA will best facilitates the attainment of the next *objective, branch, or sequel*?
- Which COA best capitalizes on a particular *Principle of War* or *Principles of* SSTR? (List each or selected ones as directed.)
- Which COA offers the *least losses*?
- Which COA inflicts the *largest losses* on the enemy?
- Which COA offers the greatest hope of splitting the *enemy's coalition*?
- Which COA will most strengthen the cohesion of *our coalition*?
- Which COA will reduce the enemy's *morale* the most?
- Which COA offers the most favorable ratio of relative *combat power*?
- Which COA will best facilitate *future operations*?

NOTE: No matter which Governing Factors are chosen, it is important that every member of the joint planning group have the same understanding of what the factor means. For example, simply stating "Risk" as a governing factor with no further explanation could lead to multiple interpretations: Risk to forces? Risk to aircraft / ships / coalition? Risk of mission failure? Etc

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APPENDIX G: Sample Decision Matrix

The decision matrix is simply a staff planning decision aid and should be viewed as such. It portrays **subjectively chosen governing factors** (or evaluation criteria) and helps in differentiating COAs. The strength of the matrix is that it allows the commander and staff to review systematically the specific important strengths and weaknesses of each COA. **Since non-like governing factors are being compared, the matrix is not intended to provide a scientific or mathematical solution for what is a decidedly subjective process.**

Staff members may each use an individual matrix or may recommend governing factors based on respective functional area staff estimates. The governing factors list need not be a lengthy one, but it must be thorough enough to differentiate the COAs. The governing factors should, at a minimum, reflect the concerns expressed by the commander in his intent statement and planning guidance. The result obtained is not meant to be absolute or objective in nature. However, if the same criteria are ruthlessly applied to each COA, then the relative ranking (or faults) of each should become readily apparent.

This appendix offers a sampling of some of the most frequently encountered decision matrices (nonweighted, weighted, advantages / disadvantages, and pluses/ minuses / neutral comparison matrix)—undoubtedly, one will encounter other methods that serve the same purpose. The weighted / nonweighted matrices might use numbers or pluses and minuses to assess strengths and weaknesses. Organizational SOPs and individual planning group preferences will dictate the chosen method. No matter which method is employed, planning groups should remember that the matrix is an aid, and the commander need only know the insights from the planning group's comparison and not the particulars of a decision matrix.

Sample Nonweighted and Weighted Decision Matrices

Some general guidelines for creating the decision matrix:

1. Having determined the governing factors, ensure that each is defined so its meaning is understood by all. For example, simply listing "Risk" as a governing factor is insufficient. Does this mean risk of casualties, risk to mission accomplishment, or something else? The planning staff must explain what each factor means before assessing values.

2. Prioritize the governing factors by overall importance.

3. The planning group assigns numerical values for each governing factor to the COA. These values reflect the relative advantages or disadvantages of each governing factor for each COA. There is no requirement to rank each COA governing factor against the others (i.e., any number of COAs can receive the same assessment score for a particular governing factor).

4. Total values reflect the relative strengths and weaknesses for each COA. The most advantageous COA is normally the one with the highest total number; **however,**

selection of a numerically superior COA may not always be the best recommendation. The planning group may determine that there is only a small numerical difference between the totals.

5. Above all else, the staff must remember that this matrix is simply a tool to gain a greater insight into the various COAs. If one COA scores more favorably in one governing factor than the other COAs, the planning staff should determine the source of this advantage. If that source of strength can be replicated in the other COAs and still maintain distinguishabilty between the COAs, then the staff should consider adjusting the other COAs to accommodate this insight. If this adjustment occurs, however, the staff should re-wargame the changed COAs to ensure no new risk/liability is introduced into the modified COAs.

Table G-1 shows a nonweighted comparison matrix. The difference between weighted and nonweighted comparison matrices is a subjective weight factor, as shown in the second column of Table G-2. The weights are multiplied by the initially assigned assessment score in each column.

Table G-1 Nonweigthed Comparison Matrix

GOVERNING FACTORS	COA #1	COA #2	COA #3	COA #4
SIMPLICITY	2	1	4	3
SURPRISE	2	3	3	4
SPEED	1	2	3	4
MASS	3	1	2	4
RISK	4	3	4	4
FLEXIBILITY	3	3	4	3
SUSTAINABILITY	3	3	2	3
C2	3	2	1	3
TOTAL	**21**	**18**	**23**	**28**

GOVERNING FACTORS	WT	COA #1		COA #2		COA #3		COA #4	
SIMPLICITY	**3**	2	6	1	3	4	12	3	9
SURPRISE	**1**	2	2	3	3	3	3	4	4
SPEED	**2**	1	2	2	4	3	6	4	8
MASS	**4**	3	12	1	4	2	8	4	16
RISK	**2**	4	8	3	6	4	8	4	8
FLEXIBILITY	**4**	3	12	3	12	4	16	3	12
SUSTAINABILITY	**3**	3	9	3	9	2	6	3	9
C2	**3**	3	9	2	6	1	3	3	9
TOTAL		21		18		23		28	
WEIGHTED TOTAL			60		47		62		**75**

Table G-2 Weighted Comparison Matrix

1. Numerical values for each governing factor are assigned after the COA is war-gamed. These values reflect the relative advantages or disadvantages of each governing factor for each COA.

2. These numbers provide a subjective evaluation of the best COA without weighting one governing factor over another.

3. The weights are multiplied by the initially assigned score in each column.

4. Scores are totaled to provide a "best" COA based on weights assigned by the commander.

5. There is no requirement to rank each COA governing factor (i.e., all three COAs can receive the same assessment score for a particular governing factor).

Sample Positive, Negative, and Neutral Courses of Action Comparison

There are other recording techniques that can be used by the JPG/OPG. The staff can assign + (for strengths), – (for weaknesses), and 0 (for neither a strength or weakness) and then add up the results. The COA with the largest number of +s is assessed as "best." See Table G-3 for an example.

GOVERNING FACTORS	COA #1	COA #2	COA #3	COA #4
SIMPLICITY	**0**	**–**	+	+
SURPRISE	**0**	+	+	+
SPEED	**–**	**0**	+	+
MASS	+	**–**	**0**	+
RISK	+	+	+	+
FLEXIBILITY	+	+	+	+
SUSTAINABILITY	+	+	**0**	+
C2	+	**0**	**–**	+
TOTAL	**4** +	**2** +	**4** +	**8** +

Table G-3 Plus/Minus/Neutral Comparison Matrix

Sample Advantages and Disadvantages Comparison Matrix

Comparing the advantages and disadvantages is perhaps the most valuable part of the decision process, as it is here that the tradeoffs between the COAs should be most apparent. The advantages and disadvantages of any particular COA could be quite lengthy and detailed. Many advantages and disadvantages should be carried forward from this step. Performance relative to the MOE developed during the analysis phase and any governing factor(s) established by the commander can be used as well.

In completing the chart, list the advantages and disadvantages of each COA retained. When considering disadvantages of each COA, consider what additional actions, if any, might be taken to reduce or overcome the disadvantages made evident by the analysis. To maintain an unbiased approach in COA selection, actions proposed to overcome disadvantages in one COA must be applied to all COAs, where appropriate. See Table G-3.

COA	ADVANTAGE	DISADVANTAGES	MODIFICATIONS
COA #1 HEAVY	• **Operational Flexibility** • **Rapid combat phase**	• **Log Supportability** • **Slow Deployment**	• **Obtain ISB** • **Pre-deploy assets in FDO**
COA #2 LIGHT	• **Rapid Deployment** • **Minimal U.S. presence** • **Logistics**	• **Higher risk if the most dangerous ECOA takes place** • **Might be insufficient for deterrence** • **Could display a lack of U.S. resolve**	• **Establish a decision point for movement to a larger force.** • **Expand coalition role**
COA #3 SOF LEAD	• **Rapid Deployment** • **Minimal U.S. presence** • **Logistics** • **Allows for rapid exit strategy**	• **Same issues as COA #2** • **Requires larger Coalition role** • **Lack of flexibility in the face of unforeseen events**	• **Position a robust operation reserve in the JOA**

Table G-3 Advantages and Disadvantages Comparison Matrix

Evolving Concepts

As noted earlier, the tabulations within the previously described matrices cannot be viewed as anything other than generators of insights, since they do not offer a true mathematical certainty. The following techniques, while not frequently seen in the fleet/field, do offer a higher degree of confidence in tabulation credibility.

Sample Plus/Minus/Neutral Comparison Matrix

The techniques for conducting the comparison vary, but each of them must assist the staff in recommending a sound decision. Normally, a comparison matrix is used to facilitate the process. The plus, minus, and neutral matrix is used when credible quantitative (numeric) scores for how well each COA satisfies each governing factor are not readily apparent, and instead qualitative scores must then be used. This is an aid for differentiating COAs. Each staff member may use an individual matrix or recommend a personal choice of governing factors based on the respective functional area.

The governing factors list need not be a lengthy one, but it must be thorough enough to differentiate the COAs. Unfortunately, because numeric scores are not being used, there is no

simple arithmetic method for processing the matrix, and the staff must iterate at least twice through the following process.

The staff first selects a COA to be the baseline. Any COA is acceptable. The governing factors for each of the other COAs are rated with a plus sign (+) for an advantage, a minus sign (-) for a disadvantage, or a zero sign (0) for neutral in comparison to the baseline COA. The staff rates a governing factor for a COA with a "+" if that COA has an advantage over the baseline COA for that governing factor. The staff officer responsible for a functional area adds the number of positive or plus scores and the number of negative or minus scores for each COA other than the baseline COA. However, the staff must be cautious in portraying subjective conclusions as being the objective results of quantifiable analysis. Comparing COAs by individual governing factors is more accurate than attempting to aggregate a total score for each COA. The COA with the highest number of positive markings and the lowest number of negative markings is best and wins this round. Note that if no COA receives any positive markings, then the baseline COA is the winner, and if all COAs receive positive markings for all governing factors then the baseline is ranked worse.

Next, the staff addresses the advantages and disadvantages of the COAs (other than the baseline), attempting to strengthen advantages and remove disadvantages. Using the adjusted COAs, the staff then selects the COA that won the first round as the new baseline and compares the others against it for each governing factor, scoring the nonbaseline COAs with positive and negative markings for advantages and disadvantages as before. This ensures that the first baseline COA is properly compared with the others. The process is repeated until it is not possible to improve the COAs, and the COA with the most positives and least negatives is proposed as the best. See Tables G-4 and G-5.

Some general guidelines for creating the comparison matrix:

1. Having determined the governing factors, ensure that each is defined so its meaning is understood by all.
2. There is no requirement to rank each COA governing factor against the others (i.e., multiple COAs can receive the same assessment score for a particular governing factor).
3. The highest number of positive and lowest number of negative markings is best. The most advantageous COA is the one with the highest number of "+" and lowest number of "-." Total positive values reflect the relative strengths, and total negative values reflect the relative weaknesses of each COA.
4. This process requires at least two iterations through the matrix in order to improve all the COAs including the initial baseline COA.

The result obtained is not meant to be absolute or objective in nature. However, if the same criteria are ruthlessly applied to each COA, the relative ranking of merits (or faults) of each should become readily apparent. Note that this matrix is simply a staff planning decision aid and should be viewed as such. Selection of a numerically superior COA may not be the best recommendation. The strength of this aid is that it allows the commander and staff to review systematically specific important strengths and weaknesses of each COA.

Example

Round 1: Select COA 2 as baseline. Compare advantages and disadvantages of COAs 1 and 3 to COA 2 for each governing factor.

GOVERNING FACTORS	COA #1	COA #2	COA #3
Casualty Estimate	+	Baseline	-
Sustainability	-		-
Risk	-		0
Flexibility	+		+
Number of "+"	2		1
Number of "0"	0		1
Number of "-"	2		2

Table G-4 Plus/Minus/Neutral Comparison Matrix, Round 1

COA 1 wins this round. Improve COAs 1 and 3 by addressing their advantages and disadvantages. Then select COA 1 as new baseline.

Round 2: Select COA 1 as new baseline. Compare advantages and disadvantages of COAs 2 and 3 to COA 1 for each governing factor.

GOVERNING FACTORS	COA #1	COA #2	COA #3
Casualty Estimate	Baseline	-	-
Sustainability		+	+
Risk		+	+
Flexibility		-	0
Number of "+"		2	2
Number of "0"		0	1
Number of "-"		2	1

Table G-5 Plus/Minus/Neutral Comparison Matrix, Round 2

COA 3 wins this round. Improve COAs 2 and 3 by addressing their advantages and disadvantages. If no significant improvement is possible, stop. Otherwise select COA 3 as the new baseline and repeat until no significant improvement is possible.

Round 1: Select COA 2 as baseline. Compare Advantages and Disadvantages of COAs 1 and 3 to COA 2 for each Governing Factor. Enter a "+" if the COA compares advantageously with the baseline, a "-" if disadvantageously, and a "0" if neutral.

Governing Factors	COA 1	COA 2	COA 3
Casualty Estimate Weight: 1.2	+	Baseline	–
Sustainability Weight: 1.5	0		–
Risk Weight: 1	–		0
Flexibility Weight: 2	+		+
Number of "+"	3.2		2
Number of "0"	1.5		1
Number of " – "	1		2.7

Table G-6 Plus/Minus/Neutral Comparison Matrix Weighted, Round 1

For COA 1, there are 1.2 plus 2 = 3.2 "+" (or Advantage) scores, 1.5 "0" (or Neutral) scores, and 1 "–" (or Disadvantage) scores. For COA 3 there are 2 "+" or Advantage scores, 1 "0" or Neutral scores, and 1.2 plus 1.5 = 2.7 "–" or Disadvantage scores. Therefore COA 1 wins this round with greater advantages and less disadvantages than COA 3. Improve COAs 1 and 3 by addressing their advantages and disadvantages. Then select COA 1 as new baseline.

Round 2: Select COA 1 as new baseline. Compare Advantages and Disadvantages of COAs 2 and 3 to COA 1 for each Governing Factor.

GOVERNING FACTORS	COA 1	COA 2	COA 3
Casualty Estimate Weight: 1.2	Baseline	-	-
Sustainability Weight: 1.5		+	+
Risk Weight: 1		0	+
Flexibility Weight: 2		-	0
Number of "+"		1.5	2.5
Number of "0"		1	2
Number of "– "		3.2	1.2

Table G-7 Plus/Minus/Neutral Comparison Matrix Weighted, Round 2

COA 3 wins this round. Improve COAs 2 and 3 by addressing their advantages and disadvantages. If no significant improvement is possible, stop. Else select COA 3 as the new baseline and repeat until no significant improvement is possible.

APPENDIX H: Joint Synchronization Matrix

The Joint Synchronization Matrix is a staff *decision and planning aid* that graphically reflects the *joint*[27] execution of an operation over a specific time period. Once completed, the matrix will provide the staff:

- A graphic portrayal of the synchronization of subordinate tasks during the operation and a means to refine the synchronization of events / actions that did not receive detailed attention during the earlier planning steps.
- A graphic portrayal of the key decision points for the operation.
- A clear focus for supporting activities (logistics, IO, Intelligence collection, etc.).
- A means to identify and prioritize branch planning requirements.
- A graphic portrayal of the plan / order—with a completed matrix in hand, a single planner can now quickly develop the base plan /order.

The construction of the matrix should begin during the wargame (see STEP 3 of the planning process on page 3-1) in the form of a wargaming worksheet; however, the full value of the matrix is most often realized after the commander has approved a course of action (COA) and the operational sequencing of the operation has been established.

Upon receipt of the commander's decision (STEP 5 of the planning process), the planning staff should assemble and complete the matrix. The organizational mechanics of the how the staff completes the matrix are the same as used during the wargame as described in STEP 3 of this workbook.

The first two decisions that must be made are: 1. Will the matrix synchronize by event or time period (or a combination thereof)? 2. What forces / functions and activities will the matrix synchronize? There are no hard and fast answers to these questions, and they are most often tailored to the given situation. Consider the following for each of these decisions:

- **Forces / Activities.** Along the left column of the matrix, the staff will list the forces, activities, and decisions to be synchronized. The minimum requirement for listing is for all the commands that will be tasked in the order. Most staffs also find useful to list any activities that will be in support of the operation (such as logistics, IO, Intelligence) as well as organizations / forces not under your control but important to your operations (NGOs, UN, Host nation, allied force, etc). See the example matrix; figure H-1, on page H-3.

- **Time[28] or Event.** The top line of the matrix is for the time period or events to be synchronized. As a rule of thumb, there is a proportional reduction in the granularity of synchronization as the time period broadens. So, for example, if the staff chooses to simply synchronize by operational phase, it will likely fail to expose all synchronization

[27] Though this matrix is being used for joint synchronization, component-level commanders also use this tool for synchronization of their subordinate elements with the joint force operation.
[28] See Appendix J for a summary of operational time definitions.

requirements if there are multiple critical events executed during each phase of the operation. On the other hand, a detailed day by day synchronization matrix could create an ungainly tool. With these considerations in mind, staffs often find most useful to use a combination of the two. For the early phases, smaller time periods or multiple events are listed, while the latter phases are not broken down further. This technique allows for detailed synchronization of the events that are near term (and the ones we know most about) and less detail for those phases that are further down the road and will most likely be less precise in our detailed understanding. The detailed examination of the earlier phase(s) also allows for a sharper focus upon force closures—especially important if critical capabilities are not in place in the AO/JOA and their arrival supports a specific event. See the example matrix; figure H-1, on page H-3.

C DAY/D DAY /H HOUR	Dep H -10 to H +3	D Day H+3 to H+15	Ops D Day H+15 to H+24	Deployment Ops D+1 to D +2	D+2 to D+8	Ops D +8 to D +45
JFLCC	-Abn Forces at ISB -Establish coord w/JSOCC forces in JOA	-ABN Forces to Arfld/Obj DOG	-Occupy Afld -Block Positn at Obj DOG	-Continue Deploy Air Landed Forces	-Accpet MEU -Destroy RGB/ Terrorists	-Handover Ops -Redeploy Forces -Transition
JFMCC	-Destroy Redland Maritime Forces -B/P to conduct Amphib Ops -Spt Deception Ops	-Maintain Maritime Superiority	-Psn MEU for B/P Msn		-Deploy MEU CHOP to JFLCC	-Redeploy Maritime Assets
JFACC	-Gain Air Superiority -Destroy/Neutral Enemy RGB/C2	Spt Forced Entry	-Expand Air Superiority in Redland	Spt JFLCC Ops	-Support MEU OPS	-Redeploy Air Assets
JSOCC	-Insert forces for Surv/Targeting 3 RGB.	Spt Forced Entry	-Expand Surv Terrorist Trng Camps		-Support MEU OPS	-Drawdown and Redeploy SOF
JPOTF	-Spt Deecp Ops -Gain Spt of Civ Pop			Surrender of Red Forces		Prepare Civ pop for drawdown
INTEL	-Are conditions set for forced entry? -Success of Deep Plan	Status of 2 & 3 RGB Reaction of Redland civ pop	Status of 1 RGB and poss MEU landing sites			-Reduce Intel Ops/Assets
C2	JTF HQ Afloat	B/P to CHOP MEU			-C2 CHOP MEUtoJFLCC	-Prepar Xfer C2 Host Nation/Diplomats
LOGISTICS	-ISB in operation SLCs Esatab -Prepos In Place	-B/P to flow in lairlanded forces	-Assume control of RED Airfld ops		-Plan in place for redeployment	-Redeploy Assets -Disestablish bases
DECISION POINT ★	-When To Initiate Forced Entry	-When To Expand Air Control/ Surv Ops	-When Initiate Phase III F-on Deploy Ops	-When to Conduct Decisive Ops / deploy Meu		-When to Turnover to Host Nation/Diplomats
BRANCHES	-Deep Plan Fails -Air or maritime Superiority not achieved	-2 RGB moves to counter ABN ops	-Occupation of Afld Fails		-RGB/Terror Not Destroyed	-Hand Over to Host Ctry/Diplomats Delayed

Figure H-1. Example Joint Synchronization Matrix

	TIME C DAY/D DAY	PRE-PHASE I OPERATIONS	PHASE I _____	PHASE II _____	PHASE III _____	PHASE IV _____	PHASE V _____	DECISION POINT ★

Figure H-2. Sample Joint Synchronization Matrix

APPENDIX I: Plan Rehearsals

(Extracted from the Joint Warfighting Center *JTF Rehearsal Handbook*)

In the complex world of Joint Operations, rehearsals are vital to the successful execution of an Operation Order (OPORD). Joint operations rehearsals allow the joint force staff to practice the OPORD before its actual execution. Through joint operations rehearsals, the Joint Force Commander (JFC) and staff gain an understanding of the concept of operations in its entirety. These rehearsals afford a comprehensive view of the operation, orient the individual joint force components to one another, and more importantly, give each component a thorough understanding of the JFC's intent, priorities, and guidance.

Joint operations rehearsals are conducted at the operational level of war. This yields a much broader perspective than the tactical level. The operational level of war focuses on the deployment and employment of joint force major component forces, commitment and withdrawal from battle, and the arrangement of battles and major operations in the Joint Operations Area (JOA).

Service	Types	Techniques
Army • (Field Manual (FM) 5-0 and • Center for Army Lessons Learned (CALL) Newsletter 98-5	• Confirmation Brief • Backbrief • Combined Arms Rehearsal • Support Rehearsal (Fires, logistical support, etc.) • Battle Drill or Standing Operating Procedures (SOP) Rehearsal	• Full Dress Rehearsal • Reduced Force Rehearsal • Area (Terrain) Model Rehearsal • Sketch Map Rehearsal • Map Rehearsal • Radio Rehearsal
Marine Corps (Marine Corps Warfare Pub (MCWP)5-1)	• Staff Rehearsal • Integrated Rehearsal • Modified, Integrated Rehearsal	• None identified
Air Force (Air Force Doctrine Document (AFDD) 2-7)	• Full Dress Rehearsal • Partial Force Rehearsal	• None identified
Navy (Naval Warfare Publication (NWP) Series)	• Amphibious Rehearsal • Assault Rehearsal • Sweep Rehearsal • Unit Rehearsal (e.g., SEALs)	• Complete Rehearsal • Limited Rehearsal

Table I-1. Service Types and Techniques of Rehearsals

Before a Joint Operations Rehearsal can be conducted, the joint force's and the component's OPORDs must be synchronized as part of the planning process. Synchronization allows the joint force staff and components to identify and correct major interoperability problems in the concept of operations.

There is limited information concerning joint operations rehearsals in joint publications, and the normal alternative of reverting to Service publications for guidance can cause considerable confusion. Service definitions for "types" and "techniques" of rehearsals, in Table I-1, reveal differing perspectives on this critical aspect of planning and executing operations.

1. General.

Rehearsing is the process of practicing a plan in the time available before actual execution. Rehearsing key combat and logistic actions allows participants to become familiar with the operation and to visualize the plan. This process assists them in orienting themselves to their surroundings and to other units during execution. Rehearsals also provide a forum for subordinate leaders to analyze the plan. However, caution must be exercised in adjusting the plan in order to prevent errors in synchronization. While the joint force may not be able to rehearse an entire operation, the JFC should identify key elements for rehearsal. Rehearsals should always be performed before the execution of an operation. The JFC should not equivocate on rehearsals as they allow the participants to gain a better understanding of his intentions and vision for the operation. The JFC should attend subordinate rehearsals so that he understands components' plans and to ensure his intent is understood.

The operational level rehearsal helps the Commander weave the series of component tactical actions over days and weeks into a campaign or set of major operations that ultimately address the Combatant Commander's requirements for an end state. The operational-level planning horizon has expanded and consequently the vision of the future is more important. At the operational level, the questions that involve future vision are:

- What military (or related political and social) conditions must be produced in the Joint Operations Area (JOA) to achieve the strategic goal? (Ends)
- What sequence of actions is most likely to produce that condition? (Ways)
- How should the resources of the joint force be applied to accomplish that sequence of actions? (Means)
- What is the likely cost or risk to the JTF in performing that sequence of actions?
- Do I have the right forces in the right place at the right time?
- Where am I in relation to my operational end state?
- What should I be doing now to influence events three to five days from now?

2. Types and Techniques of Joint Operations Rehearsals.

a. Types.

- **Staff Only Rehearsals.** This type of rehearsal is internal to the participating JTF or component headquarters staffs or conducted between the JTF and component staffs.

- **Commanders and Staff Rehearsals.** This type of rehearsal is for the JFC, component commanders, and their staffs. The actual participants may vary from only commanders and key staff personnel to full joint force and components' headquarters participation.

- **Partial Force Rehearsals.** This type of rehearsal is a compromise between a Staff Only Rehearsal, a Commanders and Staff Rehearsal, and the resource-intensive Full Force Rehearsal. The ultimate desire is to have representation from as many joint force components as possible.

- **Full Force Rehearsals.** These are the most effective, but also the most resource-intensive types of rehearsals. This technique may involve all participants (Commanders, staffs and units) rehearsing parts or all of the operation.

b. Techniques.

Note: Whenever possible, all joint operations rehearsal techniques should include the exercising of communications personnel, facilities, and circuits that will be used during the actual operation.

- **Map/Chart Technique.** By assembling commanders and a minimum of staff personnel around some type of tactical display (e.g., map, nautical charts, aerial imagery), the rehearsal director leads participants through the operation. Participants are responsible for moving/explaining their actions and counteractions to the enemy's (or others ,e.g., third country's) reactions.

- **Area (Terrain) Board Technique.** Same as the previous technique except that some form of area model is used in place of a map/chart.

- **Simulation Supported Technique.** When properly used, simulation provides an opportunity to increase the fidelity of any rehearsal process. Simulations such as the Joint Theater Level Simulation (JTLS) or the Joint Training Confederation (JTC) may be used to actually portray the "execution" of a plan. However, the databases required for this technique have limitations and require time to develop. Therefore, decisions to use them when rehearsing a time-sensitive operation resulting from crisis action planning should be carefully considered.

- **Similar Area Technique.** The Commanders and Staff, Partial Force, and Full Force rehearsal types may use areas (land areas/sea and littoral areas/buildings and structures) that are similar to the actual Joint Operations Area (JOA).

- **Actual Area Technique.** In certain types of operations (such as retrogrades), the JTF may be able to use the actual area in which the operation will take place.

The commander may also direct that numerous, multi-echelon rehearsals be conducted. The factors the commander should consider in making a decision on the numbers, types, and techniques of rehearsals are:

- Available time
- Who will participate
- Operations security considerations
- Area/space availability
- Objectives of the rehearsal

Combining the types and techniques of rehearsals produces the combination of possibilities reflected in Table I-2.

Note: It is feasible for the joint force to use various technologies (e.g., video teleconferencing (VTC) and available collaborative systems) to conduct the Map/Chart, Area (Terrain) Board, and Simulation Supported techniques of rehearsals.

Types	Techniques
Staff Only	• Map/Chart Technique • Area (Terrain) Board Technique • Simulation Supported Technique
Commanders and Staff	• Map/Chart Technique • Area (Terrain) Board Technique • Simulation Supported Technique • Similar Area Technique • Actual Area Technique
Partial Force	• Map/Chart Technique • Area (Terrain) Board Technique • Simulation Supported Technique • Similar Area Technique • Actual Area Technique
Full Force	• Map/Chart Technique • Area (Terrain) Board Technique • Simulation Supported Technique • Similar Area Technique • Actual Area Technique

Table I-2. Rehearsal Types and Techniques Combinations

3. Preparing for Joint Operations Rehearsals.

General. Rehearsals at all levels of command are key to ensuring an understanding of the concept of operations, specific responsibilities, timing of actions, and backup procedures to coordinate joint force operations. Rehearsing the entire operation is desirable. However, in time-constrained situations, rehearsals may be abbreviated to focus on the most critical portions of the operation.

Select Type. The Commander should specify the type of rehearsal to be conducted in his "commander's guidance." This allows the staff to begin planning for rehearsals, which may be a considerable effort in itself, especially if a Full Force rehearsal is desired. Figure I-1 portrays how the four types of rehearsals vary according to amount of time/resources required and the amount of understanding desired concerning the operation.

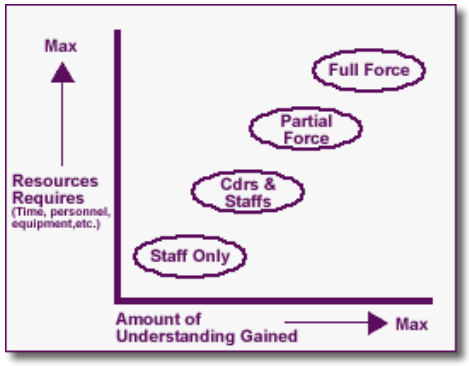

Figure I-1. Selecting Type of Rehearsal

Specify basic rehearsal requirements. The Commander (or designated representative, e.g., J3, J5) should:

- Identify and prioritize the events to be rehearsed (e.g., D-Day actions).
- Allocate time for the events being rehearsed.
- Designate attendees.

Determine roles/responsibilities of participants. Examples are:

- **Facilitator.** This is a key billet and one that is fundamental to the success of the rehearsal. The individual assigned as the facilitator should be intimately familiar with the Operations Order (OPORD). Typically this individual has participated in the joint force plan development process as well as the crosswalk between the component and joint force OPORDs. The facilitator should also have a solid understanding of the JFC's intent. The facilitator keeps the rehearsal on track by adhering to the agenda and ensuring the discussion remains focused on the subject at hand.

- **Red Cell.** The Red Cell portrays a credible threat against which the joint force can rehearse. The credible threat can range from a known enemy force, belligerent factions

in stability, security, transition, and reconstruction operations, or other contingency circumstances such as the weather (rain/snow), natural disasters (hurricanes/earthquakes) and other distracters that could impede mission success. It is important that the Red Cell use individuals with the requisite expertise in the threat they are representing to challenge the JTF actions in a realistic manner. The Red Cell should be an independent group of participants and not "dual hated" to represent both friendly and "enemy" forces and capabilities.

- **Briefers/Role Players.** Role players need to be identified to represent and brief the actions and counteractions of the joint force HQ, Service and/or functional components, and supporting commands and agencies. The role players must understand the details of their respective commanders' concepts of operation and intents on accomplishing their assigned missions, as well as the capabilities and limitations their respective organizations can bring to bear to support the JFC.

- **Recorder.** A recorder must be identified to capture those items that require further action or coordination. By freeing the training audience of note taking tasks, recorders allow participants to focus their attention on the rehearsal. Effective techniques for the recorder include posting large butcher block paper on the wall of the rehearsal area to capture action items or keeping an overhead projection slide up on a screen. Either of these two techniques allows the rehearsal participants to see what is recorded and helps ensure all required actions are identified.

- **Prepare script.** A script is prepared and used as a tool to control the rehearsal, regardless of the type of rehearsal selected. The script is used to keep the rehearsal on track and as a method for ensuring that key personnel are not overlooked while conducting a rehearsal. A script should consist of the following:

- **Agenda.** The overall plan for conducting of the rehearsal.

  - Review of the type and technique to be used
  - Ground rules
  - Administrative issues
  - Training objectives and standards to be used
  - Timeline
  - Other issues - Commander's discretion

- **Sequence of events.** Exactly what will be rehearsed and in what order.

- **Sequence of responses.** Role players should respond in some type of logical order or the rehearsal can become disorganized and confusing. A commonly used method to alleviate confusion is the action-reaction-counteraction sequence with role players responding to one another using some prearranged order (e.g., Air Force (AFFOR), Army Forces (ARFOR), Marine Corps Forces (MARFOR), Navy Forces (NAVFOR), Joint Force Air Component Commander (JFACC), and Joint Special Operations Task Force (JSOTF)).

- **Issue rehearsal instructions.** Some type of order or letter of instruction (LOI) should be developed by the staff to provide specifics concerning the above topics.

- **Assemble resources and support personnel.** Most rehearsals require various types of training aids, sites, security precautions, construction, and so forth, to be coordinated and assembled. In addition, support personnel will be necessary, and their roles and responsibilities must be determined and explained.

- **Prepare site.** Regardless of the type and technique of rehearsal, some type of site preparation is required. Some items to verify are:

  - Site facilities (parking, latrines/heads, buildings, seating, etc.)
  - Site security (operations security and local physical security)
  - Appropriate training aids (maps, area (terrain) boards, audio-visual devices, etc.)
  - Feeding plans/facilities

4. Conducting Joint Operations Rehearsals.

a. Staff Only Rehearsals.

Staff only rehearsals are designed to familiarize the joint force and/or component staffs with the plan or order (e.g., transitioning the plan from one staff section to another) or to practice internal headquarters' procedures before the operation's execution. Explanations of these two variations are provided below.

- **Transitioning the plan.** The value of a plan lies in its ability to be translated into an easily understood and executed order. This transition from plan to order can create difficulties within a joint force or component staff if the staff fails to reach an agreed upon procedure in advance. This procedure should cover which section is responsible for which type of plan and order and, most importantly, how the plan or order moves from one set of planners to others. When transitioning plans or orders from one section to another, all must understand the method of transmission and the form the plan or order will take. One approach is to have a designated planner with a particular operation that moves with the plan from J5 (Future Plans) to J35 (Future Operations) and then into the J3 (Current Ops) for execution. The plan gains fidelity as it progresses. This provides the guaranteed presence of a "subject matter expert" if questions arise during plan refinement or execution. Another technique is to provide a formal plan brief conducted by the losing planners (J5 Future Plans) to the receiving planners/operators (J3 Current Ops). This provides for a clear transition and ensures unclear concepts or concerns are reviewed. Table I-3 provides a sample sequence of events to accomplish this variation.

- Joint Planning Group (JPG) conducts plans hand-off brief to J3 Joint Operations Center (JOC) personnel.
- JPG provides to J3 JOC personnel:
  - Coordinated draft Fragmentary Order (FRAGORD)
  - Course of Action (COA) sketch of applicable branches/sequels
  - Draft execution/synchronization checklist/matrix
- JPG provides clarification as required.
- J3 JOC accepts planning products for modification and issuance as an order.

Table I-3. Sample "Transitioning the Plan" Sequence of Events

- **Practicing internal procedures.** This form of Staff Only rehearsal practices the internal processes and procedures that a staff is expected to perform during an actual operation. For example, the Joint Targeting Coordination Board (JTCB) should rehearse its agenda and briefing sequence. Using this procedure, the Joint Operations Center (JOC) should rehearse its shift changeover process, or the Rules of Engagement (ROE) Cell should rehearse its meeting process.

Staff Only rehearsals can be conducted by using any of the following techniques:

- Map/Chart Technique
- Area (Terrain) Board Technique
- Simulations Supported Technique

JTF Lessons Learned

- The Chief of Staff should be proactive in ensuring these rehearsals are conducted and adequately attended by the various staff representatives and all Liaison Officers.
- Staff Only rehearsals provide the additional benefit of bringing cohesiveness to a newly formed JTF Headquarters or component staff.

b. Commanders and Staff Rehearsals.

Commanders and Staff rehearsals provide a means for the principal leaders to 1) understand the intent of a JFC with a minimum of disruption to tactical level units and 2) familiarize themselves with the operation before the conduct of either partial force or full force rehearsals. Commanders and Staff rehearsals can be conducted by using any of the following techniques:

- Map/Chart Technique
- Area (Terrain) Board Technique
- Simulations Supported Technique
- Similar Area Technique
- Actual Area Technique

The steps in conducting this type of rehearsal include:

- **Conduct introduction**.

  Welcome and introduce the participants.
  Explain purpose, overall process (technique), and expected results of the rehearsal.
  Review in detail the overall schedule of events.
  Explain the "standards" expected to be met throughout this process.
  Orientation on all tools (maps, terrain models, synchronization matrices, handouts, etc.).

- **Review the friendly, enemy, and third party situations.**

  Review Combatant Commander's/own mission, intent and concept of operations.
  Review overall (not specific) enemy situation.

- **Portray action-reaction-counteraction events.** Starting with the phase, critical event, or timeline the JFC has designated, discuss the components' **actions**. Then the "Red Cell" presents the anticipated **reactions**. If the plan is well developed, the joint force/components' **counteraction** should then be presented. When it becomes obvious that changes need to be made to the original plan, record these as either changes to the plan or in fragmentary orders (FRAGORDs). Significant changes can take the form of branch plans.

- **Conduct After-Action Review (AAR).** The commander may wish to conduct an AAR to review lessons learned for future inclusion into the command's decision-making process. Additionally, the commander may take the opportunity to reiterate Commander's Intent and make sure changes to the plan or order are understood.

Commander and Staff Rehearsal
Sample Agenda

- **Facilitator/staff brief:**

  Current friendly situation
  Enemy situation and Courses of Action (COAs)
  Combatant Commander's mission and intent
  Command's mission and Commander's intent
  Command's Task Organization
  Overall Command's Concept of Operations
  Key tasks (e.g., critical tasks)
  Initial command relationships

- **Facilitator sets the phase, action, or critical event that is to be rehearsed** (e.g., deployment, D-Day events, noncombatant operations).

- **Components discuss their actions.**

- **J2 (or "Red Cell") portrays the expected enemy reactions** (most likely enemy COA).

- **Components in turn discuss their counteractions to the enemy's reactions**.

Note: If the counteraction is a branch or sequel plan, the facilitator must determine if time is available to discuss it or if it should be deferred to a later date. In many cases, the counteraction will only be a "concept" for a branch plan that will be developed and rehearsed later.

- **Facilitator reviews decisions and necessary follow-on actions** (including any changes to the plan or order that are necessitated by the rehearsal).

- **Commanders provide summary remarks.**

Table I-4. Commander and Staff Rehearsal Sample Agenda

JTF Lessons Learned

- Rehearsals where components merely brief their concept of operations from beginning to end are ineffective since little interaction occurs between components.
- Major changes WILL cause the desynchronization of plans -- the exact opposite of the rehearsal's intent. Keep the changes to an absolute minimum (refinements to the plan).
- The commander should focus on the "seams" of interaction among JTF components. Asking questions about inter-component coordination and cooperation will reveal potential weaknesses.

c. Partial Force Rehearsals.

Partial Force (sometimes called "reduced force") rehearsals normally require fewer resources (e.g., time, personnel, and materiel) than the Full Force rehearsal but more than the Commanders and Staff rehearsal. Like the Full Force rehearsal, this type is best conducted under the same conditions, weather, time of day and terrain, as the force will encounter during the actual operation. Battle space requirements are the same as the Full Force rehearsal, only the number of participants change. A form of Partial Force rehearsal is commonly called a Training Exercise without Troops (TEWT).

In Partial Force rehearsals, the Commander must first decide the level of leader involvement in the rehearsal. The selected leaders then rehearse the plan while traversing the actual or like terrain. This type is an efficient means of rehearsing particular phases in the operation before a Full Force rehearsal or, if as a substitute for a Full Force rehearsal due to severe time constraints. This rehearsal type is also an excellent way for component commanders to rehearse and understand portions of their individual plans before participating in a Full Force rehearsal. As in the Full Force rehearsal, careful consideration must be given to the component commanders and the tactical units' timetables before scheduling.

Finding a suitable operating area for a Partial Force rehearsal can be just as difficult as finding an operating area for a Full Force rehearsal. As with the Full Force rehearsal, the time intensive task of developing and issuing a separate operations directive, which mirrors the actual plan, to include operational graphics, is normally accomplished.

d. Full Force Rehearsals

The Full Force rehearsal produces the most detailed understanding of both the mission and the Commander's Intent. It is also the most difficult type to perform because it notionally involves every individual and system participating in the operation.

Full Force rehearsals are normally the most time consuming of all the rehearsal types. It is particularly important to be sensitive to encroaching on the Functional or Service component's preparation timelines by scheduling a Full Force rehearsal in a very compressed planning and execution window. Time permitting, Functional and Service components might consider conducting a Partial Force rehearsal before the Full Force rehearsal. While this requires even more time, it is considered time well spent in ensuring the Full Force rehearsal is conducted efficiently. If time cannot be found to conduct a separate component rehearsal, a component might consider conducting a Full Force rehearsal as part of the JTF's Partial Force rehearsal.

Operations Security (OPSEC) is always a consideration in conducting Full Force rehearsals. The movement of a large body of the JTF and components will certainly attract attention from the enemy. The JTF must develop plans to ensure the Full Force rehearsal is protected from the eyes of the enemy.

Finding a suitable operating area for a Full Force rehearsal can be difficult. If possible, the JTF should conduct this rehearsal under the same conditions, weather, time of day, terrain, and

so forth, as the force will encounter during the actual operation. This may include the use of live ammunition. The rehearsal area must be identified, secured, cleared and maintained throughout the rehearsal process. Additionally, the time intensive task of developing a separate operations directive, which mirrors the actual plan, to include operational graphics, is normally accomplished for this type of rehearsal.

5. Choosing the Correct Type or Technique.

There are no "right answers" for the type and technique of rehearsals to conduct. The Commander must consider several factors before making a choice. These include:

- **Available time.** Time is the essential resource and must be carefully considered when determining rehearsal types, techniques and schedules. The time required for a rehearsal varies with the complexity of the tasks to be rehearsed, the type, and technique of rehearsal used. It is usually advantageous to give the priority of rehearsal time to the lowest level units. Focusing on the critical events of the operation can also save time.

- **Participation.** The Commander must provide guidance concerning who should be involved in the rehearsal. If the Commander wishes that all joint force members participate in the rehearsal, then more time and other resources will be expended.

- **Operations security (OPSEC) considerations.** The main question the Commander must consider is "How easily can the enemy gather intelligence from the rehearsal?" The more participants, the more of an OPSEC risk the rehearsal becomes.

- **Area/space availability.** In some cases, especially for Full Force rehearsals, obtaining the area/terrain that is similar to the objective area may be difficult.

- **Objectives of the rehearsal.** What is to be accomplished? The Commander must determine the extent of the objectives (or tasks) to be accomplished in the rehearsal. Some tasks require that a specific type or technique be employed to accomplish certain tasks.

APPENDIX J: Command Relationships[29]

Levels of Authority. The specific command relationship (combatant command (command authority) (COCOM), operational control (OPCON), tactical control (TACON), and support) will define the level of authority a commander (CDR) has over assigned or attached forces. A CDR can also have authority when coordinating authority, administrative control (ADCON), and direct liaison authorized (DIRLAUTH) relationships have been specified. An overview of command relationships is shown in Figure J-1.

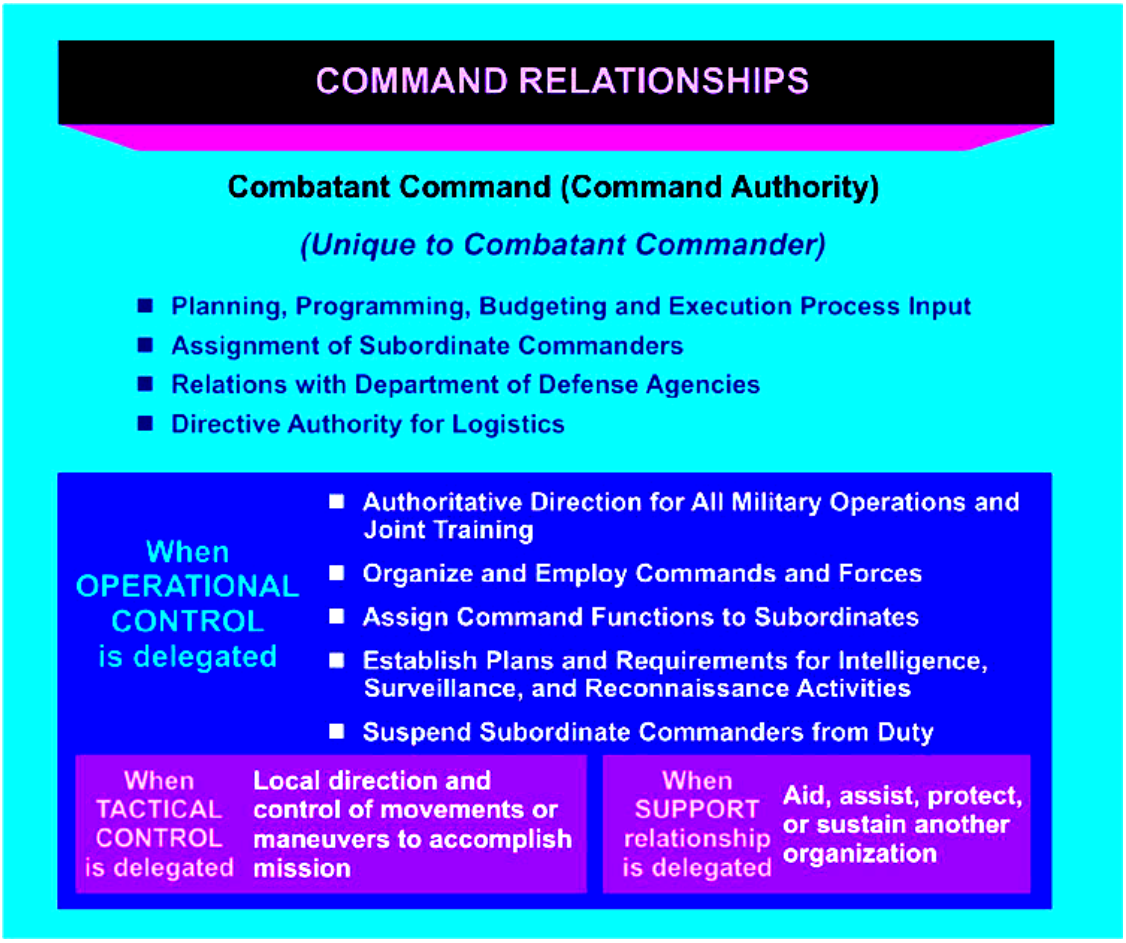

Figure J-1. Command Relationships

All forces under the jurisdiction of the Secretaries of the Military Departments (except those forces necessary to carry out the functions of the Military Departments) are assigned to combatant commands or commander (CDR), U.S. Element North American Aerospace Defense Command (NORAD) (USELEMNORAD) by the Secretary of Defense (SecDef) in the "Forces for Unified Commands" memorandum. A force assigned or attached to a combatant command may be transferred from that command to another combatant commander (CCDR) only when directed by the SecDef and under procedures prescribed by the SecDef and approved by the

[29] Extracted from JP 1 and FM 3-31.

President. The command relationship the gaining CDR will exercise (and the losing CDR will relinquish) will be specified by the SecDef. Establishing authorities for subordinate unified commands and joint task forces (JTFs) may direct the assignment or attachment of their forces to those subordinate commands and delegate the command relationship as appropriate (see Figure J-2).

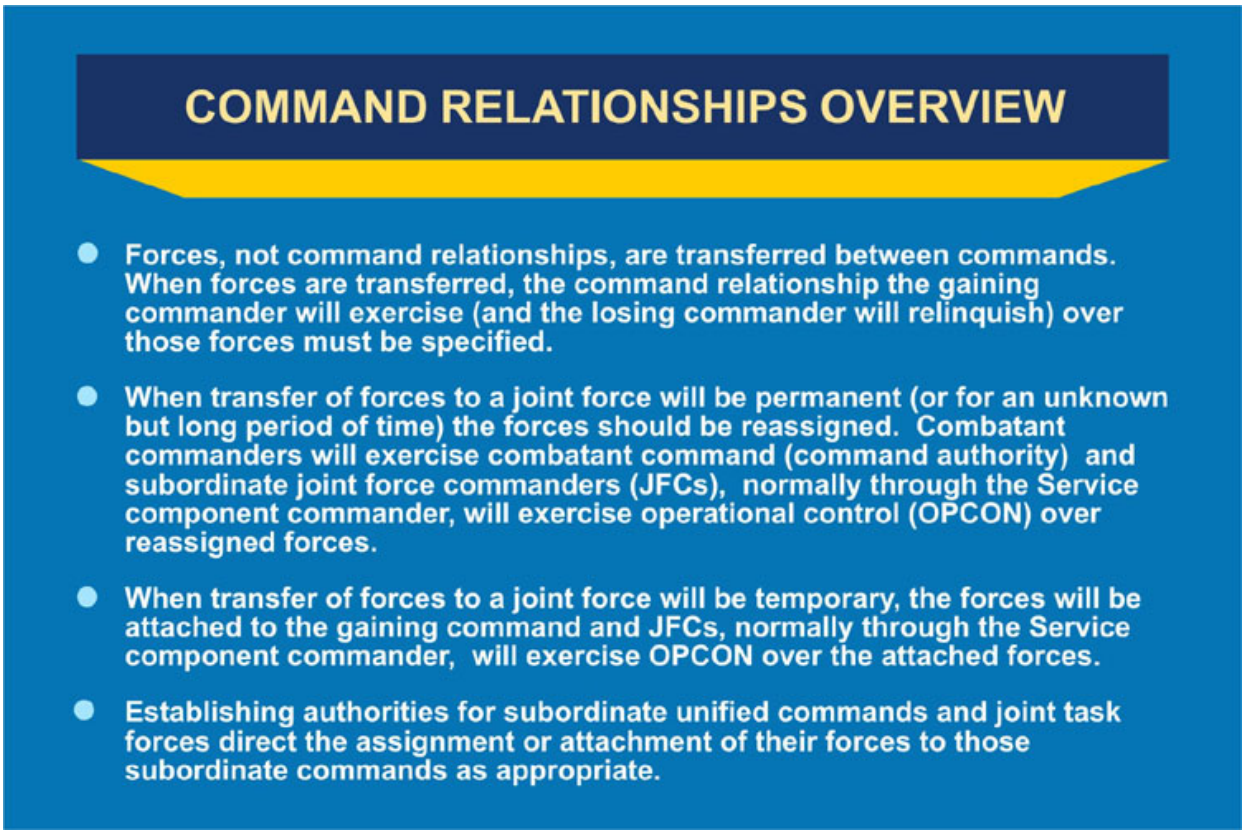

Figure J-2. Command Relationships Overview

a. The CCDR exercises **combatant command (command authority) (COCOM)** over forces assigned or reassigned by the President or SecDef. Forces are assigned or reassigned when the transfer of forces will be permanent or for an unknown period of time, or when the broadest level of command and control (C2) is required or desired. Operational control (OPCON) of assigned forces is inherent in COCOM and may be delegated within the combatant command by the CCDR. Subordinate joint force commanders (JFCs) will exercise OPCON over assigned or reassigned forces.

b. The CCDR normally exercises operational control (OPCON) over forces attached by the SecDef. Forces are attached when the transfer of forces will be temporary. Establishing authorities for subordinate unified commands and joint task forces (JTFs) normally will direct the delegation of OPCON over forces attached to those subordinate commands.

c. In accordance with the "Forces for Unified Commands" memorandum and the Unified Command Plan (UCP), except as otherwise directed by the President or the SecDef, all forces

operating within the geographic area assigned to a specific CCDR shall be assigned or attached to, and under the command of, that CCDR. Transient forces do not come under the chain of command of the area CDR solely by their movement across operational area boundaries, except when the CCDR is exercising tactical control (TACON) for the purpose of force protection. Unless otherwise specified by the SecDef, and with the exception of the United States Northern Command (USNORTHCOM) area of responsibility (AOR), a CCDR has TACON for exercise purposes whenever forces not assigned to that CCDR undertake exercises in that CCDR's AOR.

Brief Summary of U.S. Command Relationships

COMBATANT COMMAND (COMMAND AUTHORITY)

COCOM is the authority of a combatant commander to perform those functions of command over assigned forces to include:

- Organizing and employing commands and forces.
- Assigning tasks.
- Designating objectives.
- Giving authoritative direction over all aspects of military operations, joint training
- Logistics.

COCOM should be exercised through the commanders of subordinate organizations. Normally, this authority is exercised through subordinate JFCs and Service and/or functional component commanders; however, it cannot be delegated to subordinate commanders. COCOM provides full authority to organize and employ commands and forces as the combatant commander considers necessary to accomplish assigned missions.

OPERATIONAL CONTROL

OPCON is the command authority exercised by commanders at any echelon at or below the level of COCOM and can be delegated or transferred.

OPCON is inherent in COCOM and is the authority to perform those functions of command over subordinate forces involving:

- Organizing and employing commands and forces.
- Assigning tasks.
- Designating objectives.
- Giving authoritative direction necessary to accomplish the mission.

OPCON includes authoritative direction over all aspects of military operations and joint training necessary to accomplish missions assigned to the command. It should be exercised through the commanders of subordinate organizations; normally, this authority is exercised through subordinate JFCs and Service and/or functional component commanders. OPCON normally provides full authority to organize commands and forces and employ those forces necessary to accomplish assigned missions. It does not include authoritative direction for

logistics or matters of administration, discipline, internal organization, or unit training. The combatant commander delegates these elements. OPCON does include the authority to delineate functional responsibilities and geographic JOAs of subordinate JFCs.

The superior commander gives commanders of subordinate commands and JTFs OPCON of assigned or attached forces.

TACTICAL CONTROL

TACON is the command authority over assigned or attached forces or commands, or military capability or forces made available for tasking. It is limited to the detailed and usually local direction and control of movements or maneuvers necessary to accomplish assigned missions or tasks.

TACON may be delegated to and exercised by commanders at any echelon at or below the level of COCOM. TACON is inherent in OPCON.

SUPPORT

Support is a command authority. A support relationship is established by a superior commander between subordinate commanders when one organization should aid, protect, complement, or sustain another force.

Support may be exercised by commanders at any echelon at or below the level of COCOM. This includes the President / SecDef designating a support relationship between combatant commanders as well as within a COCOM. The designation of supporting relationships is important as it conveys priorities to commanders and staffs who are planning or executing joint operations. The support command relationship is a flexible arrangement. The establishing authority is responsible for ensuring that both the supported and supporting commanders understand the degree of authority granted the supported commander.

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

An establishing directive is normally issued to specify the purpose of the support relationship, the effect desired, and the action to be taken.

DIRECT LIAISON AUTHORIZED

Direct liaison authorized (DIRLAUTH) is that authority granted by a commander (any level) to a subordinate to directly consult or coordinate an action with a command or agency within or outside of the granting command. DIRLAUTH is more applicable to planning than

operations and always carries with it the requirement of keeping the commander granting DIRLAUTH informed. DIRLAUTH is a coordination relationship, not an authority through which command may be exercised.

FUNCTIONAL COMPONENT SUPPORT RELATIONSHIPS

The Joint Force Land Component Commander (JFLCC) can be in either a supporting or supported relationship or both. The JFC's needs for unity of command and unity of effort dictate these relationships. Support relationships will be established by the JFC in appropriate campaign plans and orders. Similar relationships can be established among all functional and Service component commanders, such as the coordination of deep operations involving the JFLCC and the joint force air component commander (JFACC). Close coordination is necessary when the JFLCC provides joint suppression of enemy air defenses in support of JFACC operations. Examples are attack helicopters or multiple-launched rocket systems in Operation DESERT STORM as well as seizing and holding ports and airbases for friendly air and sea forces (such as in Operation JUST CAUSE). The JFLCC can also expect support to include airlift, close air support (CAS), and interdiction strikes from the JFACC.

The JFC may task the JFLCC to conduct operations outside of the land AO. Land-based elements may conduct air and missile defense operations to protect the force and critical assets from air and missile attack and surveillance. These may include operational maneuver and/or operational fires against enemy ports and airbases outside of the land area of operations (AO). Similarly, the JFLCC can request from the JFC air support from other components to attack or isolate enemy land forces in the land AO. Figure J-3 illustrates a simultaneous support relationship scenario between the JFLCC and JFACC.

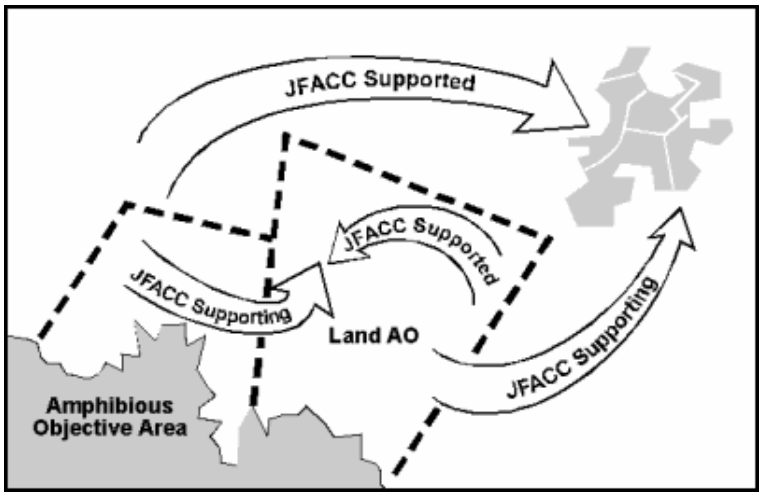

Figure J-3. JFLCC and JFACC Support Relationships

COMMAND RELATIONSHIPS WITH SERVICE COMPONENTS

The JFLC command functional component responsibility is normally assigned to a commander already serving as a Service component (e.g., ARFOR, MARFOR) to a JTF or subordinate unified command. Additionally, the JFC may use one of his Service components (e.g., Army Service component or Marine Service component) as the JFLCC reporting to him directly. The JFLCC retains Service component responsibility for assigned or attached forces but does not assume Service component responsibility for forces made available by other Service components. TACON is the normal relationship with these Service forces. In those cases in which the JFLC command is not formed from a Service component headquarters, the JFLCC has no Service component responsibilities. (See Figure J-4.)

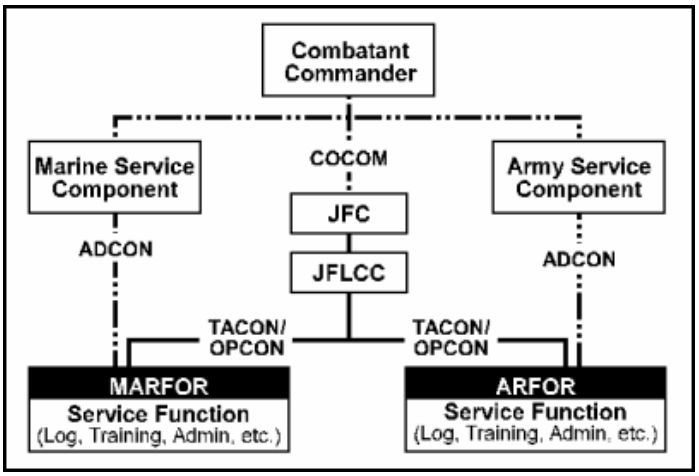

Figure J-4. Service Functions

Once the JFLC command is established, the operational requirements of the JFLCC subordinate commands are prioritized and presented to the joint force headquarters by the JFLCC. However, Service component commanders remain responsible for their military department Title 10 responsibilities, such as logistics and personnel support.

Detailed Description of Command Relationships

1. COCOM is the command authority over assigned forces vested only in the commanders of combatant commands by Title 10, United States Code (USC), Section 164 (or as directed by the President in the Unified Command Plan [UCP]) and cannot be delegated or transferred.

a. Basic Authority. COCOM is the authority of a CCDR to perform those functions of command over assigned forces involving organizing and employing commands and forces, assigning tasks, designating objectives, and giving authoritative direction over all aspects of military operations, joint training, and logistics necessary to accomplish the missions assigned to the command. COCOM should be exercised through the CDRs of subordinate organizations. Normally, this authority is exercised through subordinate joint force commanders (JFCs) and Service and/or functional combatant commanders (FCCs) functional component commander.

COCOM provides full authority to organize and employ commands and forces as the CCDR considers necessary to accomplish assigned missions.

b. Unless otherwise directed by the President or the SecDef, the authority, direction, and control of the CCDR with respect to the command of forces assigned to that command includes the following.

(1) Exercise or delegate operational control (OPCON), tactical control (TACON), and establish support relationships among subordinate CDRs over assigned or attached forces, and designate coordinating authorities, as described in subparagraphs (8), (9), and (10) below.
(2) Exercise directive authority for logistic matters (or delegate directive authority for a common support capability).
(3) Prescribe the chain of command to the commands and forces within the command.
(4) Employ forces within that command as necessary to carry out missions assigned to the command.
(5) Assign command functions to subordinate CDRs.
(6) Coordinate and approve those aspects of administration and support, and discipline necessary to carry out missions assigned to the command.
(7) Give authoritative direction to subordinate commands and forces necessary to carry out missions assigned to the command, including authoritative direction over all aspects of military operations, joint training, and logistics.
(8) Coordinate with other CCDRs, United States Government (USG) agencies, and organizations of other countries regarding matters that cross the boundaries of geographic areas specified in the Unified Command Plan (UCP) and inform USG agencies or organizations of other countries in the AOR, as necessary, to prevent both duplication of effort and lack of adequate control of operations in the delineated areas.
(9) Unless otherwise directed by the SecDef, function as the U.S. military single point of contact and exercise directive authority over all elements of the command in relationships with other combatant commands, DOD elements, U.S. diplomatic missions, other U.S. agencies, and organizations of other countries in the AOR. Whenever a CCDR conducts exercises, operations, or other activities with the military forces of nations in another CCDR's AOR, those exercises, operations, and activities and their attendant command relationships will be mutually agreed to between the CCDRs.
(10) Determine those matters relating to the exercise of COCOM in which subordinates must communicate with agencies external to the combatant command through the CCDR.
(11) Establish personnel policies to ensure proper and uniform standards of military conduct.
(12) Submit recommendations through the CJCS to the SecDef concerning the content of guidance affecting the strategy and/or fielding of joint forces.
(13) Participate in the Planning, Programming, Budgeting, and Execution process.
(14) Participate in the Joint Strategic Planning System and the Joint Operation Planning and Execution System (JOPES).
(15) Concur in the assignment (or recommendation for assignment) of officers as commanders directly subordinate to the CCDR and to positions on the combatant

command staff. Suspend from duty and recommend reassignment, when appropriate, of any subordinate officer assigned to the combatant command.

(16) Convene general courts-martial in accordance with the Uniform Code of Military Justice (UCMJ).

(17) In accordance with laws and national and DOD policies, establish plans, policies, programs, priorities, and overall requirements for the command and control (C2), communications system, and intelligence, surveillance, and reconnaissance (ISR) activities of the command.

d. **Directive Authority for Logistics.** CCDRs exercise directive authority for logistics and may delegate directive authority for a common support capability. The CCDR may delegate directive authority for as many common support capabilities to a subordinate JFC as required to accomplish the subordinate JFC's assigned mission. For some commodities or support services common to two or more Services, one Service may be given responsibility for management based on Department of Defense (DOD) executive agent (EA) designations or inter-Service support agreements. However, the CCDR must formally delineate this delegated directive authority by function and scope to the subordinate JFC or Service component commander. The exercise of directive authority for logistics by a CCDR includes the authority to issue directives to subordinate CDRs, including peacetime measures necessary to ensure the following: effective execution of approved OPLANs; effectiveness and economy of operation; and prevention or elimination of unnecessary duplication of facilities and overlapping of functions among the Service component commands. CCDRs will coordinate with appropriate Services before exercising directive authority for logistics or delegate authority for subordinate CDRs to exercise common support capabilities to one of their components.

(1) A CCDR's directive authority does not:

(a) Discontinue Service responsibility for logistic support;

(b) Discourage coordination by consultation and agreement; or

(c) Disrupt effective procedures or efficient use of facilities or organizations.

(2) Unless otherwise directed by the SecDef, the Military Departments and Services continue to have responsibility for the logistic support of their forces assigned or attached to joint commands, subject to the following guidance.

(a) Under peacetime conditions, the scope of the logistic authority exercised by the commander of a combatant command will be consistent with the peacetime limitations imposed by legislation, DOD policy or regulations, budgetary considerations, local conditions, and other specific conditions prescribed by the SecDef or the CJCS. Where these factors preclude execution of a CCDR's directive by component CDRs, the comments and recommendations of the CCDR, together with the comments of the component CDR concerned, normally will be referred to the appropriate Military Department for consideration. If the matter is not resolved in a timely manner with the appropriate Military Department, it will be referred by the CCDR, through the CJCS, to the SecDef.

(b) Under crisis action, wartime conditions, or where critical situations make diversion of the normal logistic process necessary, the logistic authority of CCDRs enables them to use all facilities and supplies of all forces assigned to their commands as necessary for the accomplishment of their missions. The President or SecDef may extend this authority to attached forces when transferring those forces for a specific

mission and should specify this authority in the establishing directive or order. Joint logistic doctrine and policy developed by the CJCS establishes wartime logistic support guidance to assist the CCDR in conducting successful joint operations.

2. Operational control (OPCON) is the command authority that may be exercised by CDRs at any echelon at or below the level of combatant command and may be delegated within the command. When forces are transferred between combatant commands, the command relationship the gaining CDR will exercise (and the losing CDR will relinquish) over these forces must be specified by the SecDef.

a. Basic Authority. Operational control (OPCON) is inherent in COCOM and is the authority to perform those functions of command over subordinate forces involving organizing and employing commands and forces, assigning tasks, designating objectives, and giving authoritative direction necessary to accomplish the mission. OPCON includes authoritative direction over all aspects of military operations and joint training necessary to accomplish missions assigned to the command. It should be exercised through the CDRs of subordinate organizations; normally, this authority is exercised through subordinate joint force commanders (JFCs) and Service and/or functional combatant commanders or functional component commanders. OPCON normally provides full authority to organize commands and forces and employ those forces as the commander considers necessary to accomplish assigned missions. It does not include authoritative direction for logistics or matters of administration, discipline, internal organization, or unit training. These elements of COCOM must be specifically delegated by the CCDR. OPCON does include the authority to delineate functional responsibilities and operational areas of subordinate JFCs.

b. CDRs of subordinate commands, including JTFs, normally will be given OPCON of assigned or attached forces by the superior CDR.

c. OPCON conveys the authority for the following.

(1) Exercise or delegate OPCON and tactical control (TACON), establish support relationships among subordinates, and designate coordinating authorities.

(2) Give direction to subordinate commands and forces necessary to carry out missions assigned to the command, including authoritative direction over all aspects of military operations and joint training.

(3) Prescribe the chain of command to the commands and forces within the command.

(4) Organize subordinate commands and forces within the command as necessary to carry out missions assigned to the command.

(5) Employ forces within the command, as necessary, to carry out missions assigned to the command.

(6) Assign command functions to subordinate CDRs.

(7) Plan for, deploy, direct, control, and coordinate the actions of subordinate forces.

(8) Establish plans, policies, priorities, and overall requirements for the intelligence, surveillance, and reconnaissance (ISR) activities of the command.

(9) Conduct joint training and joint training exercises required to achieve effective employment of the forces of the command, in accordance with joint doctrine established by the CJCS, and establish training policies for joint operations required to accomplish the mission. This authority also applies to forces attached for purposes of joint exercises and training.

(10) Suspend from duty and recommend reassignment of any officer assigned to the command.

(11) Assign responsibilities to subordinate CDRs for certain routine operational matters that require coordination of effort of two or more CDRs.

(12) Establish an adequate system of control for local defense and delineate such operational areas for subordinate CDRs as deemed desirable.

(13) Delineate functional responsibilities and geographic operational areas of subordinate CDRs.

d. The SecDef may specify adjustments to accommodate authorities beyond OPCON in an establishing directive when forces are transferred between CCDRs or when members and/or organizations are transferred from the Military Departments to a combatant command. Adjustments will be coordinated with the participating CCDRs.

3. Tactical control (TACON) is the command authority over assigned or attached forces or commands, or military capability or forces made available for tasking, that is limited to the detailed direction and control of movements or maneuvers within the operational area necessary to accomplish assigned missions or tasks.

a. Basic Authority. TACON is inherent in OPCON and may be delegated to and exercised by CDRs at any echelon at or below the level of combatant command. When forces are transferred between CCDRs, the command relationship the gaining CDR will exercise (and the losing CDR will relinquish) over those forces must be specified by the SecDef.

b. TACON provides the authority to:

(1) Give direction for military operations; and

(2) Control designated forces (e.g., ground forces, aircraft sorties, missile launches, or satellite payload management).

c. TACON provides sufficient authority for controlling and directing the application of force or tactical use of combat support assets within the assigned mission or task. TACON does not provide organizational authority or authoritative direction for administrative and logistic support; the CDR of the parent unit continues to exercise these authorities unless otherwise specified in the establishing directive.

d. Functional component CDRs typically exercise TACON over military capability or forces made available to the functional component for tasking.

4. Support is a command authority. A support relationship is established by a superior CDR between subordinate CDRs when one organization should aid, protect, complement, or sustain another force.

a. Basic Authority. Support may be exercised by CDRs at any echelon at or below the combatant command level. This includes the SecDef designating a support relationship between CCDRs as well as within a combatant command. The designation of supporting relationships is important as it conveys priorities to CDRs and staffs that are planning or executing joint operations. The support command relationship is, by design, a somewhat vague but very flexible arrangement. The establishing authority (the common superior CDR) is responsible for ensuring that both the supported CDR and supporting CDRs understand the degree of authority that the supported CDR is granted.

b. The supported CDR should ensure that the supporting CDRs understand the assistance required. The supporting CDRs will then provide the assistance needed, subject to a supporting

CDR's existing capabilities and other assigned tasks. When a supporting CDR cannot fulfill the needs of the supported CDR, the establishing authority will be notified by either the supported CDR or a supporting CDR. The establishing authority is responsible for determining a solution.

c. An establishing directive normally is issued to specify the purpose of the support relationship, the effect desired, and the scope of the action to be taken. It also should include:

(1) The forces and resources allocated to the supporting effort;

(2) The time, place, level, and duration of the supporting effort;

(3) The relative priority of the supporting effort;

(4) The authority, if any, of the supporting CDR to modify the supporting effort in the event of exceptional opportunity or an emergency; and

(5) The degree of authority granted to the supported CDR over the supporting effort.

d. Unless limited by the establishing directive, the supported CDR will have the authority to exercise general direction of the supporting effort. General direction includes the designation and prioritization of targets or objectives, timing and duration of the supporting action, and other instructions necessary for coordination and efficiency.

e. The supporting CDR determines the forces, tactics, methods, procedures, and communications to be employed in providing this support. The supporting CDR will advise and coordinate with the supported CDR on matters concerning the employment and limitations (e.g., logistics) of such support, assist in planning for the integration of such support into the supported CDR's effort as a whole, and ensure that support requirements are appropriately communicated within the supporting CDR's organization.

f. The supporting CDR has the responsibility to ascertain the needs of the supported force and take action to fulfill them within existing capabilities, consistent with priorities and requirements of other assigned tasks.

g. Several categories of support have been defined to better characterize the support that should be given. For example, land forces that provide fires normally are tasked in a direct support role.

h. There are four defined categories of support that a CCDR may direct over assigned or attached forces to ensure the appropriate level of support is provided to accomplish mission objectives. These include general support, mutual support, direct support, and close support. Figure J-5 summarizes each of the categories of support. The establishing directive will specify the type and extent of support the specified forces are to provide.

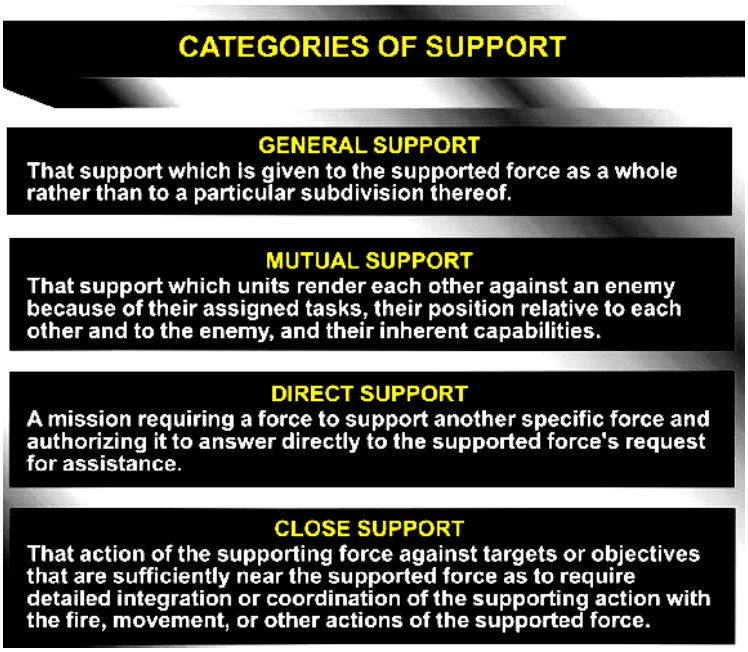

Figure J-5. Categories of Support

Support Relationships Between Combatant Commands

a. The SecDef establishes support relationships between the CCDRs for the planning and execution of joint operations. This ensures that the tasked CCDR(s) receives the necessary support. A supported CCDR requests capabilities, tasks supporting DOD components, coordinates with the appropriate Federal agencies (where agreements have been established), and develops a plan to achieve the common goal. As part of the team effort, supporting CCDRs provide the requested capabilities, as available, to assist the supported CCDR to accomplish missions requiring additional resources.

b. The CJCS organizes the joint planning and execution community for joint operation planning to carry out support relationships between the combatant commands. The supported CCDR has primary responsibility for all aspects of an assigned task. Supporting CCDRs provide forces, assistance, or other resources to a supported CCDR. Supporting CCDRs prepare supporting plans as required. Under some circumstances, a CCDR may be a supporting CCDR for one operation while being a supported CCDR for another.

Support Relationships Between Component Commands

a. The joint force commander (JFC) may establish support relationships between component CDRs to facilitate operations. Support relationships afford an effective means to prioritize and ensure unity of effort for various operations. Component CDRs should establish liaison with other component CDRs to facilitate the support relationship and to coordinate the planning and execution of pertinent operations. Support relationships may change across phases of an operation as directed by the establishing authority.

b. When the commander of a Service component is designated as a functional combatant commander (FCC) functional component commander, the associated Service component

responsibilities for assigned or attached forces are retained, but are not applicable to forces made available by other Service components. The operational requirements of the functional component CDR's subordinate forces are prioritized and presented to the joint force commander (JFC) by the functional component CDR, relieving the affected Service component CDRs of this responsibility, but the affected Service component CDRs are not relieved of their administrative and support responsibilities.

c. In rare situations, a supporting component CDR may be supporting two or more supported CDRs. In these situations, there must be clear understanding among all parties, and a specification in the establishing directive, as to who supports whom, when, and with what prioritization. When there is a conflict over prioritization between component CDRs, the CCDR having COCOM of the component CDRs will have final adjudication.

5. Other authorities outside the command relationships delineated above are described below.

a. **Administrative Control.** Administrative control (ADCON) is the direction or exercise of authority over subordinate or other organizations with respect to administration and support, including organization of Service forces, control of resources and equipment, personnel management, logistics, individual and unit training, readiness, mobilization, demobilization, discipline, and other matters not included in the operational missions of the subordinate or other organizations. ADCON is synonymous with administration and support responsibilities identified in Title 10, United States Code (USC). This is the authority necessary to fulfill Military Department statutory responsibilities for administration and support. ADCON may be delegated to and exercised by CDRs of Service forces assigned to a CCDR at any echelon at or below the level of Service component command. ADCON is subject to the command authority of CCDRs. ADCON may be delegated to and exercised by CDRs of Service commands assigned within Service authorities. Service CDRs exercising ADCON will not usurp the authorities assigned by a CCDR having COCOM over CDRs of assigned Service forces.

b**. Coordinating Authority**. CDRs or individuals may exercise coordinating authority at any echelon at or below the level of combatant command. Coordinating authority is the authority delegated to a CDR or individual for coordinating specific functions and activities involving forces of two or more Military Departments, two or more joint force components, or two or more forces of the same Service (e.g., joint security coordinator exercises coordinating authority for joint security area operations among the component CDRs). Coordinating authority may be granted and modified through a memorandum of agreement to provide unity of command and unity of effort for operations involving, Reserve Component (RC), and Active Component (AC) forces engaged in interagency activities. The CDR or individual has the authority to require consultation between the agencies involved but does not have the authority to compel agreement. The common task to be coordinated will be specified in the establishing directive without disturbing the normal organizational relationships in other matters. Coordinating authority is a consultation relationship between CDRs, not an authority by which command may be exercised. It is more applicable to planning and similar activities than to operations. Coordinating authority is not in any way tied to force assignment. Assignment of coordinating authority is based on the missions and capabilities of the commands or organizations involved.

c. **Direct Liaison Authorized**. Direct liaison authorized (DIRLAUTH) is that authority granted by a CDR (any level) to a subordinate to directly consult or coordinate an action with a command or agency within or outside of the granting command. DIRLAUTH is more applicable

to planning than operations and always carries with it the requirement of keeping the CDR granting DIRLAUTH informed. DIRLAUTH is a coordination relationship, not an authority through which command may be exercised.

6. Command of National Guard and Reserve Units

a. All National Guard and reserve forces (except those forces specifically exempted) are assigned by the SecDef to the combatant commands under the authority provided in Title 10, United States Code (USC), Sections 162 and 167, as indicated in the "Forces for Unified Commands" memorandum. However, those forces are available for operational missions only when mobilized for specific periods in accordance with the law, or when ordered to active duty and after being validated for employment by their parent Service.

b. The authority CCDRs may exercise over assigned Reserve Component (RC) forces when not on active duty or when on active duty for training is training and readiness oversight (TRO). CCDRs normally will exercise TRO over assigned forces through the Service component commanders. TRO includes the authority to:

(1) Provide guidance to Service component commanders on operational requirements and priorities to be addressed in Military Department training and readiness programs;

(2) Comment on Service component program recommendations and budget requests;

(3) Coordinate and approve participation by assigned Reserve Component (RC) forces in joint exercises and other joint training when on active duty for training or performing inactive duty for training;

(4) Obtain and review readiness and inspection reports on assigned Reserve Component (RC) forces; and

(5) Coordinate and review mobilization plans (including post-mobilization training activities and deployability validation procedures) developed for assigned Reserve Component (RC) forces.

c. Unless otherwise directed by the SecDef, the following applies.

(1) Assigned Reserve Component (RC) forces on active duty (other than for training) may not be deployed until validated by the parent Service for deployment.

(2) CCDRs may employ Reserve Component (RC) forces assigned to their subordinate component CDRs in contingency operations only when the forces have been mobilized for specific periods in accordance with the law, or when ordered to active duty and after being validated for employment by their parent Service.

(3) Reserve Component (RC) forces on active duty for training or performing inactive-duty training may be employed in connection with contingency operations only as provided by law, and when the primary purpose is for training consistent with their mission or specialty.

d. CCDRs will communicate with assigned Reserve Component (RC) forces through the Military Departments when the RC forces are not on active duty or when on active duty for training.

e. CCDRs may inspect assigned Reserve Component (RC) forces in accordance with Department of Defense directive (DODD) 5106.4, *Combatant Command Inspectors Genera ,* when such forces are mobilized or ordered to active duty (other than for training).

7. U.S. vs Alliance Command Relationships

Figure J-6 offers a comparison between U.S. command relationships and the two alliance command relationships of NATO and CFC/USFK.

Authority	Most control → Least control						
	US COCOM	US OPCON	NATO OPCOM	NATO OPCON	CFC/USFK COMBINED OPCON	NATO TACOM	US & NATO TACON
Direct authority to deal with DOD, US diplomatic missions, agencies	X						
Coordinate CINC boundary	X						
Granted to a command	X		X				
Delegated to a command		X		X	X	X	X
Set chain of command to forces	X	X					
Assign mission/designate objective	X	X	X				
Assign tasks	X	X	X			X	
Direct/employ forces	X	X	X	X	X		
Establish maneuver control measures	X	X	X	X	X	X	X
Reassign forces	X						
Retain OPCON	X	X	X				
Delegate OPCON	X	X	X	X with approval			
Assign TACOM	X	X					
Delegate TACON	X	X	X	X	X		
Retain TACON	X	X	X	X			
Deploy forces (information/within theater)	X	X	X	X			
Local direction/control designated forces	X	X					X
Assign separate employment of unit components	X	X	X				
Directive authority for logistics	X						
Direct joint training	X	X					
Exercise command of US forces in MNF	X	X					
Assign/reassign subordinate commanders/officers	X	May suspend or recommend reassignment					
Conduct internal discipline/training	X						

NATO *Full Command* and CFC/USFK *Command less OPCON* are basically equivalent to US COCOM, but only for internal matters

X – has this authority

– denied this authority, or not specifically granted it

LEGEND

COCOM – Combatant command
OPCON – Operational control
OPCOM – Operational command
TACOM – Tactical command
TACON – Tactical control

Figure J-6 U.S. vs Alliance Command Relationships

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APPENDIX K: Integration of Effects into Operational Design

One of the most confusing aspects encountered in recent joint doctrinal changes has been the infusion of *effects* language and processes into the planning process. The issue is made even more difficult in view of the apparent duplication of *effects theory*[30] with the established principles of operational art. The purpose of this appendix is to harmonize the two concepts into a more useful planning construct.

Before one can appreciate the commonality between operational art and effects-based concepts, it is important to understand the fundamental tenets of operational art. This appendix cannot detail all aspects of operational art and those unfamiliar with operational art must first gain an awareness of this theoretical framework before launching into operational-level planning. This lack of knowledge of operational art is often the source of much of the current disconnect found in many effects-based concepts. The most critical of these is the nature of the *objective* and its relationship to the *center of gravity* (COG). Please review the discussion on the COG in Appendix C of this workbook.

Operational design is defined by joint doctrine as, "The conception and construction of the framework that underpins a campaign or major operation plan and its subsequent execution." Central to operational design is for the planning staff to understand the Desired End State (DES) and requisite objectives necessary to achieve the DES. An objective is a clearly defined, decisive, and attainable goal toward which every military operation is directed. Objectives and their supporting effects provide the basis for identifying tasks to be accomplished. Joint operation planning integrates military actions and capabilities with those of other instruments of national power in time, space, and purpose in unified action to achieve the JFC's objectives.

Center of Gravity and PMESII

As recognized in both operational art and effects-based concepts, a COG is seldom composed of a single entity as its source of power. Invariably, a complex relationship exists between many elements, both military and nonmilitary, to produce a COG. The challenge for the planning staff is in determining the nature of these relationships. The Joint Intelligence Preparation of the Operational Environment (JIPOE)[31] is the joint staff's primary tool for investigating and ultimately assessing the enemy's means and methods to achieve its ends. Another tool that might be available to assist in this investigation is an Operational Net Assessment (ONA).[32] No matter

[30] There have been numerous effects related models promulgated by a number of agencies. These include Effects-Based Operations (EBO) and Effects-Based Planning (EBP). Neither of these terms is codified in U.S. joint doctrine, though one will often see them used in some staffs. Presently, joint doctrine simply uses the term "effects."
[31] See Part 1 of Step 1 in the JOPP (pp. 1-1 to 1-25) for a deeper discussion of JIPOE.
[32] A continuously updated operational support tool that provides a JTF commander visibility of effects-to-task linkages based on a "system-of-systems" analysis of a potential adversary's political, military, economic, social, infrastructure, and information (PMESII) war-making capabilities. The ONA informs decision-makers from strategic to tactical levels regarding the complementary effects and supporting missions and tasks that can be considered when applying the full range of diplomatic, information, military and economic (DIME) actions to achieve specific effects on an adversary's will and capability in support of national objectives. ONA is a critical

what method is used, the examination at the strategic level of war must encompass all sources of power as potential components of the COG. In joint doctrine the breadth of the areas considered include a potential adversary's political, military, economic, social, infrastructure, and information (PMESII) (see figure K-1).

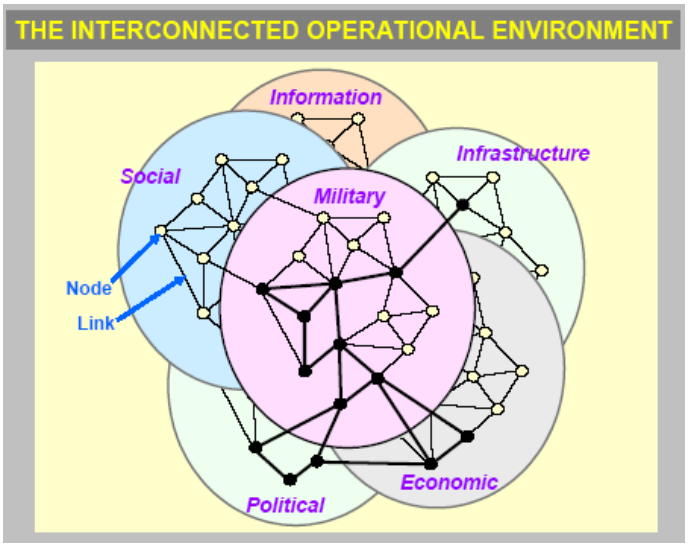

Figure K-1. Political, military, economic, social, infrastructure, and information (PMESII)

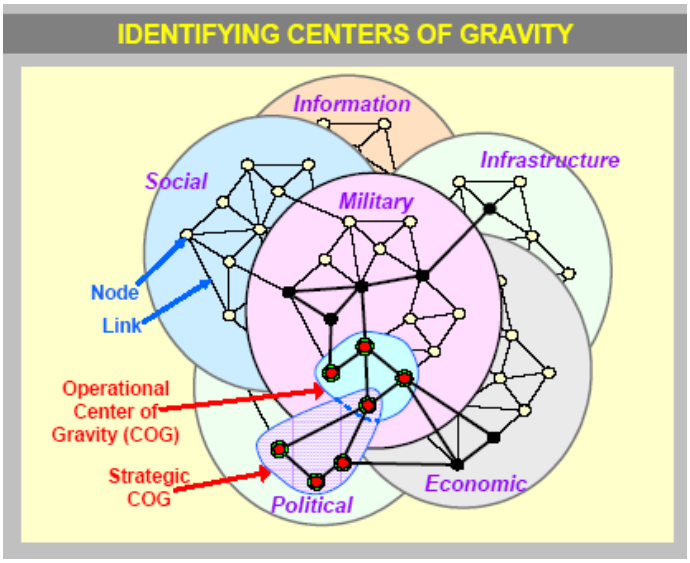

Figure K-2. Identifying COG (s) in the PMESII

It is within this interconnected operational environment that one will find the COG, as depicted in Figure K-2. The nodes and links (shown in both figures) that bear a relationship to the COG are essentially **IDENTICAL** to the critical capabilities (CC) and critical requirements (CR) as discussed in Appendix C: Center of Gravity Determination, while a key node is closely related to the operational art term of critical vulnerability (CV). See Figure K-3.

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enabler for achieving rapid decisive operations. It is an integrated, collaborative product of Department of Defense and other appropriate government and non-government organizations. Its purpose is to identify key links and nodes within the adversary's systems and to propose methods that will influence, neutralize or destroy them and achieve a desired effect or outcome. (From JFCOM Glossary)

KEY TERMS

system — A functionally, physically, and/or behaviorally related group of regularly interacting or interdependent elements; that group of elements forming a unified whole.

node — An element of a system that represents a person, place, or thing.

key node — A node that is critical to the functioning of a system.

link — An element of a system that represents a behavioral, physical, or functional relationship between nodes.

It's the Objective

As observed in Appendix C, an enemy's COG is inextricably linked to its objective (just as the friendly COG is linked to its own objectives). In fact, this is a critical aspect to determining an enemy's COG, a fact that is generally unclear in effects–based concepts. An enemy's interconnected system in the PMESII is MEANINGLESS if one does not first (correctly) assess an enemy's probable end state and objectives. One must remember that the *raison d'être* for a COG is to accomplish an objective.

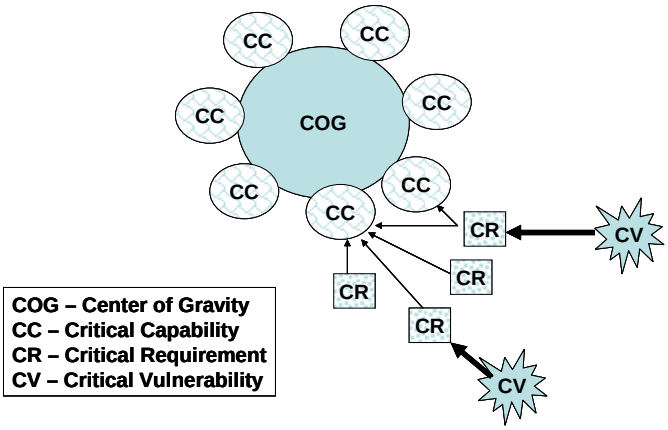

Figure K-3. Relationships between Critical Capabilities / Requirements / Vulnerabilities

Destroy or defeat an enemy's COG and you have severely inhibited an enemy's ability to achieve his objective (unless another source of power assumes the role of COG). In a theoretical construct, one should see an enemy COG as something that stands between the friendly COG and the friendly objective(s). Thus, an operation is invariably focused upon an enemy's COG in order to achieve **FRIENDLY** objectives.

Effects vs. Objectives

The next point that often serves to confuse joint planners is the role of effects in the COG-Objective construct. Joint doctrine defines an effect as:

> 1. The physical or behavioral state of a system that results from an action, a set of actions, or another effect. 2. The result, outcome, or consequence of an action. 3. A change to a condition, behavior, or degree of freedom.

Thus, an effect is an outcome from an action, and in its simplest terms it is the condition that one hopes for (if a desired effect) upon the accomplishment of a task or action assigned to a subordinate command. In operational art terms, an effect may be considered as the consequence from attacking / controlling a decisive point or an enemy's critical vulnerability / requirement / and / or capability enroute to the defeat of an enemy's COG. A desired effect should become apparent as the planning staff completes its COG analysis and is often found in the commander's planning guidance and/or intent. **An effect, however, is not an end onto itself.** Rather, an effect's purpose should be on fulfilling the friendly COG's movement to its respective objective (s). Figure K-4 offers a graphic depiction of the concept.

Figure K-4 illustrates the relationship between objectives / effects / and COGs. Upon determination of one's own objectives and COG, the planning staff assesses an enemy's probable objective (s) and its related COG. The friendly operations are then focused upon defeating the enemy COG enroute to the friendly objective. Since a direct attack upon the enemy COG is frequently impractical (or too costly), friendly COAs will most often focus on attacking through a combination of critical vulnerabilities (CVs), critical requirements (CRs), Critical Capabilities (CCs), and decisive points (DPs) that are integral to the enemy COG. If, as depicted in Figure K-4, the enemy COG being attacked is at the strategic level of war, these attacks / operations become tasks for subordinate commands / functions / agencies against the applicable CVs / CRs / CCs / DPs. The successful accomplishment of these subordinate operations produced desired effects (either facilitating the friendly COG and / or degrading the enemy COG). These effects, coupled most likely with other friendly induced effects from other complementary operations, are intended to combine to defeat / degrade the enemy COG and allow for the accomplishment of the friendly strategic objective.

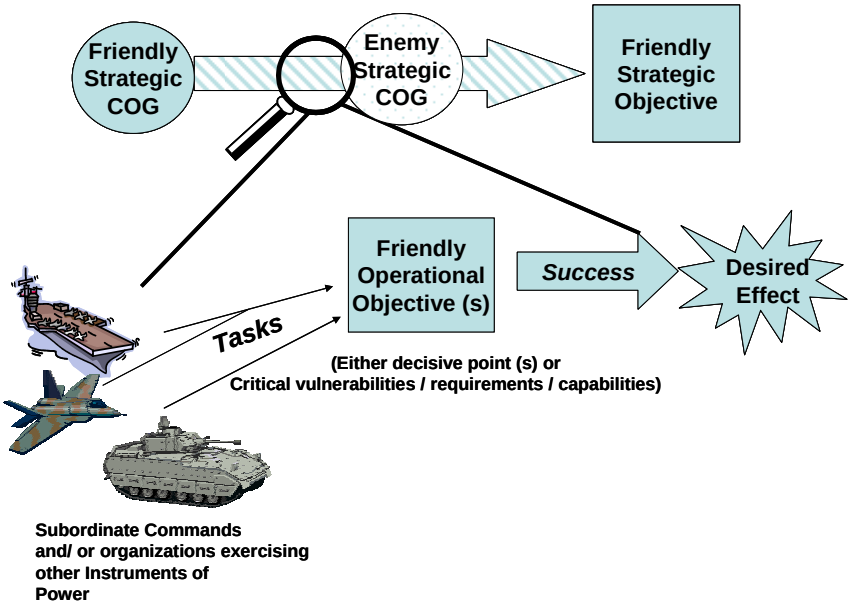

Figure K-4. Effects vs. Objectives

Although joint doctrine does not prescribe a specific convention for writing a desired effect statement, if one must be crafted, **there are four primary considerations. First**, each desired effect should link directly to one or more objectives; **next**, if possible, the effect should be measurable (see discussion below on pitfalls); **third**, the statement should not specify ways and means for accomplishment; **finally**, the effect should be distinguishable from the objective it supports as a condition for success, not as another objective or a task. The same considerations apply to writing an undesired effect statement.

Assessment

Mission success criteria describe the standards for determining mission accomplishment. The JFC may include these criteria in the planning guidance so that the staff and components better understand what constitutes mission success. When these criteria are related to the termination criteria, which typically apply to the end of a joint operation and disengagement by joint forces, this often signals the end of the use of the military instrument of national power. **Mission success criteria**, can also apply to any joint operation, subordinate phase, and joint force component operation. These criteria help the JFC determine if and when to move to the next major operation or phase.

The initial set of these criteria determined during mission analysis becomes the basis for **assessment**. Assessment uses **measures of performance (MOPs)** and **measures of effectiveness (MOEs)** to indicate progress toward achieving objectives. If the mission is unambiguous and limited in time and scope, mission success criteria could be readily identifiable and linked directly to the mission statement. For example, if the JFC's mission is to evacuate U.S. personnel from the U.S. embassy in Grayland, then the mission analysis could identify two primary success criteria: (1) all U.S. personnel are evacuated and (2) evacuation is completed before D-Day. However, more complex operations may require MOEs and MOPs for each task, effect, and phase of the operation. For example, if the JFC's specified tasks are to ensure friendly transit through the Strait of Gray, eject Redland forces from Grayland, and restore stability along the Grayland-Redland border, then mission analysis should indicate many potential success criteria — measured by MOEs and MOPs — some for each desired effect and task.

Measuring the status of tasks, effects, and objectives becomes the basis for reports to senior commanders and civilian leaders on the progress of the operation. The CCDR can then advise the President and SecDef accordingly and adjust operations as required. Whether in a supported or supporting role, JFCs at all levels should develop their mission success criteria with a clear understanding of termination criteria established by the CJCS and SecDef.

Assessment Process and Measures

The assessment process uses MOPs to evaluate task performance at all levels of war and MOEs to determine progress of operations toward achieving objectives. MOEs help answer questions like: "are we doing the right things, are our actions producing the desired effects, or are alternative actions required?" MOPs are closely associated with task accomplishment. MOPs help answer questions like: "was the action taken, were the tasks completed to standard, or how much effort was involved?" Well-devised measures can help the commanders and staffs understand the causal relationship between specific tasks and desired effects.

(a) **MOEs assess changes in system behavior, capability, or operational environment.** They measure the attainment of an end state, achievement of an objective, or creation of an effect; they do not measure task performance. These measures typically are more subjective than MOPs, and can be crafted as either qualitative or quantitative. MOEs can be based on quantitative measures to reflect a trend and show progress toward a measurable threshold.

(b) **MOPs measure task performance.** They are generally quantitative, but also can apply qualitative attributes to task accomplishment. MOPs are used in most aspects of combat assessment, since the latter typically seeks specific, quantitative data or a direct observation of an event to determine accomplishment of tactical tasks. But MOPs have relevance for noncombat operations as well (e.g., tons of relief supplies delivered or noncombatants evacuated). MOPs also can be used to measure operational and strategic tasks, but the type of measurement may not be as precise or as easy to observe.

The assessment process and related measures should be **relevant, measurable, responsive,** and **resourced** so there is no false impression of accomplishment. Quantitative measures can be helpful in this regard.

(a) **Relevant.** MOPs and MOEs should be relevant to the task, effect, operation, the operational environment, the end state, and the commander's decisions. This criterion helps avoid collecting and analyzing information that is of no value to a specific operation. It also helps ensure efficiency by eliminating redundant efforts.

(b) **Measurable.** Assessment measures should have qualitative or quantitative standards they can be measured against. To effectively measure change, a baseline measurement should be established prior to execution to facilitate accurate assessment throughout the operation.

Both MOPs and MOEs can be quantitative or qualitative in nature, but meaningful quantitative measures are preferred because they are less susceptible to subjective interpretation.

(c) **Responsive.** Assessment processes should detect situation changes quickly enough to enable effective response by the staff and timely decisions by the commander. The JFC and staff should consider the time required for an action or actions to produce desired results within the operational environment and develop indicators that can respond accordingly. Many actions directed by the JFC require time to implement and may take even longer to produce a measurable result.

(d) **Resourced.** To be effective, assessment must be adequately resourced. Staffs should ensure resource requirements for data collection efforts and analysis are built into plans and monitored. Effective assessment can help avoid both duplication of tasks and unnecessary actions, which in turn can help preserve combat power.

The planning staff may find the UJTL as a helpful starting point for crafting assessment criteria for an operation. For example, using the same Grayland Noncombatant Evacuation Operation (NEO) scenario mentioned earlier, the UJTL offers the following Task description and potential measures:

UJTL TASK:

(U) ST 8.4.3 Coordinate Evacuation and Repatriation of Noncombatants from Theater

Task Description: To use all available means, including commercial, theater military, host nation (HN), and third-country resources to evacuate US dependents, U.S. government (USG) civilian employees, and private citizens (U.S. and third-country) from the theater and support the repatriation of appropriate personnel to the U.S. Such operations are conducted in support of the Department of State. Theater organizations at various echelons provide support (for example, medical, transportation, and security) to noncombatants. (CJCSI 3110.14, CJCSM 3122.03, JP 1-0, JP 3-07, JP 3-07.5)

Potential Measures offered by the UJTL

M1	Days	To organize and deploy fully operational joint task force (JTF).
M2	Hours	To evacuate noncombatants (once combatant commander directed to conduct evacuation).
M3	Hours	To evaluate situation and present recommendations to decision maker(s).
M4	Percent	Of U.S. citizens and designated foreign nationals accounted for by name during evacuation.
M5	Percent	Of U.S. citizens and designated foreign nationals accounted for.
M6	Percent	Of U.S. citizens and designated foreign nationals evacuated.
M7	Percent	Of U.S. citizens desiring, evacuated.
M8	Percent	Of evacuees available and desiring evacuation, moved (in accordance with (IAW) operation plan (OPLAN) timelines).
M9	Yes/No	Noncombatant evacuation operation (NEO) plans include actions in the event of nuclear, biological, and chemical (NBC) attack.

CAUTION: Operations have always required assessment—this is nothing new. One should, however, be alert to the potential pitfalls encountered by a staff that becomes so enamored with color-coded MOE/MOP indicators that it fails to remember the nature of warfare. The operational environment is constantly changing as enumerable human and environmental factors exert their influences. The enemy also has a vote, and is fighting to win. Friction has not disappeared from the operational environment and friendly intelligence collection and analysis are often flawed. And finally, as noted above, not everything is easily quantifiable—commanders and their staffs will also have to rely on their experience and intuition.

☆EFFECTS IN THE PLANNING PROCESS—THE BOTTOM LINE☆

While the commander and unit SOP will dictate how the staff will apply effects processes, for the purposes of this workbook, one may find the following considerations of use:

1. Operational Design –
    a. Apply the constructs of operational art. Ensure clarity between objectives and desired effects.
    b. When assessing possible enemy COGs, ensure the JIPOE is inclusive of the full PMESII (as appropriate to the level of operation) in its analysis. Recognize the duplication of the concept of nodes and links with the terminology of COG deconstruction. To avoid confusion, do not use both sets of terminology in the same analysis.
2. Commander's Intent – If the commander has expressed specific desired effects and success criteria, ensure they are captured in the commander's intent and/or planning guidance.
3. Assessment – Select and assess meaningful criteria as appropriate, though continue to maintain a broader perspective that cannot be conveyed by color-coded indicators.

APPENDIX L: Operational Time Definitions

Times. (DOD) (C, D, and M-days end at 2400 hours Universal Time (Zulu time) and are assumed to be 24 hours long for planning.) The Chairman of the Joint Chiefs of Staff normally coordinates the proposed date with the commanders of the appropriate unified and specified commands, as well as any recommended changes to C-day. L-hour will be established per plan, crisis, or theater of operations and will apply to both air and surface movements. Normally, L-hour will be established to allow C-day to be a 24-hour day.

a. C-day. The unnamed day on which a deployment operation commences or is to commence. The deployment may be movement of troops, cargo, weapon systems, or a combination of these elements using any or all types of transport. The letter "C" will be the only one used to denote the above. The highest command or headquarters responsible for coordinating the planning will specify the exact meaning of C-day within the aforementioned definition. The command or headquarters directly responsible for the execution of the operation, if other than the one coordinating the planning, will do so in light of the meaning specified by the highest command or headquarters coordinating the planning.

b. D-day. The unnamed day on which a particular operation commences or is to commence.

c. F-day. For contingency planning, day on which FDO force deployment begins.

d. F-hour. The effective time of announcement by the Secretary of Defense to the Military Departments of a decision to mobilize Reserve units.

e. H-hour. The specific hour on D-day at which a particular operation commences.

f. I-day. The day on which the Intelligence Community determines that within a potential crisis situation, a development occurs that may signal a heightened threat to U.S. interests. Although the scope and direction of the threat is ambiguous, the Intelligence Community responds by focusing collection and other resources to monitor and report on the situation as it evolves.

g. L-hour. The specific hour on C-day at which a deployment operation commences or is to commence.

h. M-day. The term used to designate the unnamed day on which full mobilization commences or is due to commence.

i. N-day. The unnamed day an active duty unit is notified for deployment or redeployment.

j. R-day. Redeployment day. The day on which redeployment of major combat, combat support, and combat service support forces begins in an operation.

k. S-day. The day the President authorizes Selective Reserve callup (not more than 200,000).

l. T-day. The effective day coincident with Presidential declaration of National Emergency and authorization of partial mobilization (not more than 1,000,000 personnel exclusive of the 200,000 callup).

m. W-day. Declared by the National Command Authorities, W-day is associated with an adversary decision to prepare for war (unambiguous strategic warning).

APPENDIX M: Classes of Supply

SUPPLY	CLASS
Subsistence	I
Clothing, individual equipment, tentage, organizational tool sets and tool kits, hand tools, maps, and administrative and housekeeping supplies and equipment	II
POL (package and bulk): petroleum fuels; lubricants; hydraulic and insulating oils; preservatives; liquid and compressed gasses; bulk chemical products; coolants; deicing and antifreeze compounds, together with components and additives of such products; and coal	III
Construction materials, including installed equipment and all fortification and barrier materials	IV
Ammunition of all types, chemical and special weapons, bombs explosives, mines, fuses, detonators, pyrotechnics, missiles, rockets, propellants, and other associated items	V
Personal demand items (nonmilitary sales items)	VI
Major end items: a final combination of end products that are ready for their intended use, for example, tanks, launchers, mobile machine shops, and vehicles	VII
Medical material, including medical-peculiar repair parts	VIII
Repair parts (less medical-peculiar repair parts): all repair parts and components, to include kits, assemblies, and subassemblies – repairable and nonrepairable – required for maintenance support of all equipment	IX
Material to support nonmilitary programs, such as agricultural economic development, not included in classes I through IX	X

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APPENDIX N: Glossary

air interdiction. Air operations conducted to divert, disrupt, delay, or destroy the enemy's military potential before it can be brought to bear effectively against friendly forces, or to otherwise achieve objectives. Air interdiction is conducted at such distance from friendly forces that detailed integration of each air mission with the fire and movement of friendly forces is not required. (JP 1-02)

air tasking order (ATO). A method used to task and disseminate to components, subordinate units, and command and control agencies projected sorties, capabilities, and/or forces to targets and specific missions. Normally provides specific instructions to include call signs, targets, controlling agencies, etc., as well as general instructions. (JP 1-02)

alert order. A planning directive that provides essential planning guidance and directs the initiation of execution planning after the directing authority approves a military course of action. An alert order does not authorize execution of the approved course of action. (JP 1-02)

amphibious assault. The principal type of amphibious operation that involves establishing a force on a hostile or potentially hostile shore. (JP 1-02)

amphibious objective area (AOA). A geographical area (delineated for command and control purposes in the order initiating the amphibious operation) within which is located the objective(s) to be secured by the amphibious force. This area must be of sufficient size to ensure accomplishment of the amphibious force's mission and must provide sufficient area for conducting necessary sea, air, and land operations. (JP 1-02)

area of influence. A geographical area wherein a commander is directly capable of influencing operations by maneuver or fire support systems normally under the commander's command or control. (JP 1-02)

area of interest (AOI). That area of concern to the commander, including the area of influence, areas adjacent thereto, and extending into enemy territory to the objectives of current or planned operations. This area also includes areas occupied by enemy forces who could jeopardize the accomplishment of the mission. (JP 1-02)

area of operations (AO). An operational area defined by the joint force commander for land and maritime forces. Areas of operations do not typically encompass the entire operational area of the joint force commander, but should be large enough for component commanders to accomplish their missions and protect their forces. (JP 1-02)

area of responsibility (AOR). 1. The geographical area associated with a combatant command within which a combatant commander has authority to plan and conduct operations. (JP 1-02) 2. The specifically defined geographic or moving area around a naval force within an area of interest over which the officer in tactical command exercises all warfare responsibilities and controls tactical operations. The size and shape of the area are dependent upon the nature of the threat and the assets, both organic to the force or in dedicated support, available to counter that threat. (NWP 1-02)

assumption. A supposition on the current situation or a presupposition on the future course of events, either or both assumed to be true in the absence of positive proof, necessary to enable the commander in the process of planning to complete an estimate of the situation and make a decision on the course of action. (JP 1-02)

battle damage assessment (BDA). The estimate of damage resulting from the application of lethal or nonlethal military force. Battle damage assessment is composed of physical damage assessment, functional damage assessment, and target system assessment. (JP 1-02)

battlespace. The environment, factors, and conditions that must be understood to successfully apply combat power, protect the force, or complete the mission. This includes the air, land, sea, space, and the included enemy and friendly forces; facilities; weather; terrain; the electromagnetic spectrum; and the information environment within the operational areas and areas of interest. (JP 1-02)

branch. 1. A subdivision of any organization. 2. A geographically separate unit of an activity which performs all or part of the primary functions of the parent activity on a smaller scale. Unlike an annex, a branch is not merely an overflow addition. 3. An arm or service of the Army. 4. The contingency options built into the basic plan. A branch is used for changing the mission, orientation, or direction of movement of a force to aid success of the operation based on anticipated events, opportunities, or disruptions caused by enemy actions and reactions. (JP 1-02)

campaign. A series of related military operations aimed at accomplishing a strategic or operational objective within a given time and space. (JP 1-02)

campaign plan. A joint operation plan for a series of related military operations aimed at accomplishing strategic or operational objectives within a given time and space. (JP 3-0)

campaign planning. The process whereby combatant commanders and subordinate joint force commanders translate national or theater strategic and operational concepts through the development of campaign plans. Campaign planning may begin during contingency planning when the actual threat, national guidance, and available resources become evident, but is normally not completed until after the Secretary of Defense selects the course of action during crisis action planning. Campaign planning is conducted when contemplated military operations exceed the scope of a single major joint operation. (JP 1-02)

center of gravity (COG). The source of power that provides moral or physical strength, freedom of action, or will to act. (JP 1-02)

close air support (CAS). Air action by fixed- and rotary-wing aircraft against hostile targets that are in close proximity to friendly forces and that require detailed integration of each air mission with the fire and movement of those forces. (JP 1-02)

close support. That action of the supporting force against targets or objectives which are sufficiently near the supported force as to require detailed integration or coordination of the supporting action with the fire, movement, or other actions of the supported force. (JP 1-02)

collection plan. A plan for collecting information from all available sources to meet intelligence requirements and for transforming those requirements into orders and requests to appropriate agencies. (JP 1-02)

collection planning. A continuous process that coordinates and integrates the efforts of all collection units and agencies. (JP 1-02)

collection requirement. An established intelligence need, validated against the appropriate allocation of intelligence resources (as a requirement) to fulfill the essential elements of information and other intelligence needs of an intelligence consumer. (JP 1-02)

combatant command. A unified or specified command with a broad continuing mission under a single commander established and so designated by the President, through the Secretary of Defense and with the advice and assistance of the Chairman of the Joint Chiefs of Staff. Combatant commands typically have geographic or functional responsibilities. (JP 1-02)

combatant command (command authority) (COCOM). Nontransferable command authority established by title 10 ("Armed Forces"), United States Code, section 164, exercised only by commanders of unified or specified combatant commands unless otherwise directed by the President or the Secretary of Defense. Combatant command (command authority) cannot be delegated and is the authority of a combatant commander to perform those functions of command over assigned forces involving organizing and employing commands and forces, assigning tasks, designating objectives, and giving authoritative direction over all aspects of military operations, joint training, and logistics necessary to accomplish the missions assigned to the command. Combatant command (command authority) should be exercised through the commanders of subordinate organizations. Normally this authority is exercised through subordinate joint force commanders and Service and/or functional component commanders. Combatant command (command authority) provides full authority to organize and employ commands and forces as the combatant commander considers necessary to accomplish assigned missions. Operational control is inherent in combatant command (command authority). (JP 1-02)

combatant commander (CCDR). A commander of one of the unified or specified combatant commands established by the President. (JP 1-02)

combatant commander's required date (CRD). The original date relative to C-day, specified by the combatant commander for arrival of forces or cargo at the destination; shown in the time-phased force and deployment data to assess the impact of later arrival. (JP 1-02)

combat search and rescue (CSAR). The tactics, techniques, and procedures performed by forces to effect the recovery of isolated personnel during combat. (JP 1-02)

combined operation. An operation conducted by forces of two or more Allied nations acting together for the accomplishment of a single mission. (JP 1-02)

command and control (C2). The exercise of authority and direction by a properly designated commander over assigned and attached forces in the accomplishment of the mission. Command and control functions are performed through an arrangement of personnel, equipment, communications, facilities, and procedures employed by a commander in planning, directing, coordinating, and controlling forces and operations in the accomplishment of the mission. (JP 1-02)

command and control warfare (C2W). The integrated use of operations security (OPSEC), military deception, psychological operations (PSYOP), electronic warfare (EW), and physical destruction, mutually supported by intelligence, to deny information to, influence, degrade, or destroy adversary command and control capabilities, while protecting friendly command and control capabilities against such actions. Command and control warfare applies across the operational continuum and at all levels of conflict. C2W is both offensive and defensive: a. counter-C2—To prevent effective C2 of adversary forces by denying information to, influencing, degrading, or destroying the adversary C2 system. b. C2-protection—To maintain effective command and control of own forces by turning to friendly advantage or negating adversary efforts to deny information to, influence, degrade, or destroy the friendly C2 system.

command relationships. The interrelated responsibilities between commanders, as well as the operational authority exercised by commanders in the chain of command; defined further as combatant command (command authority), operational control, tactical control, or support. (JP 1-02)

commander, amphibious task force (CATF). The Navy officer designated in the order initiating the amphibious operation as the commander of the amphibious taskforce. (JP 1-02)

commander, landing force (CLF). The officer designated in the order initiating the amphibious operation as the commander of the landing force for an amphibious operation. (JP 1-02)

commander's critical information requirement (CCIR). An information requirement identified by the commander as being critical to facilitating timely decision-making. The two key elements are friendly force information requirements and priority intelligence requirements. (JP 1-02)

commander's intent. A concise expression of the purpose of the operation and the desired end state. It may also include the commander's assessment of the adversary commander's intent and an assessment of where and how much risk is acceptable during the operation. (JP 1-02)

concept of operations (CONOPS). A verbal or graphic statement, in broad outline, of a commander's assumptions or intent in regard to an operation or series of operations. The concept of operations frequently is embodied in campaign plans and operation plans; in the latter case, particularly when the plans cover a series of connected operations to be carried out simultaneously or in succession. The concept is designed to give an overall picture of the operation. It is included primarily for additional clarity of purpose. Also called commander's concept. (JP 1-02)

constraints. Limits to a commander's freedom of action. For example, "avoid collateral damage to adjacent civilian buildings by using only precision-guided munitions to destroy key targets." Constraints are the restrictions with which a commander must comply.

contiguous zone. 1. A maritime zone adjacent to the territorial sea that may not extend beyond 24 nautical miles (nms) from the baselines from which the breadth of the territorial sea is measured. Within the contiguous zone the coastal state may exercise the control necessary to prevent and punish infringement of its customs, fiscal, immigration, or sanitary laws and regulations within its territory or territorial sea. In all other respects the contiguous zone is an area subject to high seas freedom of navigation, overflight, and related freedoms, such as the conduct of military exercises. 2. The zone of the ocean extending 3–12 nms from the U.S. coastline. (JP 1-02)

contingency. An emergency involving military forces caused by natural disasters, terrorists, subversives, or by required military operations. Due to the uncertainty of the situation, contingencies require plans, rapid response, and special procedures to ensure the safety and readiness of personnel, installations, and equipment. (JP 1-02)

counterair. A mission that integrates offensive and defensive operations to attain and maintain a desired degree of air superiority. Counterair missions are designed to destroy or negate enemy aircraft and missiles, both before and after launch. (JP 1-02)

course of action (COA). 1. Any sequence of activities that an individual or unit may follow. 2. A possible plan open to an individual or commander that would accomplish, or is related to the accomplishment of the mission. 3. The scheme adopted to accomplish a job or mission. 4. A line of conduct in an engagement. (JP 1-02)

crisis. An incident or situation involving a threat to the United States, its territories, citizens, military forces, possessions, or vital interests that develops rapidly and creates a condition of such diplomatic, economic, political, or military importance that commitment of U.S. military forces and resources is contemplated in order to achieve national objectives. (JP 1-02)

critical capability. A means that is considered a crucial enabler for a center of gravity to function as such and is essential to the accomplishment of the specified or assumed objective(s). (JP 1-02)

critical information. Specific facts about friendly intentions, capabilities, and activities vitally needed by adversaries for them to plan and act effectively so as to guarantee failure or unacceptable consequences for friendly mission accomplishment. (JP 1-02)

critical requirement. An essential condition, resource, and means for a critical capability to be fully operational. (JP 1-02)

critical strength. A capability considered vital for the accomplishment of a given or assumed military objective.

critical vulnerability. An aspect of a critical requirement which is deficient or vulnerable to direct or indirect attack that will create decisive or significant effects. (JP 1-02)

critical weaknesses. Those aspects or components of the adversary's capabilities that are deficient or vulnerable to neutralization interdiction, or attack in a manner achieving decisive or signification result, disproportionate to the military sources. (JP 5-00.1)

deception. Those measures designed to mislead the enemy by manipulation, distortion, or falsification of evidence to induce the enemy to react in a manner prejudicial to the enemy's interests. (JP 1-02)

decisive point. A geographic place, specific key event, critical factor, or function that, when acted upon, allows commanders to gain a marked advantage over an adversary or contribute materially to achieving success. (JP 1-02)

defensive sea area. A sea area, usually including the approaches to and the waters of important ports, harbors, bays, or sounds, for the control and protection of shipping; for the safeguarding of defense installations bordering on waters of the areas; and for provision of other security measures required within the specified areas. It does not extend seaward beyond the territorial waters. (JP 1-02)

direct support (DS). A mission requiring a force to support another specific force and authorizing it to answer directly to the supported force's request for assistance. (JP 1-02)

doctrinal template. A model based on known or postulated adversary doctrine. Doctrinal templates illustrate the disposition and activity of adversary forces and assets conducting a particular operation unconstrained by the effects of the battlespace. They represent the application of adversary doctrine under ideal conditions. Ideally, doctrinal templates depict the threat's normal organization for combat, frontages, depths, boundaries and other control measures, assets available from other commands, objective depths, engagement areas, battle positions, and so forth. Doctrinal templates are usually scaled to allow ready use with geospatial products. (JP 1-02)

effect. 1. The physical or behavioral state of a system that results from an action, a set of actions, or another effect. 2. The result, outcome, or consequence of an action. 3. A change to a condition, behavior, or degree of freedom. (JP 1-02)

electronic warfare (EW). Any military action involving the use of electromagnetic and directed energy to control the electromagnetic spectrum or to attack the enemy. The three major subdivisions within electronic warfare are: electronic attack (EA), electronic protection (EP), and electronic warfare support (ES). a. EA: That division of electronic warfare involving the use of electromagnetic energy, directed energy, or antiradiation weapons to attack personnel, facilities, or equipment with the intent of degrading, neutralizing, or destroying enemy combat capability and is considered a form of fires. EA includes: 1) actions taken to prevent or reduce an enemy's effective use of the electromagnetic spectrum, such as jamming and electromagnetic deception, and 2) employment of weapons that use either electromagnetic or directed energy as their primary destructive mechanism (lasers, radio frequency weapons, particle beams). b. EP: That division of electronic warfare involving passive and active means taken to protect personnel, facilities, and equipment from any effects of friendly or enemy employment of electronic warfare that degrade, neutralize, or destroy friendly combat capability. c. ES: That division of electronic warfare involving actions tasked by, or under direct control of, an operational commander to search for, intercept, identify, and locate or localize sources of intentional and unintentional radiated electromagnetic energy for the purpose of immediate threat recognition, targeting, planning and conduct of future operations. Thus, electronic warfare support provides information required for decisions involving electronic warfare operations and other tactical actions such as threat avoidance, targeting, and homing. Electronic warfare support data can be used to produce signals intelligence, provide targeting for electronic or destructive attack, and produce measurement and signature intelligence. (JP 1-02)

essential elements of friendly information (EEFI). Key questions likely to be asked by adversary officials and intelligence systems about specific friendly intentions, capabilities, and activities, so they can obtain answers critical to their operational effectiveness. (JP 1-02)

exclusive economic zone (EEZ). A maritime zone adjacent to the territorial sea that may not extend beyond 200 nautical miles from the baselines from which the breadth of the territorial sea is measured. Within the EEZ, the coastal state has sovereign rights for the purpose of exploring, exploiting, conserving, and managing natural resources, both living and nonliving, of the seabed, subsoil, and the subjacent waters and, with regard to other activities, for the economic exploitation and exploration of the zone (e.g., the production of energy from the water, currents, and winds). Within the EEZ, the coastal state has jurisdiction with regard to establishing and using artificial islands, installations, and structures having economic purposes as well as for marine scientific research and the protection and preservation of the marine environment. Other states may, however, exercise traditional high seas freedoms of navigation, overflight, and related freedoms, such as conducting military exercises in the EEZ. (JP 1-02)

execute order (EXORD): An order to initiate military operations as directed. (JP 1-02)

expeditionary force. An armed force organized to achieve a specific objective in a foreign country. (JP 3-0)

firepower. 1. The amount of fire which may be delivered by a position, unit, or weapon system. 2. Ability to deliver fire. (JP 1-02)

fires. The use of weapon systems to create a specific lethal or nonlethal effect on a target. (JP 1-02)

fire support. Fires that directly support land, maritime, amphibious, and special operations forces to engage enemy forces, combat formations, and facilities in pursuit of tactical and operational objectives. (JP 1-02)

force protection (FP). Preventive measures taken to mitigate hostile actions against Department of Defense personnel (to include family members), resources, facilities, and critical information. Force protection does not include actions to defeat the enemy or protect against accidents, weather, or disease. (JP 1-02)

fragmentary order (FRAGORD). An abbreviated form of an operation order (verbal, written or digital) usually issued on a day-to-day basis that eliminates the need for restating information contained in a basic operation. (JP 1-02)

friendly force information requirement (FFIR). Information the commander and staff need to understand the status of friendly force and supporting capabilities. (JP 1-02)

functional component command. A command normally, but not necessarily, composed of forces of two or more Military Departments which may be established across the range of military operations to perform particular operational missions that may be of short duration or may extend over a period of time. (JP 1-02)

high-payoff target (HPT). A target whose loss to the enemy will significantly contribute to the success of the friendly course of action. High-payoff targets are those high-value targets that must be acquired and successfully attacked for the success of the friendly commander's mission. (JP 1-02)

high-value target (HVT). A target the enemy commander requires for the successful completion of the mission. The loss of high-value targets would be expected to seriously degrade important enemy functions throughout the friendly commander's area of interest. (JP 1-02)

human intelligence (HUMINT). A category of intelligence derived from information collected and provided by human sources. (JP 1-02)

information assurance (IA). Measures that protect and defend information and information systems by ensuring their availability, integrity, authentication, confidentiality, and nonrepudiation. This includes providing for restoration of information systems by incorporating protection, detection, and reaction capabilities. (JP 1-02)

information operations (IO). The integrated employment of the core capabilities of electronic warfare, computer network operations, psychological operations, military deception, and operations security, in concert with specified supporting and related capabilities, to influence, disrupt, corrupt, or usurp adversarial human and automated decision making while protecting our own. (JP 1-02)

intelligence. 1. The product resulting from the collection, processing, integration, analysis, evaluation, and interpretation of available information concerning foreign countries or areas. 2. Information and knowledge about an adversary obtained through observation, investigation, analysis, or understanding. (JP 1-02)

intelligence collection plan. A plan for gathering information from all available sources to meet an intelligence requirement. Specifically, a logical plan for transforming the essential elements of information into orders or requests to sources within a required time limit. (JP 1-02)

intelligence requirement. 1. Any subject, general or specific, upon which there is a need for the collection of information, or the production of intelligence. 2. A requirement for intelligence to fill a gap in the command's knowledge or understanding of the battlespace or threat forces. (JP 1-02)

intelligence source. The means or system that can be used to observe and record information relating to the condition, situation, or activities of a targeted location, organization, or individual. An intelligence source can be people, documents, equipment, or technical sensors. (JP 1-02)

interdiction. An action to divert, disrupt, delay, or destroy the enemy's military potential before it can be used effectively against friendly forces, or to otherwise achieve objectives. (JP 1-02)

interoperability. 1. The ability to operate in synergy in the execution of assigned tasks. 2. The condition achieved among communications-electronics systems or items of communications-electronics equipment when information or services can be exchanged directly and satisfactorily between them and/or their users. The degree of interoperability should be defined when referring to specific cases. (JP 1-02)

joint force air component commander (JFACC). The commander within a unified command, subordinate unified command, or joint task force responsible to the establishing commander for making recommendations on the proper employment of assigned, attached, and/or made available for tasking air forces; planning and coordinating air operations; or accomplishing such operational missions as may be assigned. The joint force air component commander is given the authority necessary to accomplish missions and tasks assigned by the establishing commander. (JP 1-02)

joint force commander (JFC). A general term applied to a combatant commander, subunified commander, or joint task force commander authorized to exercise combatant command (command authority) or operational control over a joint force. (JP 1-02)

joint force land component commander (JFLCC). The commander within a unified command, subordinate unified command, or joint task force responsible to the establishing commander for making recommendations on the proper employment of assigned, attached, and/or made available for tasking land forces; planning and coordinating land operations; or accomplishing such operational missions as may be assigned. The joint force land component commander is given the authority necessary to accomplish missions and tasks assigned by the establishing commander. (JP 1-02)

joint force maritime component commander (JFMCC). The commander within a unified command, subordinate unified command, or joint task force responsible to the establishing commander for making recommendations on the proper employment of assigned, attached, and/or made available for tasking maritime forces and assets; planning and coordinating maritime operations; or accomplishing such operational missions as may be assigned. The joint force maritime component commander is given the authority necessary to accomplish missions and tasks assigned by the establishing commander. (JP 1-02)

joint functions. Related capabilities and activities grouped together to help joint force commanders synchronize, integrate, and direct joint operations. Functions that are common to joint operations at all levels of war fall into six basic groups — command and control, intelligence, fires, movement and maneuver, protection, and sustainment. (JP 1-02)

joint integrated prioritized target list (JIPTL). A prioritized list of targets and associated data approved by the joint force commander or designated representative and maintained by a joint force. Targets and priorities are derived from the recommendations of components in conjunction with their proposed operations supporting the joint force commander's objectives and guidance. (JP 1-02)

joint intelligence center (JIC). The intelligence center of the combatant command headquarters. The joint intelligence center is responsible for providing and producing the intelligence required to support the combatant commander and staff, components, subordinate joint forces and elements, and the national intelligence community. (JP 1-02)

joint intelligence preparation of the operational environment (JIPOE). The analytical process used by joint intelligence organizations to produce intelligence assessments, estimates, and other intelligence products in support of the joint force commander's decision making process. It is a continuous process that includes defining the operational environment, describing the effects of the operational environment, evaluating the adversary, and determining and describing adversary potential courses of action. (JP 3-0)

Joint Operation Planning and Execution System (JOPES). A system that provides the foundation for conventional command and control by national- and combatant command-level commanders and their staffs. It is designed to satisfy their information needs in the conduct of joint planning and operations. Joint Operation Planning and Execution System includes joint operation planning policies, procedures, and reporting structures supported by communications and automated data processing systems. The system is used to monitor, plan, and execute mobilization, deployment, employment, sustainment, and redeployment activities associated with joint operations. (JP 1-02)

joint operations. A general term to describe military actions conducted by joint forces, or by Service forces in relationships (e.g., support, coordinating authority), which, of themselves, do not establish joint forces. (JP 1-02)

joint operations area (JOA). An area of land, sea, and airspace, defined by a geographic combatant commander or subordinate unified commander, in which a joint force commander (normally a joint task force commander) conducts military operations to accomplish a specific mission. (JP 1-02)

joint planning group (JPG). A joint force planning organization consisting of designated representatives of the joint force headquarters principal and special staff sections, joint force components (Service and/or functional), and other supporting organizations or agencies as deemed necessary by the joint force commander (JFC). Joint planning group membership should be a long-term assignment and members should be designated spokespersons for their respective sections or organizations. Responsibilities and authority of the joint planning group are assigned by the JFC. Normally headed by the joint force chief planner, joint planning group responsibilities may include, but are not limited to, crisis action planning (to include course of action development and refinement), coordination of joint force operation order development, and planning for future operations (e.g., transition, termination, follow-on). (JP 1-02)

joint search and rescue center (JSRC). A primary search and rescue facility suitably staffed by supervisory personnel and equipped for planning, coordinating, and executing joint search and rescue and combat search and rescue operations within the geographical area assigned to the joint force. The facility is operated jointly by personnel from two or more Service or functional components or it may have a multinational staff of personnel from two or more allied or coalition nations (multinational search and rescue center). The joint search and rescue center should be staffed equitably by trained personnel drawn from each joint force component, including U.S. Coast Guard participation where practical. (JP 1-02)

joint targeting coordination board (JTCB). A group formed by the joint force commander to accomplish broad targeting oversight functions that may include but are not limited to coordinating targeting information, providing targeting guidance and priorities, and refining the joint integrated prioritized target list. The board is normally comprised of representatives from the joint force staff, all components, and if required, component subordinate units. (JP 1-02)

joint task force (JTF). A joint force that is constituted and so designated by the Secretary of Defense, a combatant commander, a subunified commander, or an existing joint task force commander. (JP 1-02)

joint theater missile defense (JTMD). The integration of joint force capabilities to destroy enemy theater missiles in flight or prior to launch or to otherwise disrupt the enemy's theater missile operations through an appropriate mix of mutually supportive passive missile defense; active missile defense; attack operations; and supporting command, control, communications, computers, and intelligence measures. Enemy theater missiles are those that are aimed at targets outside the continental United States. (JP 1-02)

law of war. That part of international law that regulates the conduct of armed hostilities. (JP 1-02)

littoral. The littoral comprises two segments of battlespace: 1. Seaward: the area from the open ocean to the shore which must be controlled to support operations ashore. 2. Landward: the area inland from the shore that can be supported and defended directly from the sea. (JP 1-02)

logistics. The science of planning and carrying out the movement and maintenance of forces. In its most comprehensive sense, those aspects of military operations that deal with: a. design and development, acquisition, storage, movement, distribution, maintenance, evacuation, and disposition of materiel; b. movement, evacuation,

maneuver. 1. A movement to place ships, aircraft, or land forces in a position of advantage over the enemy. 2. A tactical exercise carried out at sea, in the air, on the ground, or on a map in imitation of war. 3. The operation of a ship, aircraft, or vehicle, to cause it to perform desired movements. 4. Employment of forces in the operational area through movement in combination with fires to achieve a position of advantage in respect to the enemy in order to accomplish the mission. (JP 3-0)

maritime control area. An area generally similar to a defensive sea area in purpose except that it may be established any place on the high seas. Maritime control areas are normally established only in time of war. (JP 1-02)

maritime domain. The oceans, seas, bays, estuaries, islands, coastal areas, and the airspace above these, including the littorals. (JP 1-02)

maritime interception operations (MIO). Efforts to monitor, query, and board merchant vessels in international waters to enforce sanctions against other nations such as those in support of United Nations Security Council Resolutions and/or prevent the transport of restricted goods. (JP 1-02)

maritime forces. Forces that operate on, under, or above the sea to gain or exploit command of the sea, sea control, or sea denial and/or to project power from the sea. (JP 1-02)

maritime power projection. Power projection in and from the maritime environment, including a broad spectrum of offensive military operations to destroy enemy forces or logistic support or to prevent enemy forces from approaching within enemy weapons' range of friendly forces. Maritime power projection may be accomplished by amphibious assault operations, attack of targets ashore, or support of sea control operations. (JP 1-02)

maritime superiority. That degree of dominance of one force over another that permits the conduct of maritime operations by the former and its related land, sea, and air forces at a given time and place without prohibitive interference by the opposing force. (JP 1-02)

maritime supremacy. That degree of maritime superiority wherein the opposing force is incapable of effective interference. (JP 1-02)

maritime task plan (MTP). A database of joint force maritime component commander (JFMCC) approved tactical plans. The JFMCC ensures the database is integrated within the JFMCC organization, with other joint components, and with the joint force commander. The maritime task plan responds to maritime support requests, and considers tactical dynamics of the operational environment, scheme of maneuver, and apportionment for an operation.

master air attack plan (MAAP). A plan that contains key information that forms the foundation of the joint air tasking order. Sometimes referred to as the air employment plan or joint air tasking order shell. Information that may be found in the plan includes joint force commander guidance, joint force air component commander guidance, support plans, component requests, target update requests, availability of capabilities and forces, target information from target lists, aircraft allocation, etc. (JP 1-02)

measure of effectiveness (MOE). A criterion used to assess changes in system behavior, capability, or operational environment that is tied to measuring the attainment of an end state, achievement of an objective, or creation of an effect. (JP 1-02)

measure of performance (MOP). A criterion used to assess friendly actions that is tied to measuring task accomplishment. (JP 1-02)

mine warfare (MIW). The strategic, operational, and tactical use of mines and mine countermeasures. Mine warfare is divided into two basic subdivisions: the laying of mines to degrade the enemy's capabilities to wage land, air, and maritime warfare; and the countering of enemy-laid mines to permit friendly maneuver or use of selected land or sea areas. (JP 1-02)

mission. The task, together with the purpose, that clearly indicates the action to be taken and the reason therefore. (JP 1-02)

military civic action. The use of preponderantly indigenous military forces on projects useful to the local population at all levels in such fields as education, training, public works, agriculture, transportation, communications, health, sanitation, and others contributing to economic and social development, which would also serve to improve the standing of the military forces with the population. (US forces may at times advise or engage in military civic actions in overseas areas.) (JP 1-02)

military deception (MILDEC). Actions executed to deliberately mislead adversary military decision makers as to friendly military capabilities, intentions, and operations, thereby causing the adversary to take specific actions (or inactions) that will contribute to the accomplishment of the friendly mission. (JP 1-02)

mine countermeasures (MCM). All methods for preventing or reducing damage or danger from mines. (JP 1-02)

minesweeping. The technique of clearing mines using either mechanical, explosive, or influence sweep equipment. Mechanical sweeping removes, disturbs, or otherwise neutralizes the mine; explosive sweeping causes sympathetic detonations in, damages, or displaces the mine; and influence sweeping produces either the acoustic and/or magnetic influence required to detonate the mine. (JP 1-02)

modified combined obstacle overlay (MCOO). A joint intelligence preparation of the battlespace product used to portray the effects of each battlespace dimension on military operations. It normally depicts militarily significant aspects of the battlespace environment, such as obstacles restricting military movement, key geography, and military objectives. (JP 1-02)

mutual support. That support which units render each other against an enemy, because of their assigned tasks, their position relative to each other and to the enemy, and their inherent capabilities. (JP 1-02)

named area of interest (NAI). The geographical area where information that will satisfy a specific information requirement can be collected. Named areas of interest are usually selected to capture indications of adversary courses of action, but also may be related to conditions of the battlespace. (JP 1-02)

national intelligence support team (NIST). A nationally sourced team composed of intelligence and communications experts from either Defense Intelligence Agency, Central Intelligence Agency, National Security Agency, or any combination of these agencies. (JP 1-02)

national military strategy (NMS). A document approved by the Chairman of the Joint Chiefs of Staff for distributing and applying military power to attain national security strategy and national defense strategy objectives. (JP 1-02)

Navy operational functions. Those actions by which the commander achieves unity of effort and builds, projects, and sustains combat power. Their effective application in concert with one another facilitates planning and conduct of naval operations. Functions include force application, battlespace awareness, force management, command and control, net-centric environment, focused logistics, and force protection.

objective. 1. The clearly defined, decisive, and attainable goal toward which every operation is directed. 2. The specific target of the action taken (for example, a definite terrain feature, the seizure or holding of which is essential to the commander's plan, or an enemy force or capability without regard to terrain features). (JP 1-02)

operation. A military action or the carrying out of a strategic, operational, tactical, service, training or administrative military mission. (JP 1-02).

operational art. The application of creative imagination by commanders and staffs — supported by their skill, knowledge, and experience — to design strategies, campaigns, and major operations and organize and employ military forces. Operational art integrates ends, ways, and means across the levels of war. (JP 1-02)

operational control (OPCON). Command authority that may be exercised by commanders at any echelon at or below the level of combatant command. Operational control is inherent in combatant command (command authority) and may be delegated within the command. When forces are transferred between combatant commands, the command relationship the gaining commander will exercise (and the losing commander will relinquish) over these forces must be specified by the Secretary of Defense. Operational control is the authority to perform those functions of command over subordinate forces involving organizing and employing commands and forces, assigning tasks, designating objectives, and giving authoritative direction necessary to accomplish the mission. Operational control includes authoritative direction over all aspects of military operations and joint training necessary to accomplish missions assigned to the command. Operational control should be exercised through the commanders of

subordinate organizations. Normally this authority is exercised through subordinate joint force commanders and Service and/or functional component commanders. Operational control normally provides full authority to organize commands and forces and to employ those forces as the commander in operational control considers necessary to accomplish assigned missions; it does not, in and of itself, include authoritative direction for logistics or matters of administration, discipline, internal organization, or unit training. (JP 1-02)

operational design. The conception and construction of the framework that underpins a campaign or major operation plan and its subsequent execution. (JP 1-02)

operational level of war. The level of war at which campaigns and major operations are planned, conducted, and sustained to achieve strategic objectives within theaters or other operational areas. Activities at this level link tactics and strategy by establishing operational objectives needed to achieve the strategic objectives, sequencing events to achieve the operational objectives, initiating actions, and applying resources to bring about and sustain these events. (JP 1-02)

operation order (OPORD). A directive issued by a commander to subordinate commanders for the purpose of effecting the coordinated execution of an operation. (JP 1-02)

operation plan (OPLAN). Any plan, except for the Single Integrated Operational Plan, for the conduct of military operations. Plans are prepared by combatant commanders in response to requirements established by the Chairman of the Joint Chiefs of Staff and by commanders of subordinate commands in response to requirements tasked by the establishing unified commander. Operation plans are prepared in either a complete format (OPLAN) or as a concept plan (CONPLAN). The CONPLAN can be published with or without a time-phased force and deployment data (TPFDD) file. a. OPLAN—An operation plan for the conduct of joint operations that can be used as a basis for development of an operation order (OPORD). An OPLAN identifies the forces and supplies required to execute the combatant commander's strategic concept and a movement schedule of these resources to the theater of operations. The forces and supplies are identified in TPFDD files. OPLANs will include all phases of the tasked operation. The plan is prepared with the appropriate annexes, appendixes, and TPFDD files as described in the Joint Operation Planning and Execution System manuals containing planning policies, procedures, and formats. b. CONPLAN—An operation plan in an abbreviated format that would require considerable expansion or alteration to convert it into an OPLAN or OPORD. A CONPLAN contains the combatant commander's strategic concept and those annexes and appendixes deemed necessary by the combatant commander to complete planning. Generally detailed support requirements are not calculated and TPFDD files are not prepared. c. CONPLAN with TPFDD—A CONPLAN with TPFDD is the same as a CONPLAN except that it requires more detailed planning for phased deployment of forces. (JP 1-02)

operations security (OPSEC). A process of identifying critical information and subsequently analyzing friendly actions attendant to military operations and other activities to: a. identify those actions that can be observed by adversary intelligence systems; b. determine indicators that hostile intelligence systems might obtain that could be interpreted or pieced together to derive critical information in time to be useful to adversaries; and c. select and execute measures that eliminate or reduce to an acceptable level the vulnerabilities of friendly actions to adversary exploitation. (JP 1-02)

physical security. That part of security concerned with physical measures designed to safeguard personnel; to prevent unauthorized access to equipment, installations, material, and documents; and to safeguard them against espionage, sabotage, damage, and theft. (JP 1-02)

planned targets. Targets that are known to exist in an operational area, and against which effects are scheduled in advance or are on-call. Examples range from targets on joint target lists in the applicable campaign plans, to targets detected in sufficient time to list in the air tasking order, mission-type orders, or fire support plans. Planned targets have two subcategories: scheduled or on-call. (JP 1-02)

planning order. A planning directive that provides essential planning guidance and directs the initiation of execution planning before the directing authority approves a military course of action. (JP 1-02)

principles of war. The principles of war guide warfighting at the strategic, operational, and tactical levels. They are the enduring bedrock of U.S. military doctrine. (JP 1) They include: objective, offensive, mass, economy of force, maneuver, unity of command, security, surprise, and simplicity. For a detailed review of each principle, see Appendix B of JP 1 or Chapter 3 of NDP 1.

priority intelligence requirement (PIR). An intelligence requirement, stated as a priority for intelligence support, that the commander and staff need to understand the adversary or the environment. (JP 1-02)

psychological operations (PSYOP). Planned operations to convey selected information and indicators to foreign audiences to influence their emotions, motives, objective reasoning, and ultimately the behavior of foreign governments, organizations, groups, and individuals. The purpose of psychological operations is to induce or reinforce foreign attitudes and behavior favorable to the originator's objectives. (JP 1-02)

public affairs (PA). Those public information, command information, and community relations activities directed toward both the external and internal publics with interest in the Department of Defense. (JP 1-02)

ready-to-load date (RLD) - The date when a unit will be ready to move from the origin, i.e., mobilization station. (JP 1-02)

reconnaissance (RECON). A mission undertaken to obtain, by visual observation or other detection methods, information about the activities and resources of an enemy or potential enemy, or to secure data concerning the meteorological, hydrographic, or geographic characteristics of a particular area. (JP 1-02)

relief in place (RIP). An operation in which, by direction of higher authority, all or part of a unit is replaced in an area by the incoming unit. The responsibilities of the replaced elements for the mission and the assigned zone of operations are transferred to the incoming unit. The incoming unit continues the operation as ordered. (JP 1-02)

request for information (RFI). 1. Any specific time-sensitive ad hoc requirement for intelligence information or products to support an ongoing crisis or operation not necessarily related to standing requirements or scheduled intelligence production. A request for information can be initiated to respond to operational requirements and will be validated in accordance with the combatant command's procedures. 2. The National Security Agency/Central Security Service uses this term to state ad hoc signals intelligence requirements. (JP 1-02)

restraints. Limitations that prohibit subordinates from doing a particular activity or operation. For example, "refrain from direct combat actions that may damage religious shrines, archeological sites, or civilian schools." Simply stated, restraints are things the commander cannot do.

rules of engagement (ROE). Directives issued by competent military authority that delineate the circumstances and limitations under which United States forces will initiate and/or continue combat engagement with other forces encountered. (JP 1-02)

sanction enforcement. Operations that employ coercive measures to interdict the movement of certain types of designated items into or out of a nation or specified area. (JP 1-02)

sea control operations. The employment of naval forces, supported by land and air forces as appropriate, in order to achieve military objectives in vital sea areas. Such operations include destruction of enemy naval forces, suppression of enemy sea commerce, protection of vital sea lanes, and establishment of local military superiority in areas of naval operations. (JP 1-02)

sea denial. Prevention of the use of the sea by the enemy. Implies sufficient force is not available to ensure the use by one's own forces, but force is available to deny use to the enemy.

sequel. A major operation that follows the current major operation. Plans for a sequel are based on the possible outcomes (success, stalemate, or defeat) associated with the current operation. (JP 1-02)

Service component command. A command consisting of the Service component commander and all those Service forces, such as individuals, units, detachments, organizations, and installations under that command, including the support forces that have been assigned to a combatant command or further assigned to a subordinate unified command or joint task force. (JP 1-02)

situation template. A depiction of assumed adversary dispositions, based on adversary doctrine and the effects of the battlespace if the adversary should adopt a particular course of action. In effect, situation templates are the doctrinal templates depicting a particular operation modified to account for the effects of the battlespace environment and the adversary's current situation (training and experience levels, logistic status, losses, dispositions). Normally, the situation template depicts adversary units two levels of command below the friendly force, as well as the expected locations of high-value targets. Situation templates use time-phase lines to indicate movement of forces and the expected flow of the operation. Usually, the situation template depicts a critical point in the course of action. Situation templates are one part of an adversary course of action model. Models may contain more than one situation template. (JP 1-02)

staff estimates. Assessments of courses of action by the various staff elements of a command that serve as the foundation of the commander's estimate. (JP 1-02)

standing operating procedure (SOP). A set of instructions covering those features of operations which lend themselves to a definite or standardized procedure without loss of effectiveness. The procedure is applicable unless ordered otherwise. (JP 1-02)

strategic level of war. The level of war at which a nation, often as a member of a group of nations, determines national or multinational (alliance or coalition) strategic security objectives and guidance, and develops and uses national resources to achieve these objectives. Activities at this level establish national and multinational military objectives; sequence initiatives; define limits and assess risks for the use of military and other instruments of national power; develop global plans or theater war plans to achieve those objectives; and provide military forces and other capabilities in accordance with strategic plans. (JP 1-02)

strike. An attack to damage or destroy an objective or a capability. (JP 1-02)

support. 1. The action of a force that aids, protects, complements, or sustains another force in accordance with a directive requiring such action. 2. A unit that helps another unit in battle. 3. An element of a command that assists, protects, or supplies other forces in combat. (JP 1-02)

supported commander. 1. The commander having primary responsibility for all aspects of a task assigned by the Joint Strategic Capabilities Plan or other joint operation planning authority. In the context of joint operation planning, this term refers to the commander who prepares operation plans or operation orders in response to requirements of the Chairman of the Joint Chiefs of Staff. 2. In the context of a support command relationship, the commander who receives assistance from another commander's force or capabilities, and who is responsible for ensuring that the supporting commander understands the assistance required. (JP 1-02)

supporting commander. 1. A commander who provides augmentation forces or other support to a supported commander or who develops a supporting plan. This includes the designated combatant commands and Department of Defense agencies as appropriate. 2. In the context of a support command relationship, the commander who aids, protects, complements, or sustains another commander's force, and who is responsible for providing the assistance required by the supported commander. (JP 1-02)

surface combatant. A ship constructed and armed for combat use with the capability to conduct operations in multiple maritime roles against air, surface and subsurface threats, and land targets. (JP 1-02)

surface warfare (SUW). That portion of maritime warfare in which operations are conducted to destroy or neutralize enemy naval surface forces and merchant vessels. (JP 1-02)

surveillance. The systematic observation of aerospace, surface, or subsurface areas, places, persons, or things, by visual, aural, electronic, photographic, or other means. (JP 1-02)

synchronization. 1. The arrangement of military actions in time, space, and purpose to produce maximum relative combat power at a decisive place and time. 2. In the intelligence context, application of intelligence sources and methods in concert with the operation plan. (JP 1-02)

tactical control (TACON). Command authority over assigned or attached forces or commands, or military capability or forces made available for tasking, that is limited to the detailed direction and control of movements or maneuvers within the operational area necessary to accomplish missions or tasks assigned. Tactical control is inherent in operational control. Tactical control may be delegated to, and exercised at any level at or below the level of combatant command. When forces are transferred between combatant commands, the command relationship the gaining commander will exercise (and the losing commander will relinquish) over these forces must be specified by the Secretary of Defense. Tactical control provides sufficient authority for controlling and directing the application of force or tactical use of combat support assets within the assigned mission or task. (JP 1-02)

tactical level of war. The level of war at which battles and engagements are planned and executed to achieve military objectives assigned to tactical units or task forces. Activities at this level focus on the ordered arrangement and maneuver of combat elements in relation to each other and to the enemy to achieve combat objectives. (JP 1-02)

targeting. The process of selecting and prioritizing targets and matching the appropriate response to them, considering operational requirements and capabilities. (JP 1-02)

task. An action or activity (derived from an analysis of the mission and concept of operations) assigned to an individual or organization to provide a capability.

theater of operations (TO). An operational area defined by the geographic combatant commander for the conduct or support of specific military operations. Multiple theaters of operations normally will be geographically separate and focused on different missions. Theaters of operations are usually of significant size, allowing for operations in depth and over extended periods of time. (JP 1-02)

time-phased force and deployment data (TPFDD). The Joint Operation Planning and Execution System database portion of an operation plan; it contains time-phased force data, non-unit-related cargo and personnel data, and movement data for the operation plan, including the following: a. In-place units; b. Units to be deployed to support the operation plan with a priority indicating the desired sequence for their arrival at the port of debarkation; c. Routing of forces to be deployed; d. Movement data associated with deploying forces; e. Estimates of non-unit-related cargo and personnel movements to be conducted concurrently with the deployment of forces; and f. Estimate of transportation requirements that must be fulfilled by common-user lift resources as well as those requirements that can be fulfilled by assigned or attached transportation resources. (JP 1-02)

time-sensitive targets (TSTs). Those targets requiring immediate response because they pose (or will soon pose) a danger to friendly forces or are highly lucrative, fleeting targets of opportunity. (JP 1-02)

unified action. A broad generic term that describes the wide scope of actions (including the synchronization and/or integration of joint or multinational military operations with the activities of local, state, and federal government agencies and intergovernmental and nongovernmental organizations) taking place within unified commands, subordinate unified commands, or joint task forces under the overall direction of the commanders of those commands. (JP 3-0)

Unified Action Armed Forces (UNAAF). A publication setting forth the policies, principles, doctrines, and functions governing the activities and performance of the Armed Forces of the United States when two or more Military Departments or Service elements thereof are acting together. (JP 1-02)

unified command. A command with a broad continuing mission under a single commander and composed of significant assigned components of two or more Military Departments that is established and so designated by the President, through the Secretary of Defense with the advice and assistance of the Chairman of the Joint Chiefs of Staff. (JP 1-02)

unmanned aerial vehicle (UAV). A powered, aerial vehicle that does not carry a human operator, uses aerodynamic forces to provide vehicle lift, can fly autonomously or be piloted remotely, can be expendable or recoverable, and can carry a lethal or nonlethal payload. Ballistic or semiballistic vehicles, cruise missiles, and artillery projectiles are not considered unmanned aerial vehicles. (JP 1-02)

vulnerability analysis. In information operations, a systematic examination of an information system or product to determine the adequacy of security measures, identify security deficiencies, provide data from which to predict the effectiveness of proposed security measures, and confirm the adequacy of such measures after implementation.

vulnerability assessment (VA). A DoD, command, or unit-level evaluation (assessment) to determine the vulnerability of a terrorist attack against an installation, unit, exercise, port, ship, residence, facility, or other site. Identifies areas of improvement to withstand, mitigate, or deter acts of violence or terrorism.

warning order (WARNORD). 1. A preliminary notice of an order or action which is to follow. 2. A planning directive that describes the situation, allocates forces and resources, establishes command relationships, provides other initial planning guidance, and initiates subordinate unit mission planning. (JP 1-02)

waterspace management. The allocation of waterspace in terms of antisubmarine warfare attack procedures to permit the rapid and effective engagement of hostile submarines while preventing inadvertent attacks on friendly submarines. (JP 1-02)

APPENDIX O: Abbreviations and Acronyms

ABCCC	Airborne Battlefield Command and Control Center
ABN	Airborne
AFFOR	Air Force Forces
AI	Air Interdiction
AOI	Area of Interest
ALOC	Air Lines of Communication
AO	Area of Operations
AOA	Amphibious Objective Area
AOC	Air Operations Center
APOD	Aerial Port of Debarkation
APOE	Aerial Port of Embarkation
APEX	Adaptive Planning and Execution
ARFOR	Army Forces
ATO	Air Tasking Order
BCT	Brigade Combat Team
BN	Battalion
BDE	Brigade
C2	Command and Control
C2W	Command and Control Warfare
C3IC	Coalition Coordination, Communications, & Integration Center
C4I	Command, Control, Communications, Computers & Intelligence
CA	Civil Affairs
CAP	Crisis Action Planning
CCDR	Combatant Commander
CCIR	Commander's Critical Information Requirements
CCJTF	Commander, Combined Joint Task Force
CDR	Commander
CENTAF	US Air Force component, US Central Command
CES	Commander's Estimate of the Situation
CFACC	Combined Force Air Component Commander
CHOP	Change of Operational Control
CIE	Collaborative Information Environment
CJCS	Chairman of the Joint Chiefs of Staff
CJCSM	Chairman of the Joint Chiefs of Staff Manual
CJSOTF	Combined Joint Special Operations Task Force
CJTF	Commander, Joint Task Force ; Combined Joint Task Force (NATO)
CMD	command; cruise missile defense
CLF	Commander, Landing Force
CMOC	Civil-Military Operations Center
COA	Course of Action
COCOM	Combatant Command (Command Authority)

COG	Center of Gravity
COIN	Counterinsurgency
COM	Chief Of Mission; Collection Operations Management; Command; Commander
COMAFFOR	Commander, Air Force Forces
COMAFSOC	Commander, Air Force Special Operations Command
COMAJF	Commander, Allied Joint Force
COMARFOR	Commander, Army Forces
COMJSOTF	Commander, Joint Special Operations Task Force
COMMARFOR	Commander, Marine Corps Forces
COMMZ	Communications Zone
COMNAVFOR	Commander, Navy Forces
COMSEC	Communications Security
CONOPS	Concept Of Operations
CONPLAN	Concept Plan
COS	Chief of Staff
CP	Check Point; Collection Point; Command Post; Contact Point; Control Point; Counter-proliferation
CR	Collection Requirement
CRAF	Civil Reserve Air Fleet
CRD	Combatant Commander's Required Date
CS	Combat Support
CSAR	Combat Search and Rescue
CSG	Carrier Strike Group
CSL	Cooperative Security Location
CSS	Combat Service Support
CT	Counterterrorism; Country Team
CTF	Combined Task Force
CV	Critical Vulnerability; Aircraft Carrier
CVBG	Aircraft Carrier Battle Group
CVN	Aircraft Carrier, Nuclear
DAL	Defended Assets List
DES	Desired End State
DCJTF	Deputy Commander, Joint Task Force
DIRLAUTH	Direct Liaison Authorized
DIRMOBFOR	director of mobility forces
DISA	Defense Intelligence Systems Agency
DIV	Division
DJTFAC	Deployable Joint Task Force Augmentation Cell
DoD	Department of Defense
DP	Decisive Point; Decision Point; Displaced Person
DPRE	Displaced Persons, Refugees, And Evacuees
DRAW-D	Defend, Reinforce, Attack, Withdraw, Delay
EAD	Earliest Arrival Date

ECOA	Enemy Course of Action
ESG	Expeditionary Strike Group
FDO	Flexible Deterrent Option
FID	Foreign Internal Defense
FSCL	Fire Support Coordination Line
FFIR	Friendly Force Information Requirements
FOS	Forward Operating Site
FRAGORD	Fragmentary Order
GCC	Geographic Combatant Commander
GCCS	Global Command and Control System
GEF	Global Force Management
GFM	Guidance for the Employment of the Force
HN	Host Nation
HNS	Host Nation Support
HPT	High Payoff Target
HQ	Headquarters
HQ COMDT	Headquarters Commandant
HVT	High Value Target
IAW	In Accordance With
IGO	Intergovernmental Organization
IM	Information Management
IMO	Information Management Officer
IMP	Information Management Plan
IO	Information Operations
IPOE	Intelligence Preparation Of The Operational Environment
ISB	Intermediate Staging Base
ISR	Intelligence, Surveillance and Reconnaissance
JATF	Joint Amphibious Task Force
JCLL	Joint Center For Lessons Learned
JCMA	Joint Communications Security Monitoring Activity
JCSE	Joint Communications Support Element
JDDOC	Joint Deployment Distribution Operations Center
JDEIS	Joint Doctrine, Education, and Training Electronic Information System
JECB	Joint Effects Coordination Board
JET	Joint Operation Planning and Execution System (JOPES) editing tool
JFACC	Joint Force Air Component Commander
JFAST	Joint Flow and Analysis System for Transportation
JFC	Joint Force Commander
JFE	Joint Fires Element
JFHQ	Joint Force Headquarters
JFLCC	Joint Force Land Component Commander
JFMCC	Joint Force Maritime Component Commander
JFSOCC	Joint Force Special Operations Component Commander

JIB	Joint Information Bureau
JIC	Joint Intelligence Center
JICO	Joint Interface Control Officer
JIOC	Joint Information Operations Center; Joint Intelligence Operations Center
JIPOE	Joint Intelligence Preparation of the Operational Environment
JIPTL	Joint Integrated Prioritized Target List
JLOTS	Joint Logistics Over-The-Shore
JMC	Joint Movement Center
JOA	Joint Operations Area
JOC	Joint Operations Center
JOPES	Joint Operational Planning and Execution System
JOPP	Joint Operation Planning Process
JP	Joint Publication
JPG	Joint Planning Group
JPO-STC	Joint Program Office for Special Technology Countermeasures
JPOTF	Joint Psychological Operations Task Force
JPRC	Joint Personnel Reception Center
JRSOI	Joint Reception, Staging, Onward Movement and Integration
JSC	Joint Spectrum Center
JSOTF	Joint Special Operations Task Force
JTCB	Joint Targeting Coordination Board
JTF	Joint Task Force
JTF HQ	Joint Task Force Headquarters
JULLS	Joint Universal Lessons Learned System
JTTP	Joint Tactics, Techniques and Procedures
JVB	Joint Visitors Bureau
JWAC	Joint Weapons Analysis Center
LAD	Latest Arrival Date
LASH	Lighter Aboard Ships
LKA	Amphibious cargo ship
LOC	Line of Communications
LNO	Liaison Officer
LPD	Amphibious transport dock ship
LPH	Amphibious assault helicopter ship
LSD	Dock landing ship
LST	Tank landing ship
MARCENT	Marine Forces Central Command
MARFOR	Marine Forces
MCM	Mine Countermeasures
MCOO	Modified Combined Obstacle Overlay
MDZ	Maritime Defense Zone
MEB	Marine Expeditionary Brigade
MEF	Marine Expeditionary Force

METT-TC	Mission, Enemy, Terrain and Weather, Troops and Support Available-Time Available and Civil Considerations (Army)
MEU	Marine Expeditionary Unit
MEU (SOC)	Marine Expeditionary Unit (Special Operations Capable)
MHC	Minehunter, Coastal
MHE	Materials Handling Equipment
MILDEC	Military Deception
MIO	Maritime Interception Operations
MOB	Main Operating Base
MOE	Measure Of Effectiveness
MOG	Maximum on Ground (aircraft)
MOPP	Mission-Oriented Protective Posture
MOOSEMUSS	Mass, Objective, Offensive, Surprise, Economy of Force, Maneuver, Unity of Command, Security, Simplicity.
MOUT	Military Operations in Urban Terrain
MPAT	Multinational Planning Augmentation Team
MPSRON	Maritime Pre-Positioning Ships Squadron
MTW	Major Theater War
NAI	Named Area of Interest
NALE	Naval And Amphibious Liaison Element
NAVFOR	Navy Forces
NBC	Nuclear, Biological, and Chemical
NCA	National Command Authorities
NCC	Navy Component Command; Navy Component Commander
NEO	Noncombatant Evacuation Operation
NEOCC	Noncombatant Evacuation Operation Coordination Center
NGO	Non-Governmental Organization
NIPRNET	Unclassified but Sensitive Internet Protocol Router Network
NIST	National Intelligence Support Team
NPP	Navy Planning Process
NSA	National Security Agency
NSW	Naval Special Warfare
OBJ	Objective
OPCON	Operational Control
OPG	Operational Planning Group
OPLAN	Operation Plan
OPORD	Operation Order
PA	Public Affairs
PAO	Public Affairs Officer
PAX	Personnel
PIR	Priority Intelligence Requirement
PMESII	Political, Military, Economic, Social, Infrastructure, and Information
POD	Port of Debarkation
POE	Port of Embarkation

POLAD	Political Advisor
PR	Production Request
PREPO	Pre-Positioned force, equipment, or supplies
Prime BEEF	Prime Base Engineer Emergency Forces
PSYOP	Psychological Operations
RCPA	Relative Combat Power Analysis
RED HORSE	Rapid Engineers Deployable Heavy Operations Repair Squadron, Engineers
RFI	Request for Information
RLD	Ready-to-Load Date
ROE	Rules Of Engagement
ROWPU	Reverse Osmosis Water Purification Unit
RSOI	Reception, Staging, Onward Movement, and Integration
SecDef	Secretary of Defense
SIPRNET	SECRET Internet Protocol Router Network
SLOC	Sea Line of Communications
SMEAC	Situation, Mission, Execution, Admin and Logistics, Command and Control
SOCCE	Special Operations Command and Control Element
SOF	Special Operations Forces
SOP	Standing (or standard) Operating Procedures
SPOD	Sea Port of Debarkation
SPOE	Sea Port of Embarkation
SJA	Staff Judge Advocate
SSTR	Stability, Security, Transition, and Reconstruction
SJFHQ	Standing Joint Force Headquarters
TACON	Tactical Control
TADIL	Tactical Digital Information Link
TAI	Target Areas of Interest
TF	Task Force
TPFDD	Time-Phased Force and Deployment Data
UJTL	Universal Joint Task List
USA	United States Army
USAF	United States Air Force
USN	United States Navy
USMC	United States Marine Corps
USCG	United States Coast Guard
USTRANSCOM	United States Transportation Command
VISA	Voluntary Intermodal Sealift Agreement
VTC	Video Teleconferencing
WO	Warning Order
WMD	Weapons of Mass Destruction

NOTES