From Operational Art to Operational Plans

A Joint Planning Primer

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Foreword

During many years of military service, which has required hours of reading and studying volumes of Joint and Army doctrine, I have noted how difficult it is to educate others on its application. Doctrine presenting processes that include multiple, sequential, overlapping steps is the hardest to teach; especially doctrine that addresses a planning process. After assuming the duties of the Director of Joint, Interagency and Multinational Operations (DJIIMO) in the Command and General Staff School (CGSS), I witnessed how the student in the Command and General Staff Officer's Course (CGSOC) struggled to comprehend the symbiotic relationship of Operational Art and a deliberate planning process. Usually, in an attempt to boil down the planning doctrine to its essence, instructors separated the various steps in the process and left it up to the student to discover how it all fits together. Moreover, doctrine is not written in "Layman's terms." Therefore, due to the instruction and the doctrine, the student leaves the classroom with a checklist while struggling to comprehend how to leverage the strengths of operational art and the deliberate planning process such as Joint Operational Planning Process (JOPP).

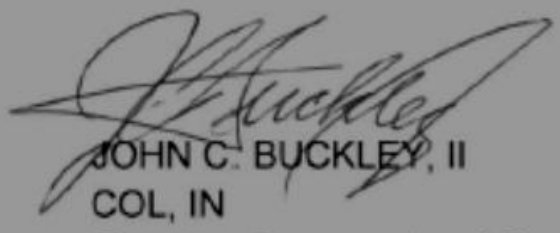
This primer is intended to show the strong linkage between operational art, also referred to as conceptual planning, and the deliberate planning process like JOPP. The overarching theme is that the two are part of a planning continuum that emerges from a conceptual vision to detailed and specific instructions. They each have no utility alone; operational art without JOPP, for example, is art without form. JOPP without art is a roadmap to *Abilene*. Together, however, they are mutually beneficial to both the commander, who applies the art, and his staff, which conducts the deliberative planning.

In an effort to go beyond a series of checklists, the primer describes in much detail the relationships between the steps in conceptual planning and deliberate planning, focusing on the linkage between what the commander is doing and what his/her staff is doing. Additionally, it describes the relationship among the various steps in the deliberate process. In the end, the reader should have a much better understanding of how to synergistically leverage both operational art and the detailed information produced in the deliberate planning process .

Finally, the primer is written in layman's terms. Besides being very clear, multiple examples are provided so the student can better understand the topic at hand. And, multiple analogies are presented so students of all backgrounds have a good foundation upon which to build his/her understanding.

Colonel (Ret) Eikmeier has put forth a herculean effort for you. Throughout his career, he has had tremendous opportunities to apply the doctrine associated with joint planning. And, you can see rather noticeably, that he has thought long and hard about how to integrate the art and science of conceptual and deliberate planning in a way that produces a strong understanding of both. His personal goals are to take away some of the fog surrounding operational art, and to prevent the development of a checklist mentality so often associated with deliberate planning.

In my professional opinion, this primer provides a framework to achieve both of these goals. Now, it is up to you!



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Introduction

The purpose of this primer is to bridge the gap between conceptual planning (Operational Art/Design) and detailed planning (Joint Operational Planning Process (JOPP)). Often, discussions of operational art and JOPP are treated as separate subjects when in fact they are two halves of the same whole. This artificial separation contributes to a checklist mentality resulting in a product focused planning effort with little regard to the conceptual foundations or intent of the commander. This primer also explains the linkages between the strategic, operational and tactical levels of war from a planning perspective. The purpose is to improve the understanding of the relevant considerations in operational art and detailed planning and their linkages.

This work is not authorative or prescriptive and contains emerging ideas, techniques and best practices on the application of broad doctrinal concepts from a variety of contributors and sources. It is meant to complement existing joint doctrine and it assumes some familiarity with joint doctrine on the part of the reader. This is not a substitute for the study of joint doctrinal publications. Although based largely on US joint doctrine, which continually changes, some ideas presented will challenge doctrine and where this occurs it will be identified.

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Chapter One
Strategic Guidance

Section One. Levels of War

a. Since Operational art resides at the operational level of war we'll first discuss the levels of war which provide necessary context for understanding operational art and detailed planning.

Key Points

The three levels of war are; strategic, operational, and tactical.

The strategic level deals with decisions of war aims, desired outcomes (ends), methods (ways) and resourcing (means).

The operational level deals with determining and arranging objectives and the development of the when and where of tactical operations that will ultimately attain the strategic objectives. It links tactical actions to achieving the strategic objective.

The tactical level is where battles and engagements take place.

b. Modern military doctrine recognizes three levels of war; strategic, operational and tactical.[i] These levels are essential distinctions between the establishment of national or multinational level objectives and the actions required to attain them. In reality the levels overlap and boundaries blur. In this sense the levels are a continuum where a single thread ties together objectives and the effects that achieve them. Keeping this in mind, purpose defines the level, not a particular echelon, geographical area, unit, weapon or force type. Therefore, an organization may function in two levels simultaneously, depending on the purpose or nature of its planning or execution. The key is to understand the purpose of each level. The levels are also interdependent in that the lower level relies on the higher level for direction. Understanding this interdependent relationship helps leaders and planners develop a logical sequence of actions, allocate resources, and assign objectives or tasks based on the higher level's goal and objectives.

c. The **strategic level** is where leaders and planners determine national or multinational objectives (ends). These objectives can also be thought of as aims or purpose. Strategic planners then determine the actions or methods (ways) that will achieve the objectives. Lastly they identify or develop required resources (means) that can perform the actions (ways) that accomplish the objectives. A national or multinational strategy in addition to establishing objectives and sequencing actions also defines limits and assesses risks. Strategic risk is considered to be any imbalance between the stated objectives, the ways to achieve those objectives and the availability of resources.

d. The **operational level** of war is where commanders and staffs plan, resource and conduct campaigns and major operations that will achieve assigned strategic objectives. Commanders at the operational level determine the when, where and purpose of engagements and battles. Actions at this level link higher level strategy and lower level tactical actions by arranging engagements and battles to achieve intermediate operational level objectives needed to accomplish the strategic objectives. These operational level activities imply a broader dimension of time or space than do tactics; they ensure the logistic and administrative support of tactical forces, and provide the means by which tactical successes are exploited to achieve strategic objectives.

e. The **tactical level** of war is where commanders and staffs plan and execute battles and engagements in time and space that accomplish assigned objectives. Actions at this level focus on the ordered arrangement and maneuver of combat elements in relation to each other and to the enemy to achieve objectives.

Note
Occasionally there will be reference to a "Theater Strategic" level of war. Theater strategic isn't really a level of war. It is a process that translates strategic guidance for a theater into operational plans sometimes referred to as a theater strategy. This 'translation' process is an operational level function. The term deals more with an area and the activities in that area than a level of war. A more accurate term would be Theater Operational. Do not confuse Theater Strategic with Theater Strategy. Theater Strategy is simply a strategy or plan. Theater Strategy consists of concepts and courses of action directed toward securing the objectives of national and multinational policies in a given theater. Theater strategy is determined bythe theater's senior commander (Combatant Commander) based on analysis of changing events in the operational environment and the development of options to set conditions for success.[ii]

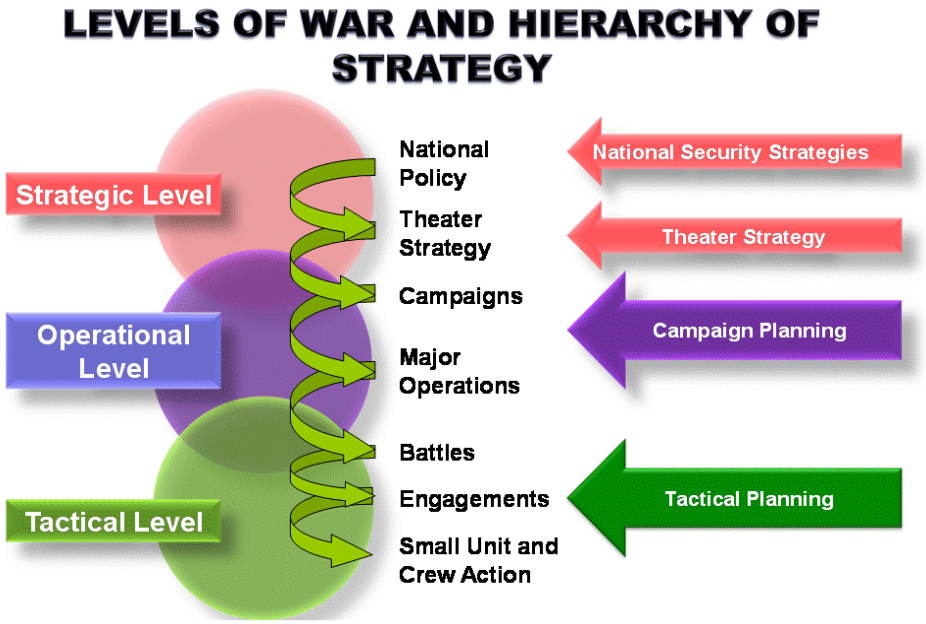


Figure 1-1

Section Two. Strategic Framework Ends, Ways and Means

a. This section discusses both strategy and the strategic framework of ends, ways, and means. Understanding strategy and the framework is essential to the application of operational art/design and detailed planning.

Key Points
Strategy is synchronization or balancing of one's ends, ways and means in a coordinated plan to achieve a desired end state or goal.

Balance is when desired end is attainable within the constraints of possible actions (ways) and both the ends and ways are possible with the means on hand or those that can become available in the future.

b. These are some modern definitions of strategy.

"A prudent idea or set of ideas for employing the instruments of national power in a synchronized and integrated fashion to achieve theater, national, and/or multinational objectives."[iii]

"The skillful formulation, coordination, and application of ends, ways, and means to promote and defend the national interests." -- Richard Chilcoat[iv]

"A coherent blueprint to bridge the gap between the realities of today and a desired future." – Harry Yarger[v]

All these definitions share three components: 1) There is a goal or ends to be achieved (ends). 2) Concepts, ideas or plans on how to achieve the goal (ways). 3) Synchronization of resources (means) available or required to achieve the goal.

c. These components, ends, ways and means, are known as the strategic framework.[vi] Ends are the "desired future", the goal or objective. Ways are options for actions that will transform the current environment into the desired environment or end state. (Think of ways as verbs or things to do.) Means are resources, on hand or needed, that can execute the "way".

d. Strategic thinking is simply contemplating the answers to three basic questions: What are my goals? What actions will achieve my goals? And what resources do I have or need to achieve the goals. Strategic planning is the coordination and balancing of the answers to these questions. Strategic decision making is the continual adjustment of the ends, ways and means to make sure they are balanced. Balance is when the desired end is attainable within the constraints of possible actions (ways) and both the ends and ways are possible with the means on hand or those that can become available in the future. For example a goal may be unattainable in the near term because the way to achieve that goal is unrealistic given resource limitations. In this case the ends may be adjusted to fit the available ways and means or attainment of the goal may be delayed until the means are available.

Section Three. Interests, Policy and Strategy

a. Interests are based on cultural or national values and historical experiences. The goal of a strategy is to advance or protect one's interests. Before developing any strategy one must clearly understand what is in one's interest and, of those interests, which are vital and which are secondary.

Key Points

Interests are the foundation on which strategies are based.

Interests are often expressed in policy statements and strategic documents.

Strategy is generally subordinate to policy.

Vital interests involve survival of the state and safety of its citizens.

Important interests usually involve societal or national quality of life.

Peripheral or humanitarian interests rely on perceptions of what is good or desirable and how to promote it.

b. Interests are the foundation and justification that policy aims are based on. Interests can be thought as the "what" needs protecting or advancing. Policy on the other hand sets the boundaries or limiting guidance as to the "how" of a strategy. Determining policy is generally the realm of national leadership. Strategy, operating within policy, expresses how to protect or advance those interests.

c. Interests generally fall into one of three categories; vital, important, and peripheral or humanitarian. (See fig 1-2) Actual labeling of interests in strategic documents may vary considerably and it is not unusual for an interests' categorization to be purposely ambiguous. Vital interests involve survival and safety issues that must be protected. For example protecting national sovereignty is a vital interest. Vital interests require action on the part of the state. With important interests survival is not the issue, but maintaining or improving the quality of life for a society is. Access to energy or markets, or regulation of international trade that promote economic well being could be important interests. Important interests often require action but the means allocated to protecting the interest may be tempered by other factors in the environment. Actions on peripheral or humanitarian interests are optional and are more often based on resources available and how they will affect important and vital interests.

d. Strategy, in our military context, is subordinate to policy in the sense that policy provides the guidance or limits for strategy. Military strategy must be clear, achievable, and flexible enough to react to changing policy aims because policy may evolve as the strategy is implemented and we see the effects of that strategy. The military's role is to keep the national policy makers informed about changes to the environment that affect policy decisions and to provide advice on the potential outcomes of changing the aims. Senior military commanders must be completely frank about the limits of what military power can achieve and bridge the inevitable friction that policy and politics create when developing strategy.[vii]

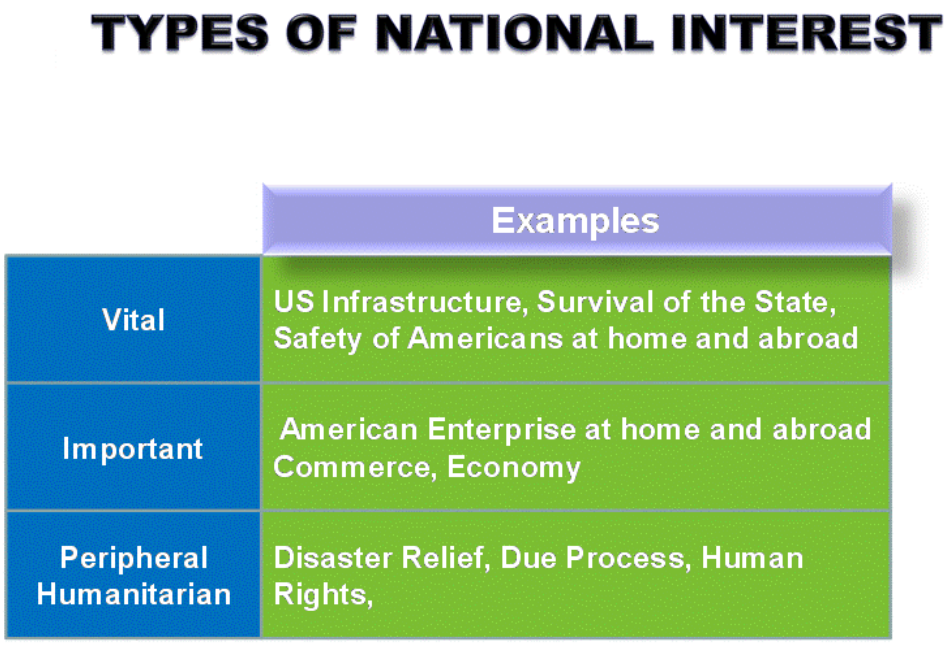


Figure 1-2

Section Four. Expressions of Strategy

a. Operational art enables commanders and planners to build the bridge between strategic objectives and tactical actions. To do this they must know how strategy is developed and how it is promulgated. This section discusses the sources for strategic guidance.

Key Points

Strategic Direction is a broad statement from the national leadership outlining the interests, policy priorities, and the ends, ways and means.

Strategic Guidance translates the direction into specified planning tasks that inform planners what to plan for and under what conditions.

Strategic Planning is the Chairman's (Chairman of the Joint Chiefs of Staff) methodology to fulfill his statutory responsibilities to assess, advise and direct.

Operations Planning is a formal process with three activities; situational awareness, planning and execution.

b. Operational planners translate into military plans bounded by national policy. The guidance for formulating strategies and plans comes from several sources, none of which are adequately definitive or comprehensive. This places a premium on the planner's ability to interpret, analyze, and synthesize the many forms from which national strategy comes, and then communicate this synthesis back to the national policy makers through the Combatant Commander to ensure a shared understanding of the strategic intent. The planner must understand the broad national security interests, as described in various strategy documents such as the National Security Strategy, and the intended role of the military in supporting the national security interests as described in the National Defense Strategy, the National Military Strategy, and the Quadrennial Defense Review. A relatively clear source is the Guidance on the Employment of the Force (GEF), which, though certainly not complete, provides national guidance for prioritized theater end states. Another is the Joint Strategic Capabilities Plan (JSCP) which further defines the objectives, lists assumptions, and describes the resources available to the Combatant Commander. Planners must stay attuned to evolving descriptions of and applications of national interests as described by the President and other senior government officials as policy is ever-evolving. Most importantly, the planner must continually analyze the environment and the dynamic relationships within it to determine other conditions that describe the desired end state and present some limitations on ways to achieve that end state.[viii]

c. **Strategic Direction.**

1) As an overarching term, strategic direction encompasses the processes and products by which the President, Secretary of Defense (Sec Def), and Chairman of the Joint Chiefs of Staff (CJCS) provide strategic guidance. Its purpose is to provide long-term and intermediate objectives by defining the ends and means, with other relevant government agencies responsible for providing the ways. It is the thread that integrates and synchronizes the activities of the Joint Staff, combatant commands, Services, and combat support agencies. From a military perspective this guidance should include what constitutes success (ends) and allocate resources and forces (means).

2) Strategic direction from civilian and military policymakers is a prerequisite to developing a military campaign plan. The President provides strategic direction through the National Security Strategy (NSS),

Presidential Policy Directives (PPDs), and other strategic documents. These policy decisions provide the basis for military planning.

3) The Secretary of Defense develops the National Defense Strategy (NDS), which establishes broad defense policy goals and priorities for the development, employment, and sustainment of US military forces based on the NSS.

4) The CJCS develops the National Military Strategy (NMS), which provides the strategic direction the Armed Forces of the United States should follow to support the NSS and NDS. This document describes the ways and means to protect the United States and prevail against adversaries who threaten our homeland, deployed forces, allies, and friends.

5) The Sec Def leads a Quadrennial Defense Review (QDR) which provides additional direction to the Department of Defense. The QDR describes the strategic environment for the next twenty years and the direction the Department of Defense (DOD) needs to go to meet the challenges of the environment and may provide the best source of long range planning guidance to DOD components.[ix]

6) Together these documents; the NSS, PDDs, NDS, NMS and QDR provide direction by defining the goals or ends and guidance on generating the resources (means).

d. **Strategic Guidance.**

1) Strategic guidance translates strategic direction into specific actions focused on employing and managing the current force while developing a future force.

2) The Guidance for Employing the Force (GEF) issued by Sec Def directs the Combatant Commanders to create theater campaign plans to achieve strategic end states in accordance with strategic direction. It also directs that certain contingencies be treated as branches to the theater's single campaign plan. The GEF is developed in parallel with the Joint Strategic Capabilities Plan (JSCP) to ensure complementary guidance from the Sec Def and CJCS. The GEF provides combatant commands guidance to support their plan development. The GEF's specific planning guidance includes:

- Strategic end states (theater or functional) for campaign planning.
- Strategic assumptions.
- Prioritized planning scenarios and end states.
- Global posture and global force management guidance (managing force deployments).
- Security cooperation priorities.
- Overarching DOD and US nuclear policy.

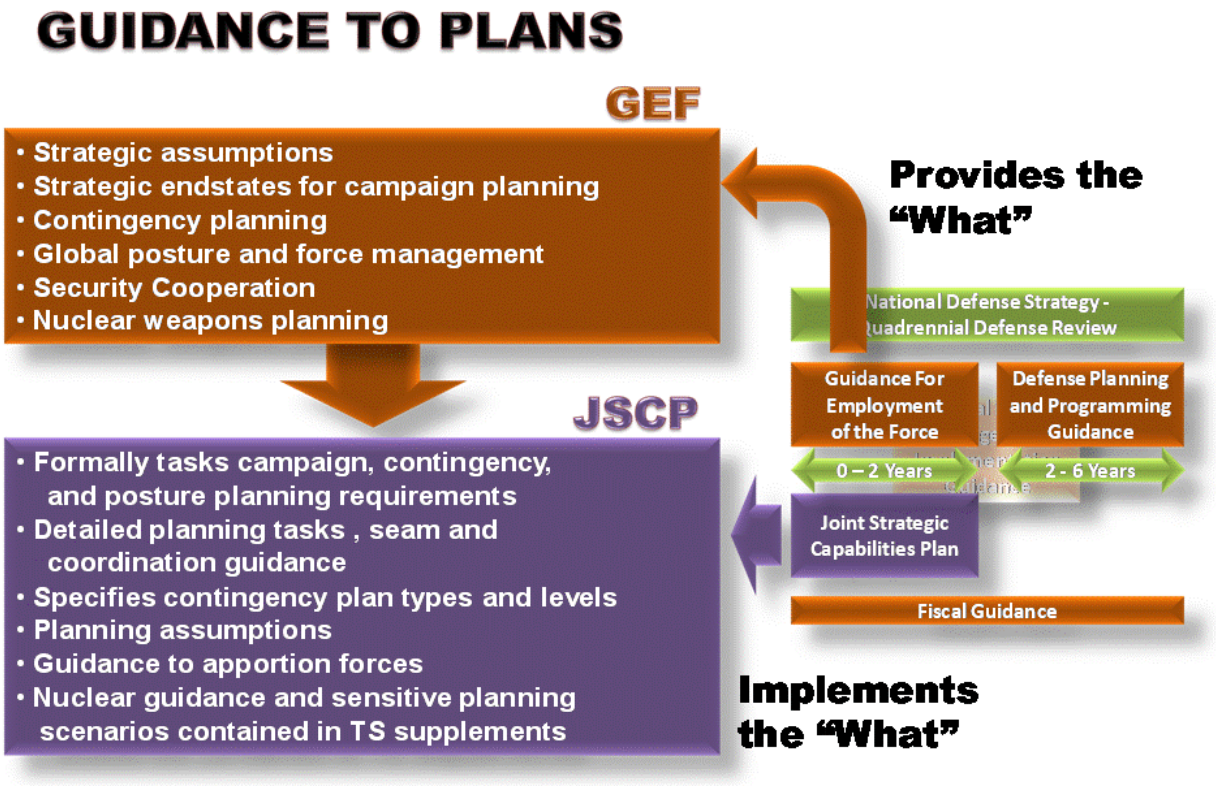


Figure 1-3

3) The Joint Strategic Capabilities Plan (JSCP) provides specific guidance to the Combatant Commanders by translating strategic policy end states from the GEF into military campaign and planning guidance. The JSCP formally tasks Combatant Commanders to conduct detailed planning, and specifies what to plan for and to what level of detail. (See figure 1-3)

4) Together the GEF and JSCP provide specific planning guidance to Combatant Commanders and their planners and tasks them to develop specific plans.

5) Global Force Management Implementation Guidance (GFMIG) The GFMIG integrates complementary assignment, apportionment, and allocation information into a single GFM document.

- GFM aligns force assignment, apportionment, and allocation methodologies in support of the NDS, joint force availability requirements, and joint force assessments.
- Updated every two years and approved by Sec Def.
- Contains direction on assignment of forces to Combatant Commanders CCDRs (Ch 2), specifies the force allocation process that provides access to all available forces (including military, DOD, and other federal agency resources), and includes apportionment tables used by CCDRs for sourcing plans requiring designation of forces (Ch 4).

The GFMIG includes the Forces for Unified Commands Memorandum (referenced as the Forces For memorandum or the Forces For assignment tables). The memorandum provides Sec Def's direction to the Secretaries of the Military Departments for assigning forces to CCMDs and serves as the record of force assignments.

e. **Strategic Planning.**

1) Strategic Planning isn't about planning, it is about communication. Strategic planning is the system for promulgating strategic guidance from the CJCS to both the national civilian leadership and the military in general. The technical label is the Joint Strategic Planning System (JSPS) which provides a formal system for the Chairman to execute his statutory responsibilities to assess the environment and military forces, advise the national civilian leadership, and direct military forces. The assess function looks at the strategic environment, capabilities to influence that environment, opponents' abilities to do the same, and lastly, the risks to national strategies. The advise function includes providing policy makers the information they require to develop force capabilities budgets and risk assessments. The direct function consists of two documents: the National Military Strategy which provides guidance that combatant commanders use to employ their forces and the Joint Strategic Capabilities Plan.

2) Joint Operation Planning**.** Joint operation planning is the overarching process that guides joint force commanders (JFCs) in developing plans for the employment of military power within the context of national strategic objectives to shape events, meet contingencies, and respond to unforeseen crises. Planning is triggered when the continuous monitoring of the environment indicates the need to prepare military options. Joint operation planning includes; the mobilization, deployment, employment, sustainment of forces activities and redeployment.

3) Adaptive Planning and Execution (APEX) (Formerly the Joint Operation Planning and Execution System (JOPES)) is a set of detailed instructions on the procedures for joint operations planning. It is a formal comprehensive process encompassing a spectrum of processes, procedures, and actions supporting every facet of planning, decision-making, and execution. The APEX process applies to the development and implementation of operation plans and orders prepared in response to the President, Secretary of Defense, or Chairman and specify the policies, procedures and reporting structures - supported by modern communications and computer systems for the planning and execution of plans. APEX/JOPES also contains the formats for key documents such as the CJCS warning order, commander's estimate, and operations plans and orders.

4) Joint Operations Planning focuses on two types of planning: Deliberate (aka Contingency) Planning and Crisis Action Planning (CAP**)**. Essentially CAP mirrors deliberate planning, but is abbreviated and occurs faster.

5) Deliberate Planning occurs in non-crisis situations. Deliberate plans are for a contingency situation that likely would involve a response by military forces as directed by the President or Sec Def. Combtant Commanders must develop deliberate plans specified in the JSCP, but may also direct planning to meet emerging requirements as they see fit for their theater. Deliberate plans are treated as branch plans to the Theater Campaign Plan. Deliberate Planning is an iterative process and is adaptive to situational changes in the operational and planning environments. The process allows for changes in plan priorities, changes to the review and approval process, and contains the flexibility to adjust the specified development time line to produce and refine plans. Since Contingency Plans are based on specific assumptions, a review of critical assumptions is essential to ensure the continuing relevance of the Contingency Plan.

6) Crisis Action Planning (CAP) occurs in crisis situations. A crisis is an incident or situation involving a threat to interests. Such a crisis typically develops rapidly and creates a condition of such diplomatic, economic, political, or military importance that the President or Sec Def considers commitment of US military forces and resources to achieve national objectives. There may be little or no warning thus requiring accelerated decision making. Sometimes a single crisis may spawn another crisis elsewhere. The planning process for both contingency and crisis action planning is the same, though different products result. In a crisis, the Combatant Commander has three options:

- Use an existing deliberate or contingency plan that anticipated the crisis situation, with minor adaptations required.
- Use an existing plan as a base but modify it significantly to meet the crisis situation.
- Build a new plan from scratch.

JOINT OPERATION PLANNING

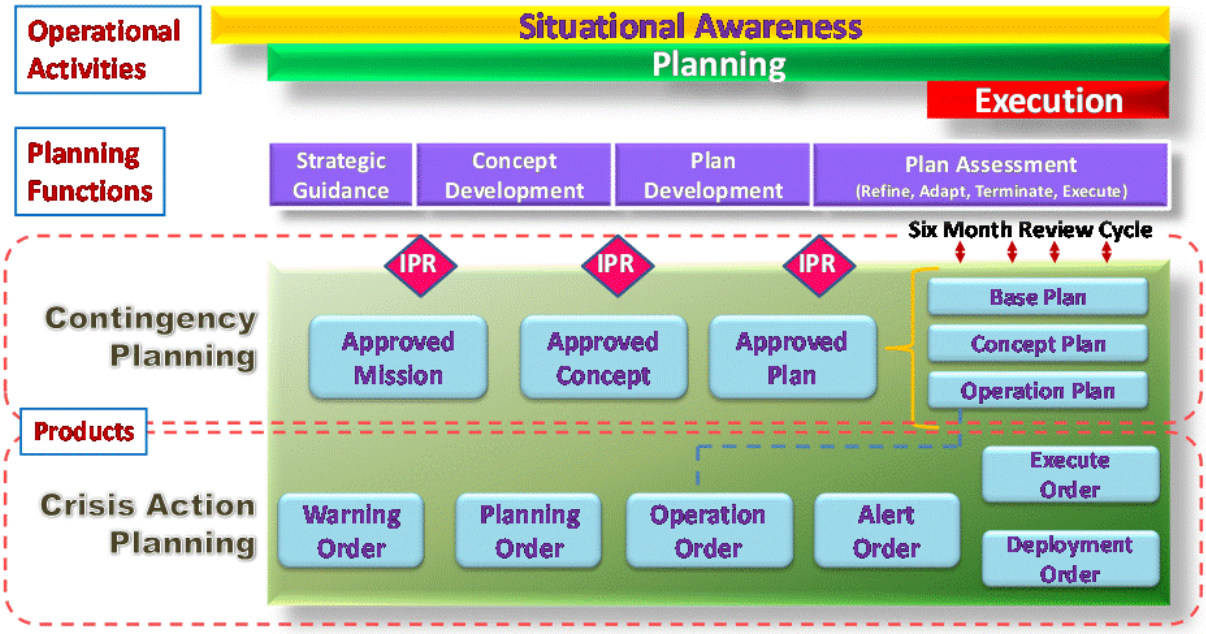


Figure 1-4

Section Five. Campaigns and Major Operations

a. Campaigns and Major Operations are the heart of operational level planning. They are where the tactical actions of battles and engagement are arranged or sequenced so that their objectives lead to the attainment of strategic objectives.

Key Points

Campaigns are all about arranging multiple major operations in a way to achieve operational level objectives or strategic goals.

Campaigns are made up of two or more major operations.

Major operations are comprised of a series of tactical actions designed to achieve operational or strategic objectives.

b. A campaign is a series of related military operations aimed at accomplishing strategic or operational objectives within a given time and space. A major operation is a series of tactical actions conducted by combat forces of a single or several services, coordinated in time and space, to achieve strategic or operational objectives in an operational area. These actions are conducted simultaneously or sequentially

in accordance with a common plan and are controlled by a single commander.[x] Campaigns always exceed the scope of a single major operation. Commanders use campaigns when strategic objectives cannot be achieved in a single major operation due to complexity or scope of the objectives, size of the area (operational reach) or time. Multiple campaigns, each comprised of several major operations may be required to achieve strategic objectives. Bottom line, campaigns are made up of multiple major operations. Major operations are a grouping of engagements and battles designed to attain operational or strategic objectives.

c. **Examples.** CHROMITE, the Inchon landing was a major operation conducted in coordination with another major operation, the breakout from Pusan as part of the United Nations Offensive campaign in Korea. OVERLORD, the landing of forces in Normandy, was a major operation followed by other major operations including, GOODWOOD and COBRA in the Western European campaign. Operations JUST CAUSE and URGENT FURY are examples of standalone major operations that achieved the strategic objectives without the need for a campaign consisting of multiple major operations. DESERT SHIELD and DESERT STORM are the two major operations in the effort to liberate Kuwait. The actual campaign (South West Asia Campaign) continued with operations PROVIDE COMFORT and NORTHERN and SOUTHERN WATCH.

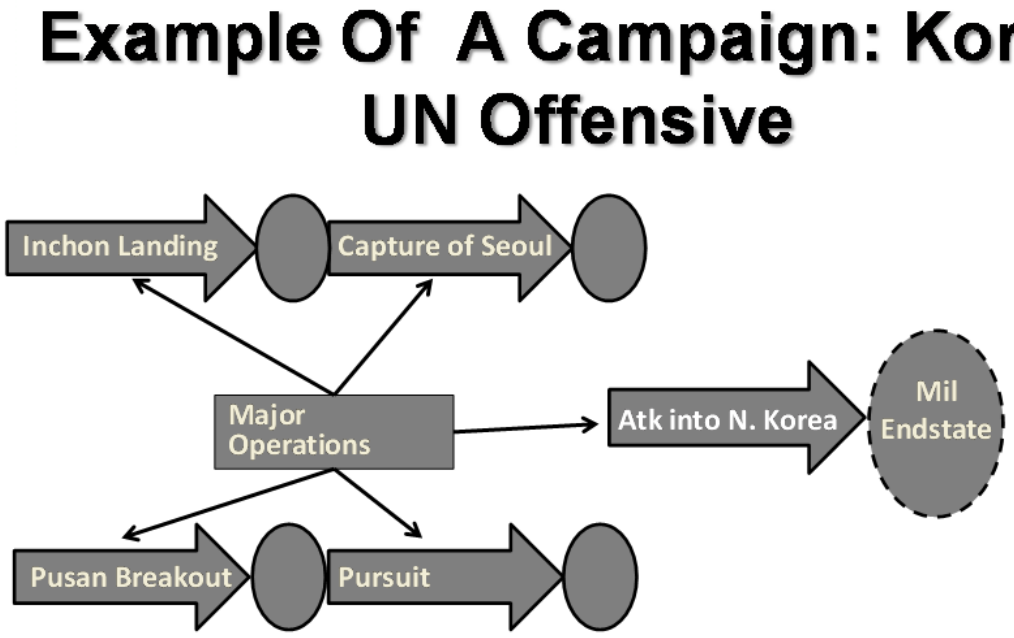


Figure 1-5

Chapter Two
Conceptual Planning

Section One. Conceptual and Detailed Planning

a. Since this chapter is about conceptual planning and chapter three's subject is detailed planning, a short explanation of both is in order.

Key Points

Operational art is conceptual planning. It, determines the end state, the problem, and a broad approach to solving the problem and achieving the end state.

Detailed planning is the follow on to conceptual planning. It translates broad approaches into the specifics of executing actions that achieve the end state.

Operational Art is to conceptual planning as Joint Operations Planning Process (JOPP) is to detailed planning.

Operational art is an umbrella term for a cognitive processes (understanding and visualization) used by commanders.

Operational design, a component of operational art, is joint doctrine's methodology to conduct and apply critical thinking and reasoning necessary for the application of operational art.

The end result of a commander's use of operational art assisted by operational design is an operational approach which is a broad description of the actions forces must take to achieve the desired end state.

b. Conceptual planning is about ideas, more specifically about having the right ideas to solve a problem. The application of operational art is conceptual planning. Operational art is an umbrella term for the cognitive processes used by commanders, assisted by the staff to "describe how the joint force will employ its capabilities to achieve the military end state."[xi] Operational design is a component of operational art and is joint doctrine's methodology to conduct and apply critical thinking and reasoning necessary for the application of operational art. The operational design methodology is a practical how to technique to think through and apply operational art. Operational design helps commanders by providing a method to reduce the uncertainty of complex environments, provide understanding of the nature of the problem and enables them to construct an approach to solving the problem and achieving the end state. The end result of a commander's use of operational art assisted by operational design is an operational approach which is a broad description of the actions forces must take to achieve the desired end state.[xii] The operational approach is the commander's initial intent and planning guidance to the staff that begins the detailed planning process. In simple terms operational art (conceptual planning) uses operational design, a method to produce an operational approach. The operational approach is the hand off product that links operational arts' conceptual planning with JOPP's detailed planning.

c. Conceptual planning, or operational art, determines the end state, the problem, and a broad approach to solving the problem and achieving the end state. Detailed planning translates broad approaches into the specifics of executing actions that achieve the end state. Detailed planning produces executable plans and orders using formal problem solving and planning processes such as the Joint Operations Planning Process (JOPP) or the Military Decision Making Process (MDMP).

Note
Course of action development in either JOPP and MDMP is the bridge connecting operational art (conceptual planning) and detailed planning. Once it has been crossed, the remaining steps of the planning process including course of action comparison, selection, approval and plan production are entirely in the realm of detailed planning.

d. A note of caution, do not think of conceptual and detailed planning as two entirely separated processes. They are connected and overlap. It is better to think of a single process where conceptual planning predominates the beginning and detailed planning gradually replaces it. It is just like designing a house, it starts with a concept and finishes with a blueprint.

Figure 2-1

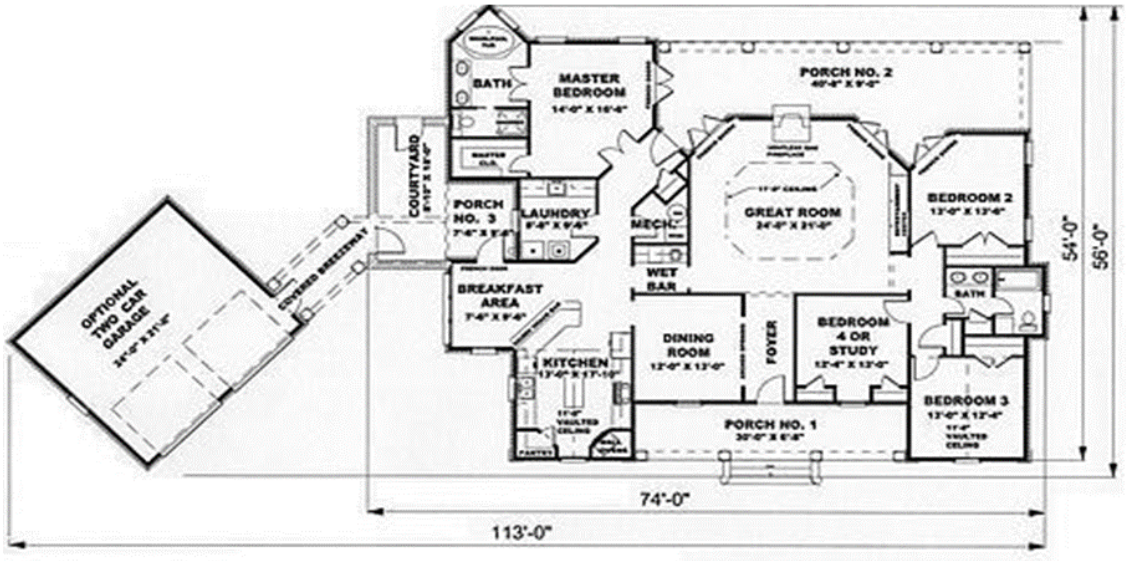


Figure 2-2

e. The drawing of the house in Figure 2-1 and the blueprint in Figure 2-2 illustrate the idea of conceptual (operational art) and detailed planning (JOPP).[xiii] One is a vision of the end state or what is to be done, while the other is a plan on how to do it.

Section Two. A Systems Perspective

a. Applying operational art requires an understanding of the environment and a systems perspective is the first step to understanding the environment. Without a systems perspective a commander cannot begin to form a vision. By identifying specific systems in the environment, the nodes or components in each system, the linkages (relationships) between the nodes and systems' capabilities, requirements, vulnerabilities which may be potential points of leverage, commanders and staffs begin to understand what is going on and why. This understanding enables them to form concepts on what actions can change the environment. This understanding becomes the foundation for the application of operational art that produces a commander's vision that ultimately becomes the operational approach.

Key Points

A systems perspective is key to understanding the environment.

The modern environment is complex and a narrow focus on an adversary's military is insufficient to gain understanding.

A systems perspective is a prerequisite for the application of operational art.

Relationships, Actors, Functions, Tensions (RAFT)

b. Environmental understanding requires a holistic perspective beyond military forces and capabilities. It requires a comprehensive understanding of all systems in a relevant environment. Therefore commanders and staffs must understand and appreciate the importance of a systems perspective of the environment before focusing on individual elements. To have applicability, one must view operational art, design and the elements of operational design through a framework that recognizes the interaction of the systems that make up the environment. Therefore commanders and staffs must possess an inherent understanding of the various systems that comprise the environment. Only then, through the creative application of

operational art using operational design and the elements of operational design, can commanders and staffs effectively transform the current environment into the desired future environment.

c. What is a system? A *system* is a functionally related group of elements forming a complex whole or in our context, a relevant environment. For example a human body, a complex whole, has respiratory, digestive, and circulatory systems while an automobile has fuel, cooling, and ignition systems. These systems are all distinct but together they form a complex environment.

d. One way to view and study an environment is the RAFT method. (See figure 2-4) RAFT stands for *Relationships, Actors, Functions and Tensions*. (In use it is actually ARFT, but RAFT is easier to remember.) An environment is comprised of various systems called *actors*. The systems may also contain sub-actors occasionally referred to as nodes. Each system or *actor/sub-actor* normally has *relationships to* other systems or actors. These relationships are the links between systems' *sub-actors/nodes*. Every relationship has a *function* or purpose which should be identified. *Tensions* are characterizations of the relationships. The tension may be supportive, adversarial, positive, negative, critical, strong, vulnerable or neutral, etc.

e. A systems perspective of the operational environment attempts to provide an understanding of interrelated systems. Understanding these systems *(Actors)*, their interaction *(Relationships and Functions)* with each other *(Actors)*, and how system relationships will change *(Tensions)* over time will increase knowledge of how actions within a system can affect other system components *(RAFT)*. This knowledge helps commanders and planners identify leverage points where actions can move the environment closer to the desired end state. These leverage points suggest the identification of potential objectives and the when and where of operations which is the essence of operational art and conceptual planning.

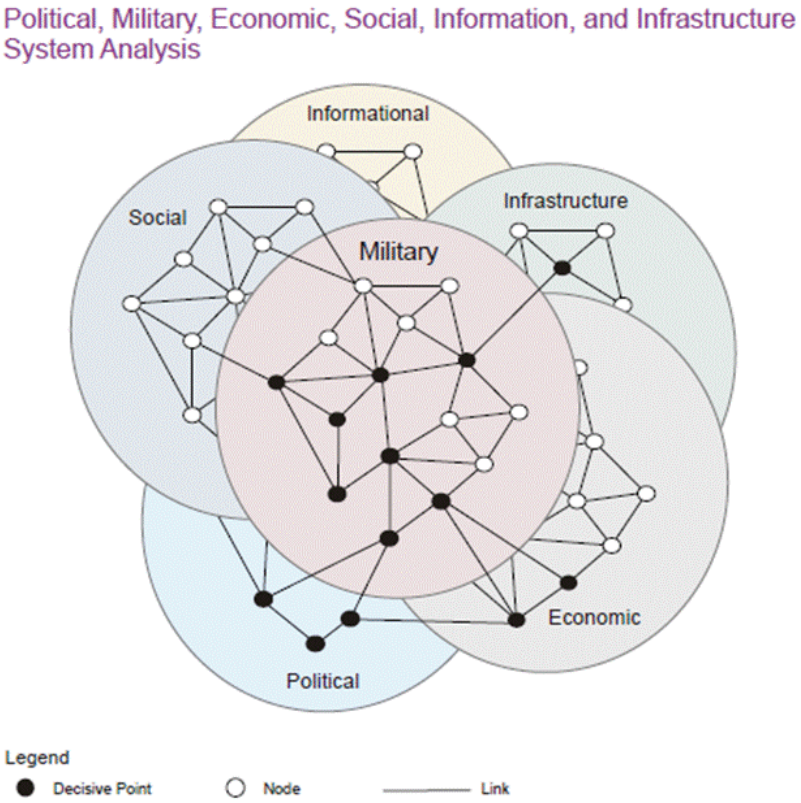


Figure 2-3

f. There are multiple examples of systems perspective. Figure 2-3 from Joint Publication 5-0[xiv] is one and it provides a conceptual illustration of notional state/national systems: Political, Military, Economic, Social, Information, and Infrastructure (PMESII), nodes, and links in a notional operational environment. Another example is Sewage, Water, Electricity, and Trash (SWET) that was useful in looking at urban systems. Mission Enemy Troops Terrain, Time and Civilians (METT-TC) is another military focused system. The Department of State uses a systems framework of context, identity groups, resilience, grievances, actors with means and motivations, drivers, mitigators and societal patterns.[xv] These examples are only models and should not be used slavishly or applied to every situation. Good commanders and staffs will take a critical look at the relevant environment and then decide whether or not to use a pre-existing model or framework or to develop a new one.

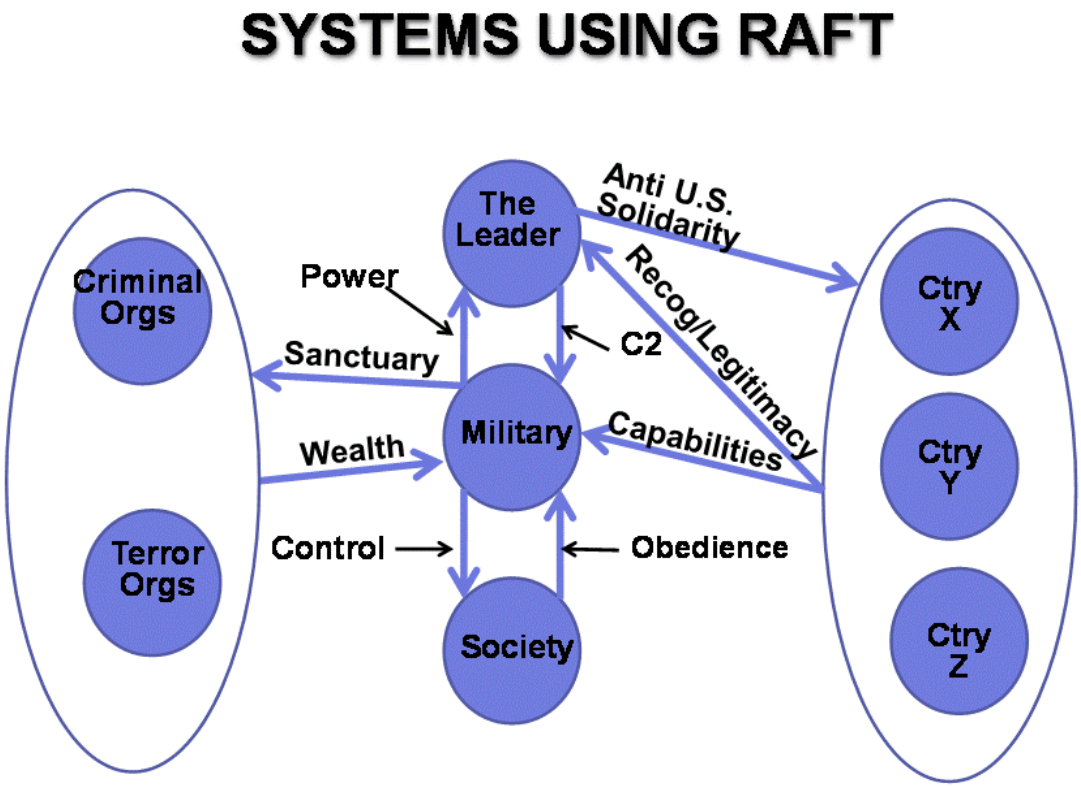


Figure 2-4

Section Three. Joint Operational Planning Process

a. Before beginning discussion on operational art we need a short discussion on the Joint Operational Planning Process (JOPP) to provide context**.** JOPP will be discussed in greater detail in Chapter 3. JOPP is an adaptation of the classic problem solving model. It has seven steps designed to recognize and identify problems and develop solutions to solve them. (See figure 2-5) Step one is recognizing or being told there is a problem. Step two is identifying what actions are required to solve the problem. Step three is developing options and specifics on how to execute the required actions. Step four is the identification of advantages and disadvantages between options. Step five is a comparison of the options against a criterion to select the best option. Step six is obtaining the commanders' approval for a recommended

option. Step seven is producing detailed plans for the execution of the chosen option. JOPP's first two steps are generally more conceptual planning while the later steps are more detailed planning.

b. Operational art, operational design and the elements of operational design are methodologies and tools used primarily (although not exclusively) in steps one and two of JOPP to help the commander and staff to understand the environment, understand the problem and develop approaches to solving the problem. Operational art and operational design methodologies can be applied to any problem solving process and are not specific to JOPP.

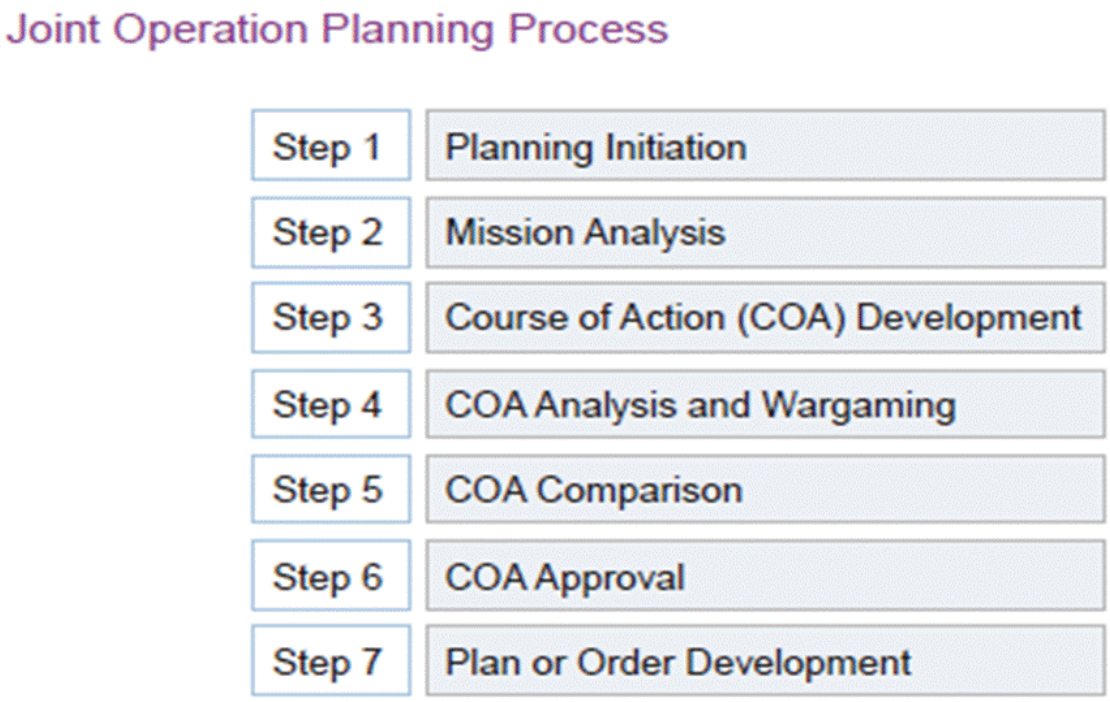


Figure 2-5

Section Four. Operational Art

a. Commanders and staffs use operational art to visualize and develop concepts that planners can translate into operations that link strategy and tactical actions to attain strategic or operational objectives. Operational art is simply thinking about "what" questions such as. What is the end state? What is the problem or challenge? What are the options? What is the best approach? What is the correct sequence of actions? What is needed? What are the risks? The ultimate purpose of operational art is to answers these questions and form a vision or concept of what must be done. Planners then use the vision as the framework for detailed planning processes such as JOPP. Operational design is a technique that provides commanders and staffs the tools and methods to apply operational art.

Key Points

Operational art is conceptual planning.

Operational art provides the foundation for detailed planning.

Operational art answers the "what" questions.

Operational design is a structured methodology for conducting operational art.

An operational approach is the "vision" or result of the application of operational art and design.

Note

Confusing and changing terminology.

Operational design, depending on context can have two different meanings. The first and original meaning and context was in the design of major operations and campaigns. The joint definition is, "The conception and construction of the framework that underpins a campaign or major operation plan and its subsequent execution."[xvi]

An element of operational design is used with this context and definition and are defined as, "A key consideration used in operational design."[xvii]

The second meaning and context is according to JP 5-0 August 2011, " Operational design is a process of iterative understanding and problem framing that supports commanders and staffs in their application of operational art with tools and a methodology to conceive of and construct viable approaches to operations and campaigns. "[xviii]

The key point is that the elements of operational design e.g. centers of gravity or lines of effort relate to operational design in the original meaning and context, not the new meaning.

b. Operational art is born in the mind of the commander assisted by his staff. Its purpose is to "design strategies and operations and organize and employ forces"[xix] in such a way as to attain strategic or operational objectives. It is how the commander links the tactical level actions engagements and battles to the operational and strategic objectives. The application of operational art results in the commander's guidance and or intent, and answers the "what" questions thus laying the foundation for detailed planning of campaigns and operations.

Sample "what" questions.

- What is the desired end state?
- What problem(s) must be addressed to reach the end state?
- What actions will address the problem?
- What is the sequence of these actions?
- What resources are available or needed?
- What is acceptable and unacceptable risk?

c. The end result of a commander's use of operational art is an operational approach which is a description of the broad actions the force must take in order to achieve the desired end state.[xx] Operational approach is another term for the commander's vision. The operational approach is the basis for beginning, continuing, or completing detailed mission analysis and course of action development. The operational approach is the foundation for the commander's planning guidance to the staff.

d. Operational design is a methodology that helps commanders and staffs reduce the uncertainty of a complex environment, understand the nature of the problem and then construct an operational approach to

achieve the desired end state. In simple terms operational art, (conceptual planning) uses operational design, a method to produce an operational approach that begins the detailed planning process.

e. The inputs for operational art are the commander and staff's understanding of the environment coupled with their collective wisdom and experience. A systems perspective is a critical piece of this understanding. The commander then filters this understanding through the lens of ends, ways, means and risks which act to constrain possible outcomes and options. By combining understanding with the constraints of the strategic framework, the commander visualizes a realistic approach that can achieve the desired end state. (See figure 2-6)

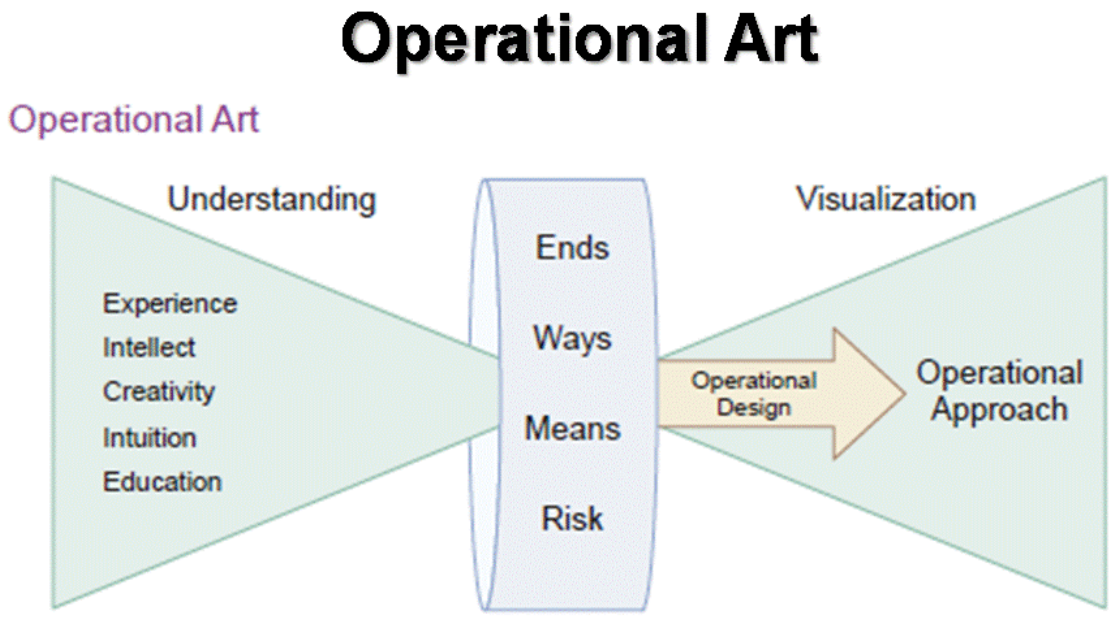


Figure 2-6

Section Five. Operational Design

a. So how does a commander actually employ operational art? How does one actually apply experience, wisdom and intuition? The short answer is to use operational design. Operational design is the term for the cognitive tools and processes that enable commanders to apply operational art by forming visions or operational approaches. Commanders using operational design, produce an operational approach and share that approach through their planning guidance and intent. Planners then translate the commander's vision or approach into specifics that become actionable plans.

Key Points
Operational design is part of operational art, not distinct from it.
Operational design is a methodology for applying operational art.
Operational design is a new term, but it has always existed.

b. The days are gone when a commander alone could rely on his education and experience to fully understand a situation, and develop an approach to solving it. The current environment is just too complex for any single individual to understand and at the same time the criticality of understanding it

has grown. (Understanding now goes beyond traditionalt military factors and now include social, economic, political, anthropolgical, rule of law etc.) This situation created a dilemma where the traditional tools no longer provided adequate answers. The answer to this dilemma is operational design. (See figure 2-7) The goal of operational design is to provide a construct to aid the commander and staff in gaining understanding of complex environments so they can develop operational approaches suitable for those environments.

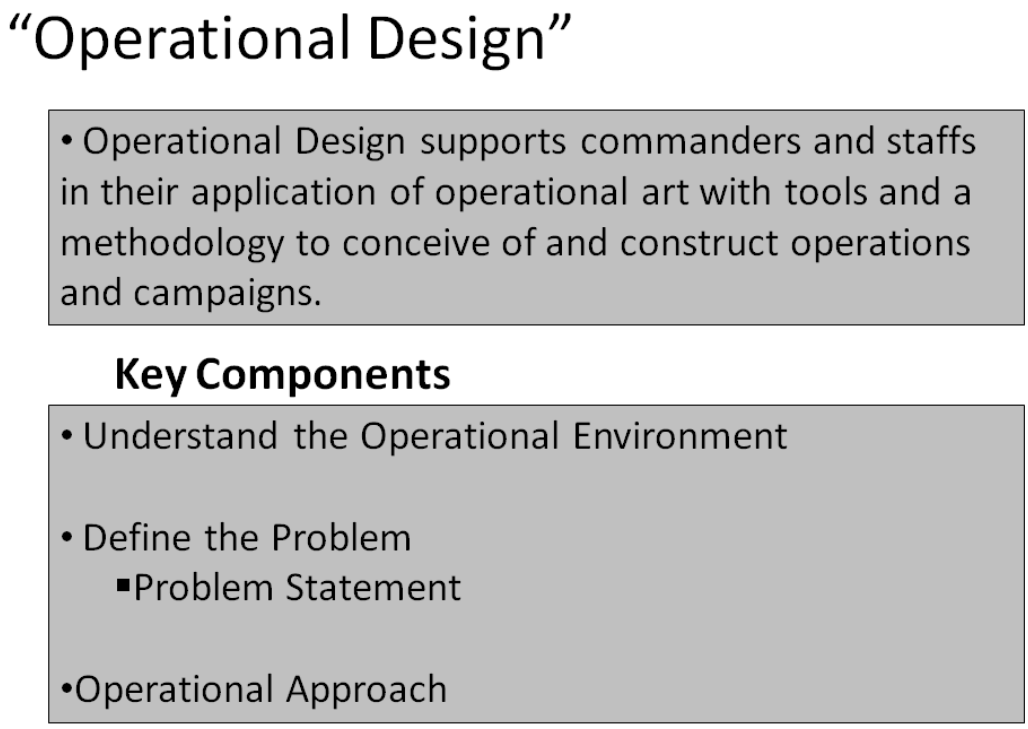


Figure 2-7

c. Some principles inherent in operational design are: Recognition that understanding a complex environment requires a team rather than an individual effort; that commanders and staffs must work together and have a continuous dialogue that mission analysis alone is insufficient to create understanding. Commanders and staffs must recognize that everything is dynamic that they must be open to new ideas, information and understanding while recognizing that their conclusions may be wrong. Finally, they must be willing to reevaluate and redesign.

d. Operational design has three components; understanding the environment, defining the problem and producing an operational approach. Commanders and planners analyze each component using a series of four basic questions. The answers to these questions then provide understanding, identify the problem(s) and point the way to an approach to solving the problem. The essence of operational design is the four questions listed here.[xxi]

1. "What is going on in the environment?" This question prompts planners to capture the history, culture, current state, and future goals of relevant actors in the environment. A way to think about this is RAFT or relationships, actors, functions and tensions. This is part one of understanding the environment.

2. "What do we want the environment to look like?" This is part two and prompts planners to review higher level intents and missions and posit a desired future state of the environment. Knowing how the current environment operates (systems perspective) and how we want the environment to be, provides understanding of the environment and the information needed to answer the third question.
3. "What (the problem(s)) is preventing movement from the current state to the desired end state?" The answer to this question tells planners where -conceptually- they should act to achieve the desired state? These questions prompt planners to reflect on the environment focusing on those areas of tension and competition—as well as opportunities and challenges—that the plan must address to transform current environments to the desired end state.
4. "How do we get from the current state to our desired state?" This prompts planners to envision what combinations of actions can address the problem(s) and help achieve the desired end state given the tensions identified in the environmental and problem questions.

e. Experience shows that planners can best communicate their answers to the four questions by using both graphic and narrative forms. Doctrine purposely does not prescribe formats or models to avoid shaping an answer to fit the format. The intent is to shape the format to fit the answers. Graphic depictions or maps showing the environment's systems' links and nodes or RAFT can quickly communicate the complexities of the environment. However graphics often lack detailed information and explanation that narratives provide. For this reason both graphics and narratives are recommended.

f. **Understand the Environment**.

1) The first step in operational design is, understanding the environment. (See figure 2-8) In it, commanders and staffs take a holistic view or systems perspective (PMESII for example) and attempt to answer the first two questions. (What is going on in the current environment and what is the desired environment?) Then use the answers to describe both the current and the desired states. Answering the questions involves standard planning techniques such as estimate processes, intelligence preparation of the environment, and descriptions of the political, economic, military, social, informational, infrastructure or other relevant systems. Some of the inputs required to understand the environment are listed in the figure 2-8. This step asks, what is the environmental context in which a campaign or operation will be implemented?

2) Key supporting questions include:

- What is going on?
- Why has the situation developed?
- What does it mean?
- What are the underlying issues?

3) There are several ways to think about describing the environment. RAFT is a description of the relationships between relevant actors or systems, their functions and tensions. This helps describe "What is going on". PMESII or any other relevant systems model is another way. Planners can even combine RAFT and systems models together. Figures 2-4 (diagram), 2-9 and 2-10 (matrices)are examples of ways and frameworks to help start thinking about or depicting the environment. The matrices are useful to collect and catagorise data for analysis or to build a diagram. These are not doctrine and remember there are no prescribed formats or specific products for this step. Planners often start at a blank white board and just brain storm and create "messy" maps of the environment. Whatever captures a description of the environment effectively and conveys it, is acceptable.

4) Outputs from this "understanding" process will be essential for later detailed planning and include military end state, and termination criteria.

Note

Fig 2-8 shows CoGs as a key outputs of this step. This is an editing error in JP 5-0, 2011 as the text makes no mention of GoG identification during this step.[xxii] Logically CoGs would be identified during defining the problem and developing an operational approach.

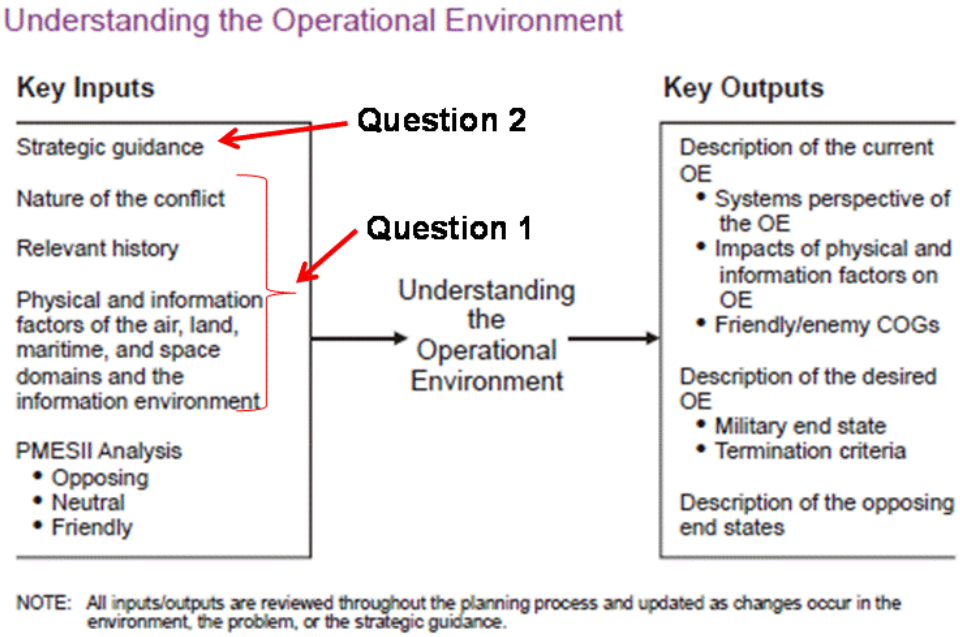


Figure 2-8

Design Framework							
	Environment			Problem			
	History (Facts)	Current Conditions (Facts)	Actors, Tendencies & Potentials (Analysis)	Tensions, Risks & Resources (Analysis)	Problem Statements (Synthesis)	Operational Approach (Actions)	Desired Outcomes (Directed or Implied)
P							
M							
E							
S							
I							
I							

Figure 2-9

Environmental Description				
	Actors	Relationships	Functions	Tensions
P				
M				
E				
S				
I				
I				

Figure 2-10

g. **Define the Problem**.

1) This is where commanders and planners strive to identify the underlying cause and not just the symptoms of the problem. (See figure 2-11) This is simply put, but not simply done. It requires critical thinking to distinguish an effect from a cause. This step asks, what is the difference between the current state and the desired end state and what in the environment is preventing us from reaching the end state. While understanding the environment is critical to identifying the correct problem, it is the actual identification of the problem that is an objective of operational design. A commander's failure to identify the right problem can result in an operational approach that only treats the symptoms not the problem.

2) The basic questions are:

- What problem(s) should be addressed or acted upon?
- What needs to change?
- What doesn't need to change?
- What are the strengths and weaknesses of the actors?
- What are the opportunities and threats (tensions)?
- What conditions need to exist for success?

3) Once you know what the problem is, you can start to figure out a solution. Identifying a solution should involve a center of gravity analysis of the system(s) that was identified as the problem(s). Details on center of gravity analysis are discussed in a later section. Again there is no prescribed format for the outputs; however the problem statement must be clear, concise and focused on the root problem(s).

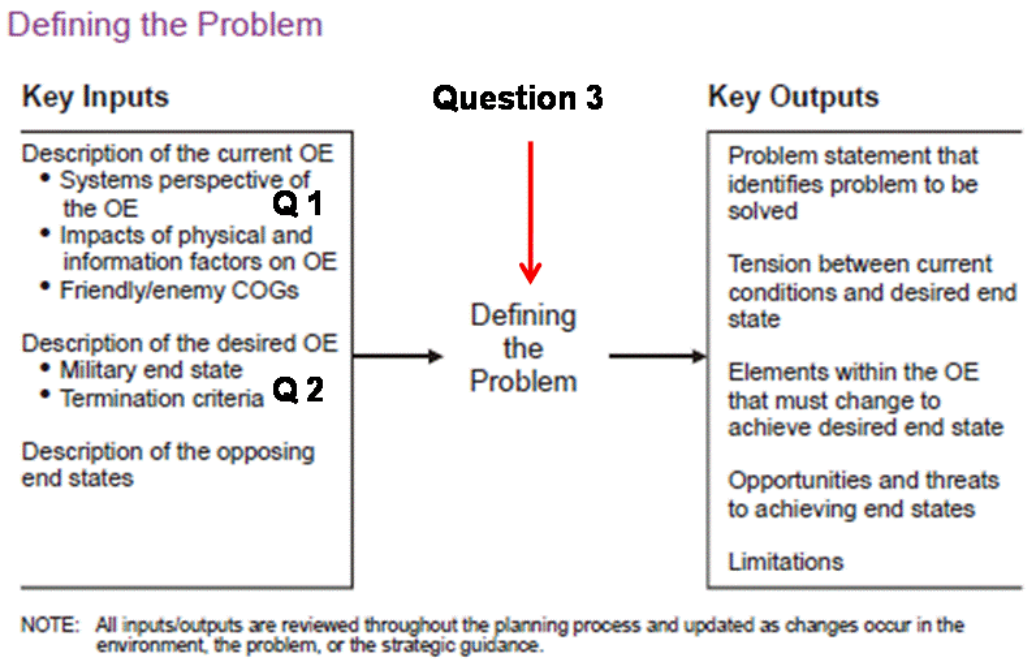


Figure 2-11

h. **Operational approach**.[1]

1) Once commanders and planners agree on the problem, they need a way to address it. The operational approach is the broad outline and provides the commander's guidance on general actions [think missions] that will produce the conditions that define the desired end state. Think of it as what needs to be done, not how to do it.

2) The operational approach is a conceptualization that starts by asking how will the problem be solved or managed. (Center of gravity and critical factors analysis will suggest solutions and be discussed in detail later.) It also feeds the details that will shape the commander's guidance and intent.

3) Key supporting questions include:

- How do we go from the existing conditions to the desired conditions?
- What tensions exist between the two?
- What else can happen?
- What are the risks?

4) The operational approach is not course of action development. Rather it informs and shapes the mission analysis process and will be reflected in the restated mission at the end of mission analysis. It is the commander's description of what needs to be done or conditions created, not details on how to do it.

5) Broadly speaking, operational approaches fall into one of three categories; remove, provide, and change (RPC). If the transition from the current to the desired state is blocked by something that is not needed in the desired state then removal is an approach. If transition is prevented by the absence of a

[1] The term "Operational approach" depending on its context can have two meanings. In the context of design it is a concept of how to solve a problem or commander's vision. When discussing the "Elements of operational design" it has been used to refer to a direct or indirect approach to attacking a center of gravity.

requirement, then an approach is to provide. If the problem is a behavior or a condition of a requirement, or something that cannot be removed then change is an approach. Again these are categories of approaches, actual approaches will be more specific and the lists of approaches are only limited by ability to think creatively, but the RPC, remove, provide and change model provides a start point.

6) The categories of operational approaches can also be used in combination for a multi-faceted approach to a problem set. For example active law enforcement is an approach to *removing* crime. Educational or economic programs are meant to *provide* options other than criminal activity. Finally, locking doors, securing property and judicial actions are approaches to *changing* behavior that reduces crime. In this example each of these separate 'approaches' when combined can be considered as lines of effort (LOE). Note that in the example, the actions, active law enforcement, educational and economic opportunities and securing property sound more like missions than courses of action. They are what to do, not how to do it.

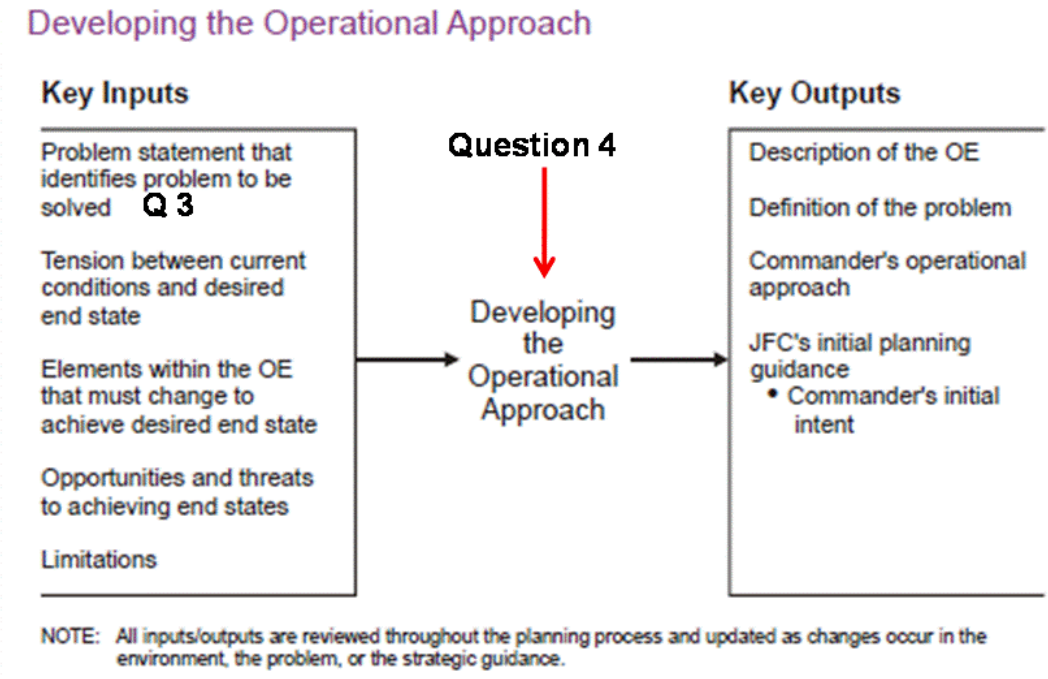


Figure 2-12

7) As with the other components of operational design there are no prescribed formats. However, figure 2-12 shows that the operational approach should include a concise description of the environment, a clear statement on what the problem or problem set is, an approach to resolve the problem (RPC) and lastly any other specific guidance. Developing an operational approach requires a continuous dialogue between the commander and the staff starting at the initiation of planning and continuing through mission analysis. It also requires data and analysis from the staff that includes termination, end state and centers of gravity. (A detailed discussion of termination, end state, and centers of gravity is in the section on Elements of operational design.)

8) A technique for developing an operational approach is to:

1. Identify the problem or problems set and then view it as a system.
2. Determine the system's objective, critical capabilities and center of gravity (CoG).
3. Identify the CoG's critical requirements and critical vulnerabilities.
4. Create lines of operation/effort based on the critical requirements and critical vulnerabilities

5. These lines of operation/effort become actions, missions or tasks.

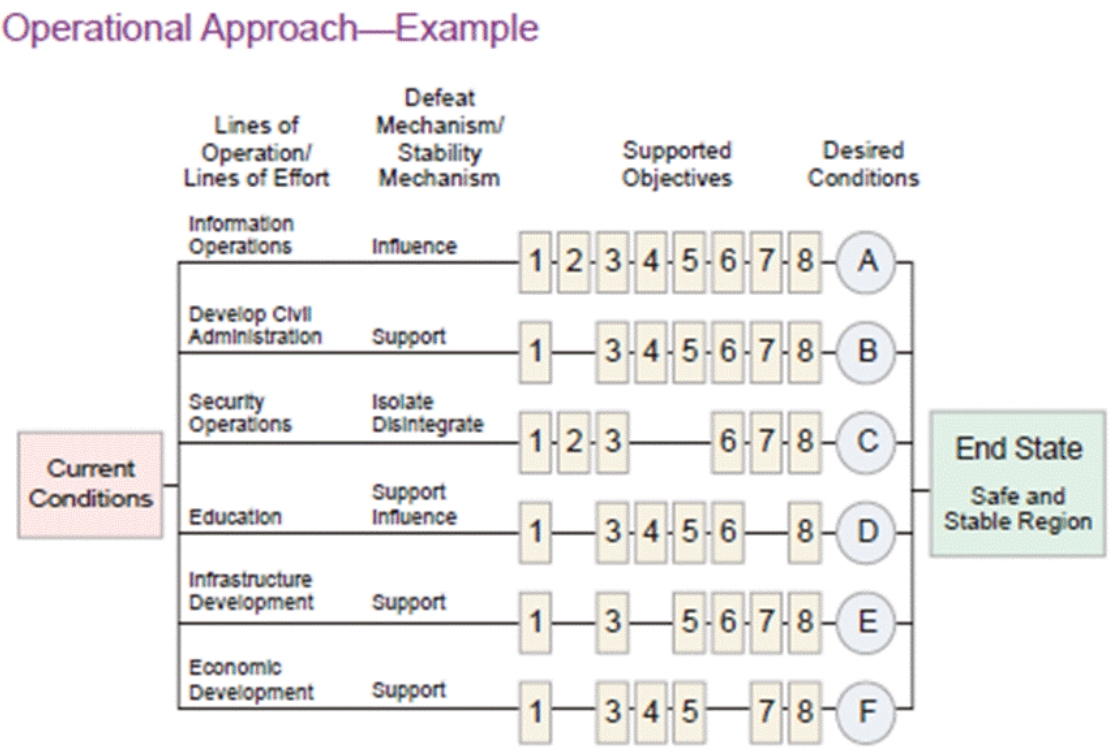


Figure 2-13

9) Figure 2-13 is a graphic illustration of an operational approach. The commanders planning guidance normally contains it and it broadly lays out what should be done. This sets the stage for course of action development. In the figure the current conditions and end state are derived from operational design's questions #1 and #2. A careful center of gravity analysis of the problem(s) from question #3 will identify the problem's center of gravity and the critical requirements and critical vulnerabilities that may become objectives and tasks. A careful study of the end state, objectives and tasks combined with the friendly center of gravity analysis will also identify friendly lines of effort. For example, from this slide, economic development is a critical requirement necessary to achieve the end state. However, it is currently lacking something making it vulnerable. So actions such as replace, provide or change (RPC) become tasks, effects and objectives along the economic line of effort.

10) Everything is dynamic. There are actors with actions, reactions and counter-actions. The environment is subject to change agents that behave in predictable and unpredictable ways. In other words, no plan survives first contact with the enemy. Therefore, commanders and staffs continually assess and reassess throughout planning and execution in order to understand the changing environment, possibly changing problems and the need for changing solutions. Reassessing is restarting the operational design process and can stem from significant changes to understanding, the conditions of the environment, or the end state. Reassessing allows the commander and staff to make adjustments throughout the operations process. Reassessing generally has three triggers; a major event causes catastrophic change in the environment, a planned periodic review, or the understanding changes based on reflection or assessment of the existing problem and operational approach.

i. There are a number of products or outputs from operational design. As discussed earlier, doctrine does not prescribe any specific formats but it is recommended that graphics and narratives be used to convey

the information in a clear and concise way. First, there are products that help show or explain the current and desired environment, end states and problems. These could be anything from lists and biographical information on key actors to diagrams on infrastructure networks, to system capabilities (narratives and or graphics). Broadly speaking, they are PEMSII like system descriptions. Think RAFT, relationships, actors, functions and tensions. From these products the commander and staff clearly identify the problem or problem set and describe when and where and what type of actions to use to solve the problem or problem set within established limitations.

j. The Operational approach is the foundation for the commander's planning guidance. The commander's guidance provides the focus of operations, by defining and linking desired conditions to potential combinations of actions the force may employ to achieve them. It also provides the purpose of the operation. Lastly it provides the staff broad guidance on specific areas that may include but are not limited to lines of effort, information integration, resources, and risk.

Section Six. Elements of operational design

Key Points

The elements of operational design help commanders and staffs formulate conceptual plans and then bridge to detailed planning.

They provide a framework that starts the process of detailed planning.
The elements/sub-elements of operational design discussed here are:

National Strategic End State (Not an element but provided for context only.)
Termination
Military End State
Conditions
Objectives
Effects — **Conceptual Elements, What to do.**
Centers of Gravity
Decisive Points
Lines of Operation or Effects — **Overlap**
Direct or Indirect Approach
Operational Reach
Forces and Functions
Leverage — **Detailed Elements, How to do it.**
Balance
Anticipation
Synergy
Culmination
Arranging Operations
Simultaneity & Depth
Timing and Tempo

a. If the operational level is the bridge between the strategic and tactical levels, the elements of operational design are the planks on that bridge. They also link operational art with JOPP. As such they

are essential to operation planning and are useful tools that provide a framework allowing planners to add detail to concepts.

b. The elements of operational design are the fundamental building blocks used to create an operations plan and therefore must be understood. As in art or athletics, the great piece or play is built on a solid understanding and application of the fundamental principles or elements; planning is no different. Just as an artist composes a painting using elements such as line, shape, color, space and form, a commander and planning staff use the elements of operational design to compose their plan. [xxiii]

c. What comprise the elements of operational design? It depends. Joint doctrine in 2006 listed 17 elements while a revision in 2011 listed 13. Army doctrine lists 12.[xxiv] NATO has 15[xxv]. The differing numbers can be explained by the differences in joint and single service responsibilities and by combining some elements together or the creation of sub-elements. Joint doctrine and Army doctrine will occasionally use different terms for the same concept. Our discussion covers 19 elements, realizing that some are subsumed within others, so we can have a detailed discussion. You will then have the choice to accept reject or rearrange the elements as you see fit.

Note

U.S. joint doctrine uses the label 'elements of operational design' while the U.S. Army is expected to adopt the term (2012) 'elements of operational art'.[xxvi] These are the elements as of 2011.

Joint Elements	**Army Elements**
Termination	End State and Conditions
Military End State	Center of Gravity
Objective	Decisive Points
Effects	Lines of Operation and Effort
Center of Gravity	Operational Reach
Decisive Points	Basing
Lines of Operation and Effort	Tempo
Direct and Indirect Approach	Phasing and Transitions
Anticipation	Culmination
Operational Reach	Risk
Culmination	
Arranging Operations	
Force and Functions	

The chief differences result from the different responsibilities of joint forces and single service forces.

d. The elements of operational design can be roughly divided into two groups. (One needs to recognize that there is overlap and no firm demarcation.) The first group, what may be called the 'conceptual elements' that help answer 'what to do' type questions. The initiation and mission analysis steps of the planning process are generally the domain of these 'conceptual' elements. The second group, called the 'detailed elements' focuses on the details of 'how to do it'. Planners typically use them in course of action development and selection.

Conceptual Elements: Helping answer the question 'what to do'.

e. **National Strategic End State**.

The national strategic end state is technically not an element of operational design because it resides at the national strategic level. However it provides necessary context for understanding and using the

elements of termination and military end state. The national strategic end state is a set of strategic objectives typically established by the President and Secretary of Defense when a situation requires the use of military and interagency capabilities. The conclusion of a campaign or operation should result in the achievement of the national strategic end state and the attainment of the strategic objectives.[2] Operational art and operational planning begin with an understanding of the national strategic end state. The focus of the elements of operational design and resulting campaign or operations plans is getting to this end state in the most efficient and effective manner.

f. **Operational design Element: Termination.**

"Termination criteria are specified standards approved by the President and/or the Secretary of Defense that must be met before a joint operation can be concluded."[xxvii] Typically the Combatant Commander's staff develops recommended termination criteria and the Combatant Commander then consults with the CJCS and the Sec Def to establish the termination criteria. Other government agency stake holders may also develop criteria and forward recommendations through their reporting chain. To facilitate development of effective termination criteria, it must be understood that forces must be dominant in all phases of the operation to achieve a lasting solution. If the termination criteria have been properly established and met, then the necessary leverage should exist to prevent the adversary from renewing hostilities and to dissuade others from interfering.[xxviii]

Examples:

- Border restored
- X capability destroyed / eliminated
- Legitimate Government restored
- Hostages returned
- Forces separated
- Surrender
- Agreement to start negotiations

[2] Within a campaign the main effort may shift from the military element of power when the military end state is reached. However the campaign may continue with the military in support of another element of power until the national strategic end state is reached.

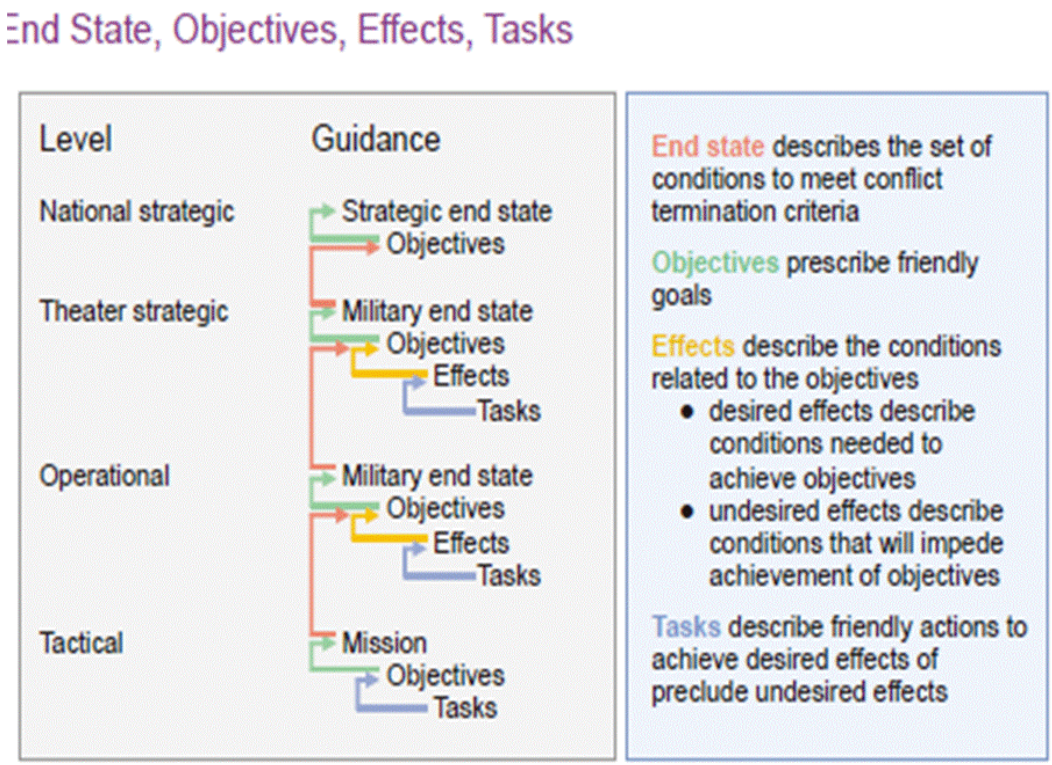


Figure 2-14

Key Points

<u>The end state</u> describes the conditions that meet the termination criteria.

<u>Objectives</u> prescribe friendly goals that achieve the end state.

<u>Effects</u> describe system behavior in the operational environment — desired effects are the conditions related to achieving objectives.

<u>Tasks</u> direct friendly action designed to produce those effects or conditions

g. **Operational design element: Military End State.**

1) According to joint doctrine, the military end state is the set of required conditions that defines achievement of all military objectives.[xxix] They help define mission success criteria. This definition can be somewhat misleading. Attainment of all military objectives does not necessarily mean that the military end state has been achieved, although it should. Establishment of the required conditions determines if an end state has been reached, not a check off of military objectives. The joint definition assumes planners have correctly selected objectives that lead to those desired conditions; this is not always the case. The challenge for commanders and planners is to carefully select objectives that when achieved create the desired conditions. The focus should be on the conditions that define the end state. (See figure 2-14, End state)

2) The "military end state" normally represents a point in time and/or circumstances beyond which the President does not require the military instrument of national power as the primary means to achieve remaining national objectives or national strategic end state.[xxx] Reaching the military end state is not necessarily the end of the military operation or campaign. Rather it marks the point where the main effort for achieving national objectives shifts from the military to other agencies or organizations.

3) The difference between termination, military end state and objectives is very subtle and often national leaders and joint force commanders do not make a distinction and the terms become synonymous. This is acceptable because if operational art is correctly applied and execution of the plan is successful the distinctions are in fact very minor points. The value of the distinction is in conceptual planning and the formulation of a concept where commanders and planners keep in mind the following:

- The end state describes the conditions that meet the termination criteria.
- Objectives prescribe friendly goals that achieve the end state.
- Effects describe system behavior in the operational environment — desired effects are the conditions related to achieving objectives.
- Tasks direct friendly action designed to produce those effects or conditions.

h. **Operational design element: Objectives.**

1) Once termination criteria are established and the military end state determined, operational art continues with development of military objectives. An objective is, "A clearly defined, decisive, and attainable goal toward which a military operation should be directed".[xxxi] Although the definition is certainly simple, the challenge is the identification and selection of objectives. Selecting military objectives is one of the most important considerations in operational art and campaign planning. The failure to get the objectives right makes the attainment of end states impossible or at best a prolonged and costly effort.

2) Objectives specify what must be accomplished, not how, and provide the basis for describing required effects and identifying subordinate actions. Selection of objectives begins with a clear and concise understanding of the end state. Selection of objectives must support attainment of the end state. Operational design methodology, with its understanding of the environment and problem set, combined with a center of gravity identification and analysis (the center of gravity will be discussed in more detail later) are critical inputs objective selection.

3) There are four considerations for an objective.

1. An objective should establish a single desired result (a goal).
2. An objective should lead directly or indirectly to higher level objectives or to the end state.
3. An objective is prescriptive, specific, and unambiguous.
4. An objective does not infer ways and/or means—it is not written as a task.[xxxii]

Note

Use of the terms 'effects' and 'conditions' generates significant confusion. The Army says, "A condition is a reflection of the existing state of the operational environment.".[xxxiii] Joint doctrine would probably not disagree. However, joint doctrine says effects describe conditions" (See fig 2-14) and that effects are a "physical or behavioral state of a system.. ."[xxxiv] They are synonymous if one believes a 'behavioral state' and an 'existing state' are essentially the same thing. It is their usage, not meaning, that makes the terms different. Joint doctrine uses effects to describe conditions that define attainment of an objective. Army and joint doctrine both use 'conditions' to describe attainment of an end state. Joint doctrine just doesn't consider 'conditions' to be an element of operational design, rather is it part of the definition of end state.

i. **Operational design elements: Effects.**

1) Effects are behaviors. They are how a commander wants certain systems or actors to behave and that behavior creates conditions that describe the objective. The behavior is observable and measurable and is used as a metric to determine if the objective has been met.

2) Conditions describe an overall environment while effects describe behavior of actors in that environment. For example, if the objective is a secure route, a condition could be that there is no threat to the route from Hill 720. An effect is that the enemy has abandoned Hill 720 which creates the condition which achieves the objective. Tasks are actions that would create the effect and compel the enemy to abandon the hill.

3) Effects are the result of actions or other effects on a system. A desired effect is a condition that supports achieving an associated objective, while an undesired effect is a condition that inhibits progress toward an objective. The key point is that effects are caused by an action and the resulting behavior contributes to attaining the objective. Tasks or missions describe the actions that are intended to create the effects.

4) Planners face a challenge in predicting how an adversary should, can, or could react to to their actions, and how to adequately assess and adjust their own actions to create the desired effects or conditions. In a latter discussion on course of action analysis we'll show how planners using the action – reaction (effect) – counteraction methodology is a way of determingin 'effects'.

5) When describing desired effects commanders and planners should consider the following:

1. Each desired effect should link directly to one or more objectives. (Effect -enemy leaves. Objective-route secure.)
2. The effect should be observable and measurable. (The enemy abandoned Hill 720)
3. The description should not specify ways and means for accomplishment.
4. The effect should be distinguishable from the objective it supports as a condition for success. (Effect -enemy leaves. Objective-route secure)

Note

This center of gravity follows the discussion on 'effects' and 'objectives' simply because that is the order joint doctrine lists them. However, it could have preceded objectives because the center of gravity provides useful insights into the selection of objectives. One way to reconcile this is that assigned objectives come from higher, hopefully resulting from their center of gravity analysis. Your center of gravity analysis helps determine subordinate objectives.

j. **Operational design element: Center of Gravity (CoG).**

Key Points

One of the most important tasks confronting the JFC's [Joint Force Commander's] staff in operational design is the identification of friendly and adversary CoGs.

Critical Factors are:

Critical Capabilities
Critical Requirements
Critical Vulnerabilities.

Steps to ID the CoG: First, what is the end state or goal that we or our adversary want to achieve? Second, how (ways) can the end state is achieved? Lastly, what are the resources or means required to execute the way that achieves the end state?
Validate using the Does or Uses test.

1). Centers of gravity are the very heart of operational planning because their destruction or protection is the key to attaining the objective. According to Joint Doctrine, "The essence of operational art lies in determining how to allocate available friendly resources against an adversary's CoGs to achieve friendly strategic and operational objectives.[xxxv] Accordingly, doctrine places significant value on the center of gravity. One of the most important tasks confronting the JFC's [Joint Force Commander's] staff in operational design is the identification of friendly and adversary CoGs. Joint Publication 5-0 goes on to state that, "This process cannot be taken lightly, since a faulty conclusion resulting from a poor or hasty analysis can have very serious consequences, such as the inability to achieve strategic and operational objectives at an acceptable cost".[xxxvi] The application of operational art, the development of an operational approach, the identification of lines of operation and effort, decisive points, and objectives all depend on the correct identification of friendly and adversary centers of gravity.

2) While doctrine is clear on the center of gravity's value, it is less clear on what a center of gravity is. Most definitions include some phrasing such as, "a source of moral or physical strength, power and resistance", or the source "that provides freedom of action or will to act." [xxxvii] Recognizing that the definitions are vague, doctrine attempts to achieve clarity by providing descriptions of what a center of gravity might be. For example, a friendly or adversary CoG could be a military force, an alliance, political or military leaders, a set of critical capabilities or functions, or national will. The problem with these definitions and examples is that they lack clarity, are imprecise, have no basis in logic and are not testable. Thus they are overly inclusive and just about anything can be argued to be a center of gravity if it is a source of power. This leads to a situation where the final determinant is persistence of the argument, not precision of the definition.

3) To fix the definitional problem I recommend planners think critically and view the center of gravity as something that *is the primary entity that possesses the inherent capability (power) to achieve the objective*. This thinking still fits the doctrinal definitions; however it has the advantage of directly linking the center of gravity to the objective, while excluding extraneous factors that the doctrinal definitions could include. Think of the CoG as the primary "source of strength, power and resistance" that can achieve the objective. By including the limiting factor of "primary" and linking strength or power to the ability to achieve an objective, one can be more precise in their CoG selection.

4) **Testable.** The logic in the recommended definition above provides for a validation method called the Doer and Used test.

Doer Test

- Only the center of gravity is inherently capable of achieving the purpose or objective.
- If something executes the primary action(s) (capability) that achieves the objective, it is the center of gravity.
- The center of gravity executes the action and uses or consumes resources to accomplish it.

Used Test

- If something is used or consumed to execute the primary action (capability), it is a requirement.

- If something contributes to, but does not actually perform the action, it is a requirement, not a center of gravity.

k. **Center of Gravity Terminology: Critical Factors.**

1) To better understand the CoG, concept you must understand center of gravity terminology often referred to as "critical factors". These terms form a general framework for understanding and interpreting Centers of Gravity and are the creation of Dr. Joe Strange of the Marine Corps War College and were first described in his book, *Perspectives on Warfighting.* [xxxviii] The importance of understanding these terms cannot be overstated. They are essential to identifying Centers of Gravity and their enablers which in turn are critical for the determination of lines of operation, decisive points and objectives.

2) **Critical Capability (CC):** Primary abilities which merits a center of gravity to be identified as such in the context of a given scenario, situation or mission. The critical capability is the primary action (a verb) required to achieve the objective or mission. It is what must be done. The center of gravity is the "doer" that possesses that critical capability.

3) **Critical Requirements (CR):** Essential conditions, resources and means for a critical capability to be fully operative. Conditions, resources and means are nouns; they are the things that a CoG requires to perform the critical capability. If the critical requirement is absent or deficient the CoG loses its ability to perform the critical capability. Attacking critical requirements become an indirect approach to neutralizing a CoG.

4) **Critical Vulnerabilities (CV):** Critical requirements or components thereof which are deficient or vulnerable to neutralization, interdiction or attack in a manner achieving decisive results. Critical vulnerabilities are a sub-set of critical requirements. They can be the requirement itself or part of a requirement. For example, a single point of failure in a system is a critical vulnerability. A common mistake planners make is to list vulnerabilities that have no relationship whatsoever with critical requirements. This is a mistake that can lead to wasted effort going after irrelevant vulnerabilities. Keep in mind there must be a link between a critical vulnerability and a critical requirement. Vulnerability is determined by the adversary's capability to adversely affect the requirement. If there is no capability there is no vulnerability.

l. **Identifying a Center of Gravity.**

1) Current doctrine suggests planners use a holistic system of systems analysis to identify centers of gravity. Commanders and staffs rely on an understanding of sufficient breadth and depth of enemy systems, the operational environment, and the interrelationships among the systems to permit them to understand how actors in the environment ultimately derive their physical strength, or what they use as their primary entity with the capability to achieve their objective. Armed with this understanding, commanders and staffs attempt to identify a CoG. This doctrinal method alone is usually insufficient; however the strategic framework for center of gravity analysis provides a more precise method and helps eliminate ambiguity. (See figure 2-15)

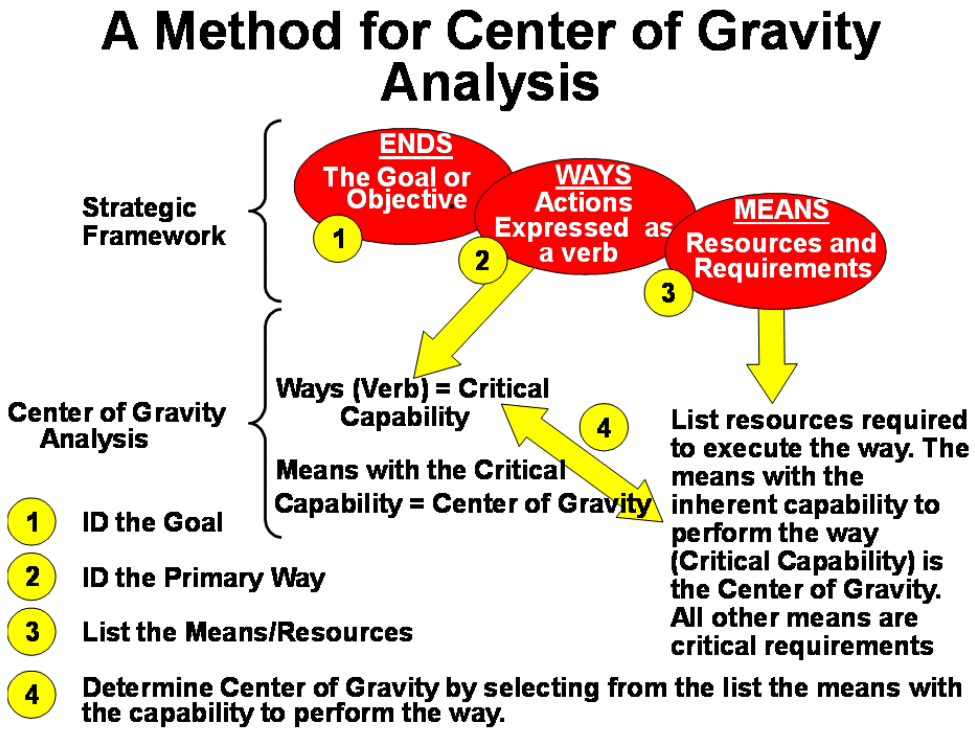


Figure 2-15

2) This method of CoG identification avoids the complexity and ambiguity of the system of systems approach by combining a systems perspective with the strategic framework to answer three basic questions about the opposing and friendly systems.

- First, what is the end state or goal that we or our adversary want to achieve?
- Second, how (ways) can the end state be achieved?
- Lastly, what are the resources or means required to execute the way that achieves the end state? It is important that planners devote sufficient study to these simple but critical questions. Answering these questions is part of the Operational design, and mission analysis processes and is supported by the intelligence estimates that help provide understanding.

3) **Center of Gravity Identification Steps**

- The first step is to identify the friendly or adversary end state or goal.
- Second, list the ways with an effort to identify the *Primary way* that achieves the end state. It is also useful to think of the way as an action or verb because this will identify the *critical capability* required to achieve the end state.
- Third, list the resources or means required to execute and support the chosen way or critical capability. This is generally a list of things or nouns, although it may include some actions.
- The last step is to select from the list of means that entity that inherently possesses *the critical capability* to execute the chosen way. That entity is the center of gravity, all others are just requirements.

4) Note that the key step in this process is identifying the *critical capability* that achieves the goal. Identification of the critical capability occurs before identifying the CoG. Identification of the CoG is the last step which is different from what many doctrinal or school methods advocate. Another way to put

this is to ask what do I need to do to reach my objective, and what can do it? We can then validate our selection by using the *does or uses* test that helps separate the CoG from what are merely requirements.

m. **Validation: Does or Uses.**

1) Joint doctrine's CoG validation method is to use a war game to determine if the defeat, destruction or weakening of the CoG candidate causes the adversary to change courses of action or objectives.[xxxix] If it changes, according to doctrine, you validated the CoG selection. However, what this actually validates is that the candidate is merely a critical node in the system. The "Does or Uses" test is a technique that many find useful when defending or articulating the selection of a CoG. The purpose of the does and uses test is to verify the selection of a center of gravity and to identify the critical requirements (nodes). Here is an example. Our system is a railroad. The end state is to produce a profit for the railroad by transporting passengers and freight. The way or critical capability is to transport freight and passengers from point A to point B. To transport is the verb or critical capability. Means and resources required include: tracks, fuel, freight and passenger cars, operators and support staff, and locomotives.

2) We now ask, from the list of means, "what has the inherent capability to transport freight and passengers?" Tracks? No. Tracks do nothing by themselves other than support and guide the train. They are used by the train. Fuel? No. Fuel does not move anything, it is used or consumed by the locomotive. Cars? No. They hold freight and passengers but do not transport them. Cars are used by the locomotive to move them. Operators and staff? No. They are critical but do not have the inherent capability to transport freight and passengers by themselves. Locomotive? Yes. The locomotive is the doer, it has the inherent capability to transport. But it cannot do so without the other means, such as fuel, and operators. Therefore the other means are identified as critical requirements that the center of gravity requires to function. From an adversary's perspective look at the critical requirements and identify any vulnerabilities.

3) Having identified a center of gravity and its relationship to other means helps identify both the CoG and its critical requirements and provide planners better understanding of what to protect and attack either directly or indirectly.[xl]

m. **The Objective and the Center of Gravity.**

The CoG is always linked to the objective but this relationship can be confusing. To clarify, the CoG is what you need to attack (adversary) or protect (friendly) either directly or indirectly in order to achieve your assigned objective. How you are going to attack, or defend that CoG determines the objectives you assign to subordinates. The linkage is that objectives or tasks are derived from an analysis of the CoG and its critical factors. Additionally if the objective or end state changes, the center of gravity should also be adjusted. The reverse is also true, if the center of gravity changes the objective should also change.

o. **CC-CoG-CR-CV Construct.**

1) This is just another way of showing the relationship between the CoG and its critical factors. The CoG and critical factors should logically follow the same hierarchy as the ends, ways and means relationship. Recalling the ends, ways and means method described for determining the CoG, you identify the goal, then the way or ways (verbs) to achieve the goal which is then your critical capability. From the list of means available, determine what has the inherent ability to perform the critical capability, this is your CoG. The other means may be critical requirements, some of which are vulnerable. This construct reinforces a logical relationship and the importance of asking what actions must take place to accomplish the objective and then what can perform the actions. It also illustrates the relationship between the CoG and the objective.

2) Some doctrinal references and educational material will have a CoG-CC-CR-CV construct.[xli]. This is unfortunate in that they imply you identify the CoG first, and then ask what are its capabilities and

requirements. This reinforces a guessing methodology of CoG analysis and delinks the CoG from what is needed to achieve the objective. Commanders and planners will be better served by the logic of a CC-CoG-CR-CV construct. (See figure 2-16)

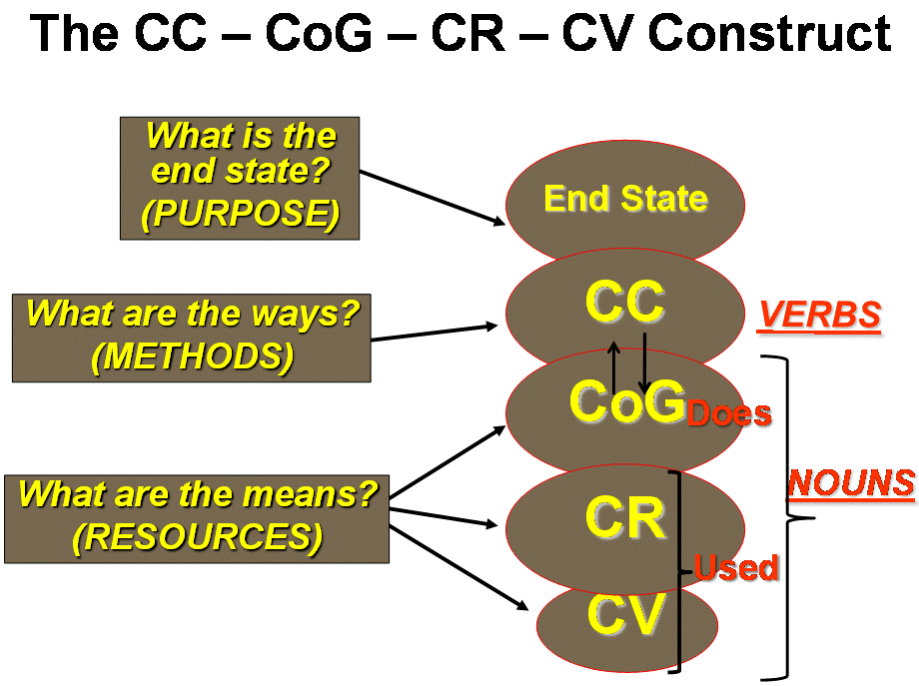


Figure 2-16

p. **Operational design element - Direct or Indirect Approach.**
There are two options for attacking a CoG, directly or indirectly. In a direct approach you attack the CoG directly seeking to defeat it. A direct approach has the advantage of being less time consuming and is appropriate when a force has overwhelming superiority over its adversary and the risk is low. An indirect attack seeks to exploit an adversary's vulnerabilities while avoiding it strengths. It is an attack on a CoG's critical requirement or vulnerability. Thus, indirect attacks deny the CoG the means it requires to perform its critical capability. As a result of indirect attacks a CoG may still exist but it ceases to function. An indirect approach is appropriate when a force lacks the strength to attack a CoG directly or is otherwise constrained from doing so.

q. **Operational design element - Decisive Points.**[3]
1) Decisive points are typically- "a geographic place, specific key event, [effect, condition] critical factor, or function that, when acted upon, allows a commander to gain a marked advantage over an adversary or contributes materially to achieving success."[xlii] For planners, decisive points suggest the when, where and what actions to take. These points then become effects, objectives or tasks for subordinates.

2) (NATO doctrine will use the term "decisive conditions" for those events, effects, critical factors or functions that provide a marked advantage.[xliii] For most planning purposes, the terms are synonymous.)

3) Keep in mind that a decisive point provides a "marked advantage" or conversely for the adversary a marked disadvantage. An advantage is a step towards the objective or end state. While many things can

[3] Some will refer to a non-geographic decisive point as a decisive event.

be considered decisive points the challenge is to select those points that can be realistically addressed and from them to select the most critical or productive.

4) A tool for planners to determine potential decisive points is the center of gravity analysis process. Planners should study centers of gravity, critical and vulnerable requirements to determine if they are or suggest potential decisive points. These decisive points are then arranged along lines of operation/effort. Commanders and planners identify and prioritize which vulnerabilities, capabilities, or events, provide the best opportunity to achieve the desired effects.[xliv] The logic is that denying an adversary's critical requirement weakens his CoG thus providing you and denying him a marked advantage. Conversely successfully defending your own critical requirements can be decisive points. It is important to note that decisive points are not limited to CoG analysis and can include other events or functions. However in planning, especially during conceptual planning, CoG analysis and listing CR/CVs can serve as a start point.

r**. Operational design element - Lines of Operation (LOO)/Lines of Effort (LOE).**[4]

1) Lines of operation/effort are physical or conceptual paths that a force must take to reach its objective or end state. They lay out the actions, requirements, tasks and decisive points that create effects that in turn achieve the objective and arrange those actions and tasks in a logical sequence. They also serve to orient the force in terms of time, space and purpose in relation to the objective or adversary[xlv]. Commanders use combinations of lines of operation and effort as tools to visualize actions required to achieve the operations' end state or objective and to articulate their Operational approach.

2) Lines of operation are geographic in nature and show paths from a base to an objective location. Physical geography combined with force capabilities, requirements and diplomatic or political factors determine the options for lines of operation. The mission, operational reach and range of military capabilities determine the requirements for ports, staging and assembly areas, and logistical bases. The physical environment limits where these requirements can or cannot be met. Finally political and diplomatic factors such as over flight rights or access to facilities determine the use of facilities. Planners consider these three elements and generally, with the use of maps, can identify the options for lines of operation.

3) **Line of Operation:**

- Connects a series of decisive points over time that lead to control of a geographic objective.
- Connects a force from its base of operations to its objective(s) when positional reference to the enemy is a factor.
- A campaign or major operation may have a single or multiple physical lines of operation.

4) **Lines of Effort:**

Lines of Effort are conceptual and link related actions to purpose and effect when geographical reference is not relevant.

- Links decisive points with the logic of purpose.
- Enables visualization and description of the operation when positional reference to the enemy has less relevance.
- Help commanders visualize how military means can support non-military instruments of national power and vice versa**.**[xlvi]

[4] Lines of Operation are occasionally referred to as Physical Lines of Operation while Lines of Effort are referred to as Logical Lines of Operation.

5) Determining lines of effort requires sound analysis and the ability to see how potentially-decisive events throughout the campaign or operation link together. When determining and portraying LOEs, the staff should follow these steps:

- Identify and list the critical initial conditions in the environment (From the operational design methodology's current environment.)
- Identify and list the desired environmental conditions and the timing of those conditions (From the operational design methodology's desired environment.)
- Select from the conditions those that must be changed. These suggest potential lines of effort
- Identify and list the objectives phased over time) needed to achieve the desired conditions
- List decisive events (actions, functions, etc) and/or locations for adversary and friendly efforts
- Examine the decisive points and group them into unifying patterns.
- Collect and organize the objectives and decisive points into lines of effort that runs throughout the operations or campaign[xlvii]

6) NATO says lines of operation link decisive points/conditions in time and space on the path to the center of gravity.[xlviii] They help show the relationship between decisive points or conditions, which establishes the critical path along which operations must develop en route to the CoG, in order to achieve the end state. The NATO understanding of lines of operation is not conceptually different from the U.S. understanding. Both clearly link the concept of the center of gravity, critical factors with decisive points and that lines of operation or effort link them together.

7) Graphics and or narratives are used to depict these lines of operation and convey the logic and sequence of actions. Lines of operation are typically displayed on a map or schematic while a chart or matrix is used for lines of effort. Regardless of form, the aim is to assist commanders and planners visualize the operation from start to finish and to enable them to construct a concept of operations or operational approach that will later be used to develop courses of action.

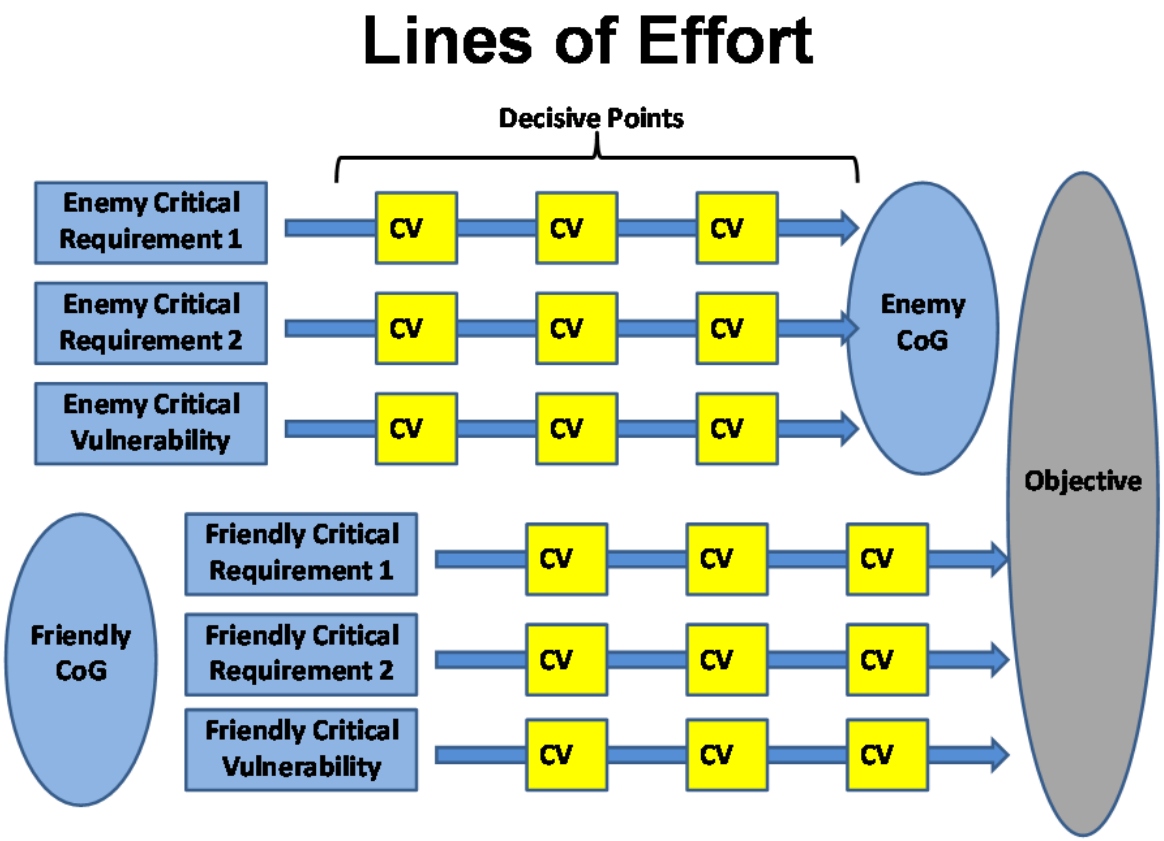


Figure 2-17

8) Figure 2-17 is an example of lines of effort chart using the CoG analysis critical requirements and critical vulnerabilities as a framework. Some doctrinal references show examples of organizing LOEs by the Diplomatic, Information, Military, and Economic (DIME), or Control, Security, Essential Services, and Governance, or Political, Military, Economic, Social, Information, and Infrastructure (PMESII) frameworks, or by components such as the Joint Force Air Component or Land Component.[xlix] What is most important when selecting lines of effort is that the selection be based on critical analysis, not unthinking acceptance of templates or examples. Commanders and planners use their understanding from the operational design and center of gravity analysis processes to identify lines of effort based on their environment and mission not predetermined templates.

Detailed Elements. Helping answer the question "how to do it".

s. **Operational design element – Operational Reach.**

Operational reach is the distance and duration across which a unit can successfully employ military capabilities.[l] More simply it is how far something can go before having to stop. The key word is successfully which is defined by the mission assigned. Operational reach is a consideration and factors into the development of lines of operation and the identification of culmination points. Planners should study both adversarial and friendly force operational reach capabilities and limitations to identify any critical requirements and vulnerabilities that may become potential decisive points to protect or exploit. Operational reach is influenced by many factors including; operating or weapons ranges, transportation capabilities, throughput of lines of communications, geographic factors, basing, logistics requirements,

equipment pre-positioning, and host nation capabilities. The goal of planners is to extend friendly operational reach as far as the acceptance of risk allows while limiting the adversary's. Commanders and planners must always keep in mind that the adversary will attempt to limit friendly force operational reach through anti-access strategies.

t. **Operational design element - Forces and Functions.**

This element refers to enemy forces and functions[5], not friendly. Of the elements this is perhaps the weakest and can be considered a variation of the direct or indirect approach. However, thinking of the enemy in terms of forces and functions is part of a systems perspective of the enemy and has utility in center of gravity analysis and the determination of decisive points and lines of effort. Joint doctrine says commanders should focus their plans on defeating the enemy's forces, and or functions depending on which approach is more efficient.[li] What is "efficient" depends on guidance and intent from higher authorities. Time, cost, risk, and acceptability may define efficiency. For example an enemy force can be rendered ineffective and unable to resist if its functions such as C2 and sustainment are destroyed. However this approach may be time consuming and if time is a critical element, it may be more effective to go after the forces directly although at a higher cost and risk.

u. **Former operational design element – Leverage.**

The 2006 version Joint Pub 5-0 includes leverage as an element while the 2011 version removed it.[lii] Its discussion is included because the concept is still useful in planning. Leverage is simply using strength against weakness to gain an advantage. Asymmetrical actions are a form of leverage. Knowledge of friendly and enemy capabilities, friendly and enemy center of gravity analysis and the identification of decisive points help commanders and staffs determine how and where to apply leverage.

v. **Former operational design Element – Balance.**

Balance also failed to make it into the 2011 revision of JP 5-0. Balance is the appropriate mix of forces, capabilities, and operations in such a way as to ensure freedom of action and responsiveness.[liii] Commanders achieve balance by proper force design (requesting and arranging forces and capabilities) to provide an appropriate mix. For example a force is balanced if it is capable of rapidly shifting from offensive to defensive and other types of operations such as stability without significant pauses or force changes. A well balanced force pressures the enemy by using leverage, high operational tempo, simultaneity and depth while providing flexibility to respond to unanticipated events.

x. **Operational design element – Anticipation.**

1) Anticipation is nothing more than considering and planning for various options available to the enemy with the goal of avoiding surprise. In planning, anticipation is dependent on intelligence processes such as the Joint Intelligence Preparation of the Operational Environment (JIPOE) or the Intelligence Preparation of the Battlespace (IPB). Anticipation is tested in course of action war gamming and results in branch plans and sequels. During execution anticipation comes from situational awareness.

2) Commanders and staffs must keep an open mind, exercise caution and carefully consider the information they use to anticipate enemy actions. Uncritical thinking can make them susceptible to deception and preconceived ideas.

y. **Former operational design element – Synergy.**

Also cut from JP 5-0 in 2011. Synergy is about using military (conventional and unconventional) and nonmilitary (government agencies, private organizations etc) together to achieve the objective. Synergy is working together to increase output beyond that which could be achieved alone. It integrates and

[5] Functions can include command and control, intelligence, fires, sustainment, movement and maneuver information operations, and protection

synchronizes capabilities, balances strengths and weakness in complimentary ways with the intent of increasing effectiveness.

z. **Operational design element – Culmination.**

Note
The elements, culmination and operational reach, are closely related. Operational reach can be thought of as how far you can go without culminating. In planning operational reach helps determine where culmination might occur.

1) Culmination is the point, either in time or space at which a force no longer has the capability to continue its form of operations, offense or defense and must pause or change the form of operations. Offensive culmination is when a force cannot continue an attack and must revert to a defensive posture. Offensive culmination raises the risk of the opposing defense launching a successful counter offensive/attack. Defensive culmination, according to US and NATO doctrine is when an effective counteroffensive or defense is not possible and the defender is forced to withdraw, disengage or face defeat.[liv] The inclusion of the word 'or' in the definition creates confusion. The simplest and most logical definition of defensive culmination is when the defender is forced to withdraw, disengage or face defeat.

2) Planners want to induce culmination on the adversary while avoiding it themselves. Factors that go in calculating culmination points include the information used to determine operational reach, CoG and decisive point analysis, standard logistics planning factors for maneuver and movement and an awareness of social-political trends. Pauses, phasing and tempo are tools used in planning to prevent or induce culmination.

aa. **Operational Pause.**

Note
Operational pause is a component of the element 'arranging operations'. However it is discussed here prior to arranging operations due to it close relationship with 'culmination'.

To avoid the risk of culmination commanders and staffs can use an operational pause. Reaching the limit of operational reach often requires an operational pause. An operational pause is a temporary cessation of selected activities during an operation intended to prevent culmination and to support the regeneration of combat power required to continue with the operation. Since forces cannot always conduct activities continuously, there may be a need for periodic pauses which should be planned for. During a pause the initiative can be retained in other ways, perhaps in other domains or areas or to pause on one line of operation or effort in order to concentrate on another. Ideally, the operational pause should be planned in order to minimize any loss of tempo. Implicit in the term 'pause' is the ability to re-start the activities so as to maintain momentum and initiative.[lv]

bb. **Operational design Element – Arranging Operations.**

1) Arranging operations is a broad term that includes the concepts of phasing, tempo, simultaneity and depth, and branches and sequels and operational pause among others.

2) **Phasing.**

Phasing is a conceptual organizing tool that lays out the focus of major activities in a logical sequence. Phases are stages of an operation or campaign where a large portion of the forces are involved in similar or mutually supporting activities for a common purpose.[lvi] JP 5-0 says, "Phasing is a way to view and

conduct a complex joint operation in manageable parts. The purpose of phasing is to integrate and synchronize related activities. In operations, reaching the end state often requires arranging activities in several phases. Phases in a plan are typically sequential, but during execution there will often be some overlap. In a campaign, each phase can represent a single major operation, while in a major operation a phase normally consists of several subordinate operations or a series of related activities."[lvii]

3) JP 5-0 uses the phrase "manageable parts" but management isn't really the goal. The goal is be able to group and view a logical sequence of distinct but supporting steps that progressively lead to the ultimate end state. For example commanders and planners would ask themselves what are the steps (logical groupings of related activities) to get from where I am now to the ultimate end state. They might say; deploy, establish a defense, shift to the offensive and defeat the enemy, transition to stability operations, transition to civil authority and finally redeploy. These example steps would be phases that group related activities and help synchronization.

4) A phase should have a clear and defined focus, purpose or end state that the main effort and or CoG is focused towards. When a phase's end state is achieved it is time to for the next phase to start. This process would continue until the operation's end state is reached. During planning, indicators of a distinct phase include; change in the focus of the main activities, change in purpose, objective or end state, change in the main effort and changing CoGs. For example in one phase the main effort might be defense with an objective to do X. Once X is accomplished the main effort shifts to offense with an objective of Y. This shift of the main effort activity could be a phase change. Each phase should have some sort of criteria for a phase end state. This helps focus the activities of that phase and informs the command when it is time to start a transition to the next phase and shift focus.

5) Phases can and do overlap in time and space and the distinctions between the phases are more conceptual. For example, at the same time, portions of a military force or subordinate command in one area may be in a defensive phase, while another force is in the offense and a third is transitioning to civil authority. Commanders and staffs need to recognize the reality of overlap and accept it.

6) Planners should phase a campaign or operation by events, conditions or effects rather than time. For example meeting end state or desired conditions criteria rather than a calendar date. However, resource availability depends largely on time-constrained activities and factors — such as sustainment or deployment rates — rather than the events. The challenge for planners, then, is to reconcile the reality of time-oriented deployment of forces and sustainment with the event driven phasing of operations.[lviii]Transitions are what shifts one phase to another and are usually identified as an event that changes the force focus.

7) Joint doctrine provides a notional six phase model for a campaign.[lix] While a good model, it is not intended to be a universally prescriptive template for all operations and should be modified to fit unique environments and situation of a campaign or operation.[lx] Unfortunately, many planners unthinkingly accept this model as the standard and then attempt to fit their plan to the model rather than using the phasing concept to support the plan. Using critical thinking, and the commander's operational approach, planners should be able to determine the number and actual phases applicable to their campaign or operation.

cc. **Simultaneity & Depth.**

1) Simultaneity and depth is where military (typically joint or multinational) and nonmilitary elements are synchronized against an adversary.[lxi] Simultaneity is about applying multiple actions at the same time and appropriately synchronized pressure on multiple points (CV's, DPs) of an enemy's systems and or CoG. Simultaneity derives its strength from the synergistic application of multiple actions that stress the enemy's physical and moral systems (CVs) with the intent of overwhelming those systems. Operational

level planners synchronize the application of pressure delivered by both military and nonmilitary entities from air, land, maritime, space, cyber space, diplomatic, and economic domains as appropriate. In planning a systems perspective and CoG analysis provide the planners clues as to what types of pressure are appropriate and where to apply them. During operations, situational awareness and a common operating picture are required to apply simultaneity and depth.

2) Depth is the spatial equivalent to simultaneity. It includes geographical depth (distance) and breadth which is across functions and activities. By applying pressure through action it seeks to overwhelm enemy systems throughout an area and functions thus creating excessive demands on commanders and resources.[lxii]

dd. **Timing and Tempo.**

1) Timing refers to when to apply specific capabilities, while tempo is the pace at which those capabilities are applied. The intent of timing is to maximize the effect of a capability by using it at the right time and place. The intent of tempo is toset a pace of operations that overwhelms the enemy's ability to react effectively or to slow operations so as to "buy time" for other priorities. The challenge for commanders and staff is to balance the desire to outpace the enemy while not outpacing their own capabilities and functions. Simultaneity & depth, operational reach and culmination influence timing and tempo while phasing is a means of controlling as well as setting the tempo.

2) When contemplating timing and tempo, commanders and planners must consider the capabilities of joint, multinational, government agencies and intergovernmental assets. These capabilities have different timelines for deploying, decision making, operating and delivering effects. It is the arranging and synchronization of these capabilities and their effects that commanders and planners should strive for and determines the timing and tempo. In other words timing and tempo is an effect of synchronization (See Simultaneity & Depth.)

ee. **Branches and Sequels.**

1) Branches and sequels are the child of anticipation. If you believe in the axiom that no plan survives first contact with the enemy, branches and sequels are the safety belts of operational plans.

2) **Branch.**

A branch is a contingency option built into a plan. It is the proverbial "Plan B". Commanders use branches for changing the mission, orientation, or direction of movement of a force to aid success of the operation based on anticipated events, emerging opportunities, or disruptions caused by enemy actions and reactions.[lxiii] Planning for branches provide commanders agility by speeding up the action, reaction and counter action decision-making process. Branches answer the question, "What do we do if . . .?" The "ifs" are events or situations requiring deviation from the original plan and require a decision to execute. The "ifs" are decision points. All decision points will have an associated branch plan. Branches and their decision points are often identified during course of action analysis – war gaming.

3) **Sequel.**

A sequel is an operation that follows the current operation. Plans for a sequel are based on the possible outcomes (success, stalemate, or defeat) associated with the current operation. Sequels answer the question, "What's next?"[lxiv] Sequels are initially concepts but as ongoing operations evolve and the environment becomes more defined the sequel transitions from a concept to a plan.

ff. **Summary: Connecting operational art and the elements of operational design.**

Figure 2-18 shows the connection between end state, objectives/tasks, CoGs, critical vulnerabilities, decisive points, lines of operation and arranging (phasing). It also shows the role of lines of operation/effort and the identification of decisive points based on a CoG analysis for identifying tasks,

and objectives that will achieve the end state. These lines of operation/effort used as an operational approach are the bridge between operational art's conceptual planning and the detailed planning necessary for the creation of operations plans. This figure can be viewed as a graphic depiction of a commander's operational approach (from operational design). It also lays out what must be done; its sequence and sets the stage for course of action development – the how to do it.

Step 1. Identify the conditions or criteria, derived from the operational design process that defines the military end state.

Step 2. List assigned objectives or tasks, derived from the operational approach and or mission analysis that should produce the military end state.

Step 3. Identify the enemy and friendly centers of gravity and their critical factors that are linked to the attainment of the assigned objectives.

Step 4. Designate selected critical vulnerabilities or groupings of related critical vulnerabilities from the CoG analysis as lines of operation or effort.

Step 5. Identify any potential decisive points associated with critical vulnerabilities or tasks. Decisive points can achieve desired or undesired effects related to the objective thus providing a marked advantage. Also review specified and essential tasks that are associated with a critical vulnerability and place them on a line of operation or effort. Try to group and sequence them in a logical order for phasing.

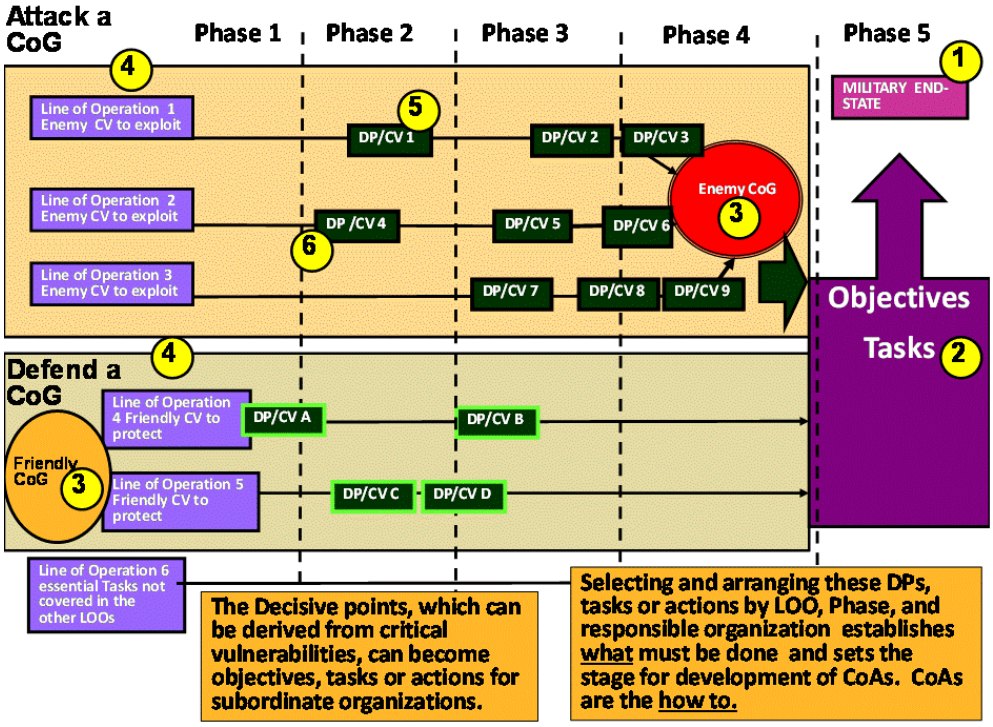


Figure 2-18

gg. **Measures of Performance and Measures of Effectiveness**

1) Commanders and staffs use Measures of Performance (MoP) and Measures of Effectiveness (MoE) to assess the progress of an operation. They are derived from mission success criteria which are based on established end states or objectives. Measures of performance (MoP) ask how well tasks are performed. They measure the execution of tasks and missions. Measures of effectiveness (MoE) assess changes in

system behavior which are effects or conditions that are tied to measuring the attainment of an end state, objective. MoEs measure progress towards solving the problem or mission accomplishment.[lxv] (See figure 2-19)

2) MoPs relate to Tasks – doing things to the established standards. MoEs relates to Purpose – accomplishing what we want or creating the desired effect. For example, if the purpose or desired effect is to create 'security' we identify tasks that should produce that effect. These tasks could include establishing check points, outposts, patrolling and or barriers, etc... Each task would then have associated MoPs that would measure or quantify standards of achievement for the tasks. In this example the MoPs could include the number of checkpoints, outposts and patrols established or barriers erected compared against an accepted standard. But MoPs only tell us if we are performing the task to standard, not if we are achieving the desired effect which is the goal. Remember the purpose is to create security, not to conduct security operations. MoEs tell us if the tasks are achieving their purpose and creating the desired effect. Effects are observable behaviors in the environment. So we design MoEs that observe and measure behaviors that reflect a 'sense of security'. "Security' MoEs could include the number of businesses remaining open after dark, children returning to school, attendance in public events, level of crime, etc. These types of MoEs reflect the behavior of feeling secure.

3) MoPs and MoEs are then used in assessing the operational approach and the operational design methodology and can serve as indicators of the need to reassess or redesign.

Assessment: MOP–MOE Comparison

Measures of performance (MOP)
Measures of effectiveness (MOE)

	MOP	MOE
Relationship to Task & Purpose	**Relates directly to Task**	**Relates directly to Purpose**
Quantitative vs. Qualitative Measures	**Primarily Quantitative**	**Primarily Qualitative**
Internal vs. External Focus	**Internal Focus (Task at hand)**	**External Focus (Impact of Actions)**
Primary Question	**Are we doing things right? (Are we accomplishing the task to standard?)**	**Are we doing the right things? (Are the things we are doing getting us to the end state we want?)**

Figure 2-19

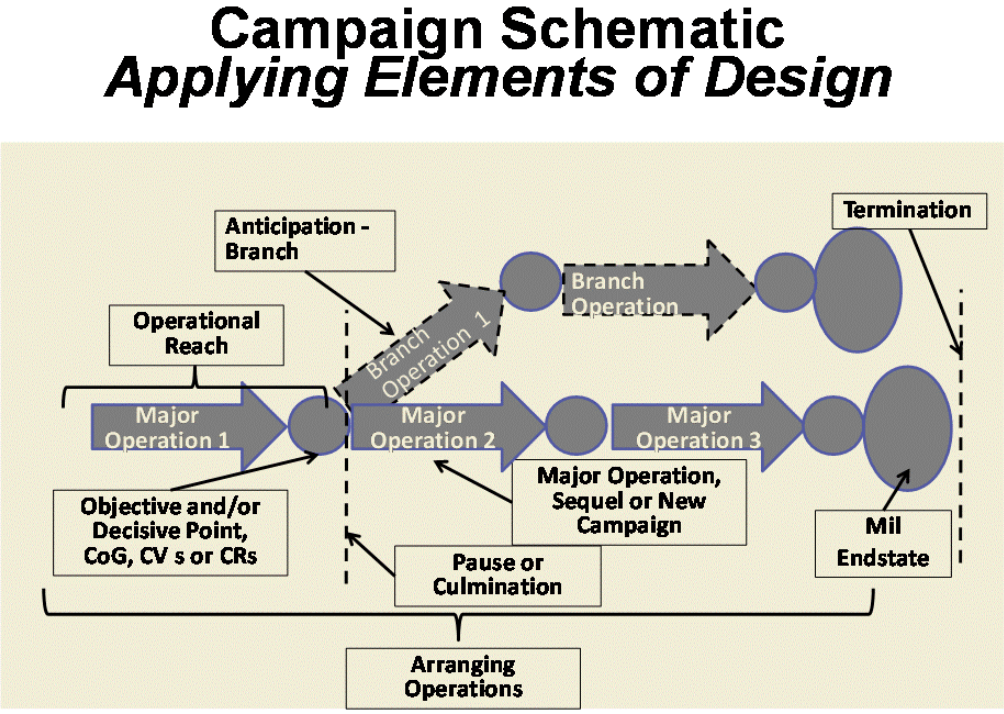


Figure 2-20

Figure 2-20 is a graphic illustration and summary of the application of the elements of operational design to campaigns and major operations.

Chapter Three
Section One: Detailed Planning

a. **Operational Level Planning Process**.[lxvi]

Commanders and staffs develop operational level plans using a combination of art's conceptual planning and JOPP's detailed planning. This chapter focuses on the detailed planning (JOPP) half of that combination. Operational art and more specifically operational design, previously discussed, allow planners to understand the environment, visualize the problem, and develop an approach to solve the problem. Commanders transmit that understanding and vision, through their operational approach, to their staff, subordinates, partner agencies, and entities so that it can be translated into executable plans. Detailed planning facilitates this translation by providing a structured and logical process leading to executable plans. The Joint Operations Planning Process (JOPP) (See figure 3-1) provides the structure to formulate a mission, develop appropriate courses of action and coordinate and integrate the details of a plan. One must view conceptual planning and the detailed planning process as integrated parts of a whole. Operational design does not necessarily precede any of the steps of JOPP. They share common points and often overlap. Conceptual planning does not end when detailed planning begins.

Key Point

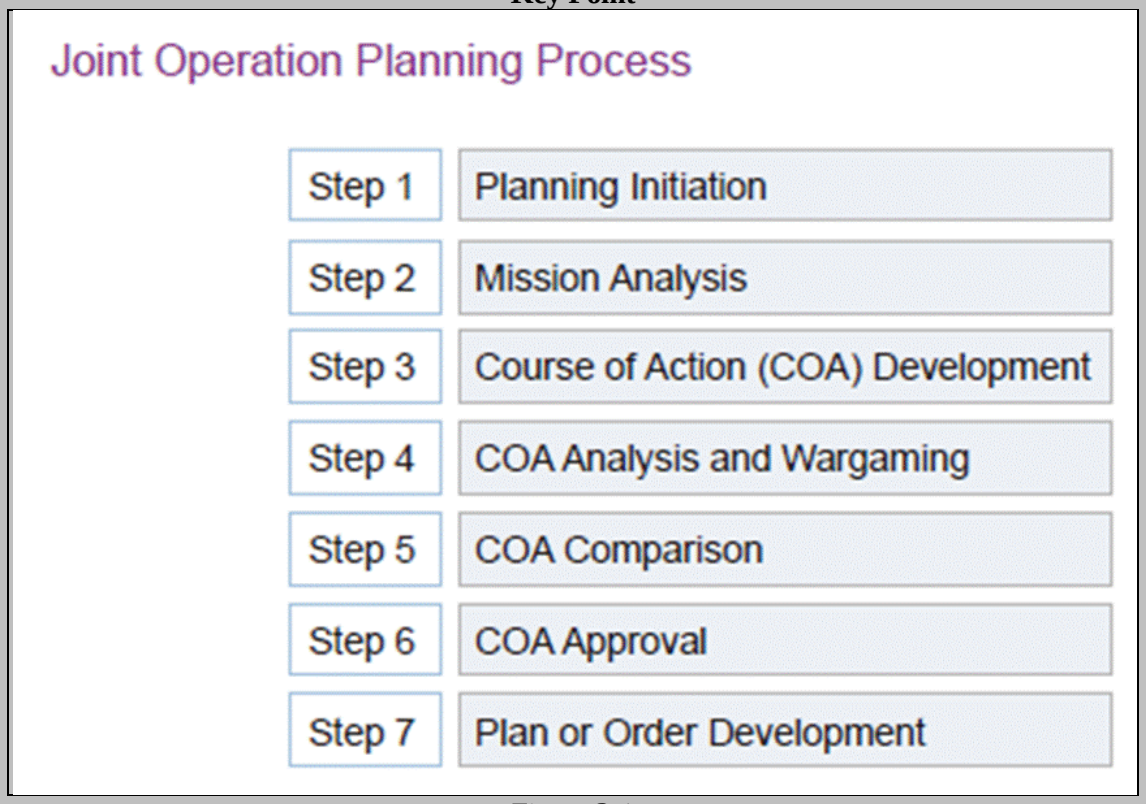


Figure 3-1

Section Two: Step 1. Planning Initiation.

a. At the operational level both conceptual (operational art) and detailed (JOPP) planning begin in one of two ways. The process may be initiated by a higher authority's directive or by the commander seeing a need. In either case, the commander will start developing his own understanding and vision (conceptual planning), assisted by others as needed and form a Joint Planning Group (JPG), (also known as an

Operational Planning Group or Operational Planning Team) to write the plan. JPGs typically consist of staff representatives from the main staff sections, functional representatives, and subordinate unit or agency liaisons and are lead by the chief plans officer of the J3or J5. This chapter focuses on the JPG and the JOPP.

b. The JPG begins analyzing the initiating direction/guidance to determine:

- Time available until mission execution
- Current status of intelligence products
- Current status of staff estimates
- Other relevant factors bounding planning

c. If the commander anticipated the mission, he would likely have already begun work to gain understanding of the situation by using the operational design methodology. He may have developed an understanding of the environment and problem and already formulated an operational approach that he will provide to the staff as initial planning guidance. If he has not anticipated the mission, he will quickly develop initial planning guidance to get the staff working, then continue his operational design methodology process to provide more detailed guidance as he better understands the mission. The commander's minimum initial planning guidance should include:

- Time constraints
- Initial coordination requirements
- Initial movement of key capabilities
- Additional guidance as appropriate

d. Before jumping into planning, the JPG should look for existing staff estimates, plans and products that relate to the current situation, as well as existing intelligence products from the various agencies. They must understand the impact of time…how much time is available to develop a plan, when intermediate products must be ready for review, what is the status of forces that may be affected, and do any of them need to begin movement now to support execution of the eventual plan. The lead planner in coordination with the commander or chief of staff recommends who should be involved in the various aspects of planning, to include appropriate multinational partners and representatives of other USG agencies. They should also consider who the other interested parties are that may help or be brought in to achieve their buy-in or knowledge of the plan.

e. Note that the boundaries between Initiation and Mission Analysis are not solid. Many activities such as operational design and development of an operational approach may occur in either step or more likely bridge both and will overlap.

Section Three: Step 2. Mission Analysis

Key Points[lxvii]

The staff is responsible for analyzing the mission and proposing the restated mission for the commander's approval.

The mission is the task or set of tasks, together with the purpose, that clearly indicates the action to be taken and the reason for doing so.

Mission analysis is critical because it provides direction to the commander and staff, enabling them to focus on the problem at hand.

a. The staff analyzes the mission to provide a recommended mission statement to the commander, and if asked to, assist the commander's analysis of the environment and the problem, and help shape an operational approach. As the staff presents analysis on both the requirements and potential points of focus for the operation, they assist the commander to further refine his vision (conceptual planning). The commander can then provide more detailed planning guidance to his staff and share his vision with his counterparts and governmental and intra-governmental partners to enable unity of effort. Concurrently, the J-2 leads a review of or the initial steps of JIPOE to describe the potential effects of the environment on operations, analyze the strengths of the enemy, and describe the enemy's potential courses of action.

b. The mission analysis steps listed in figure 3-2 mission analysis activities are only a guide. Planners must use the list flexibly. Staffs applying critical thinking should tailor the list to fit their unique situation and add, delete or rearrange activities as needed. Depending on the commander's use of operational design, parts of or the entire methodology maybe interspersed throughout the mission analysis activities. The listing of the activities does not imply strict sequencing, although some activities will logically precede others. The sequence is flexible and many will occur simultaneously. However, it is the duty of the JPG leader to organize and synchronize the activities to achieve the intent of mission analysis.

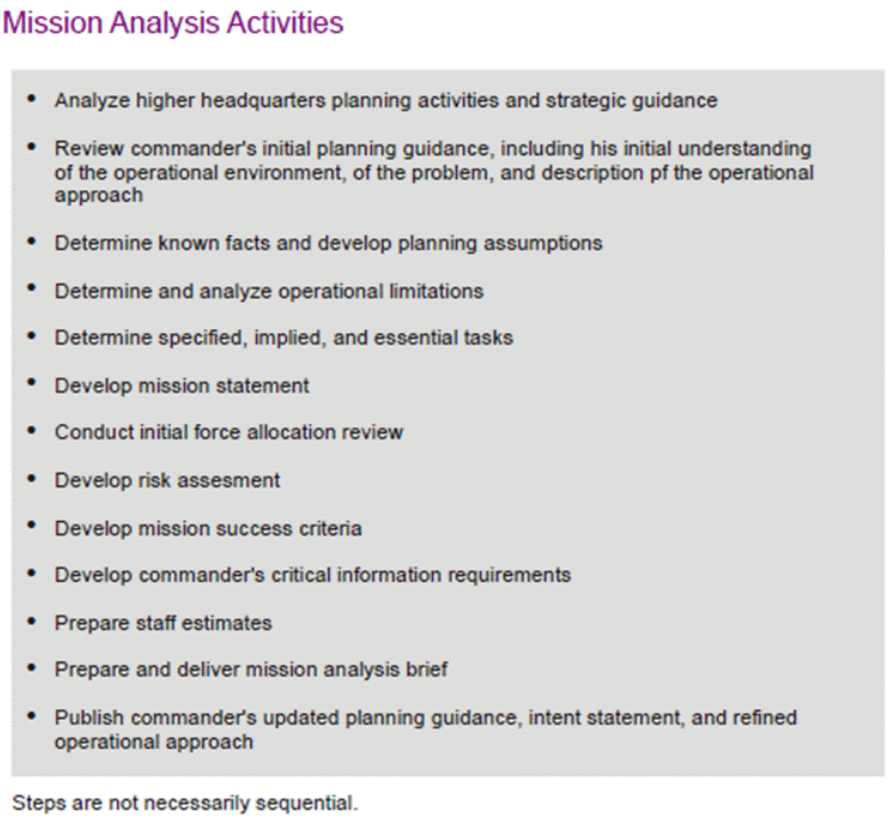


Figure 3-2

c. **Analyze higher authority's planning directives, orders and strategic intent/guidance.**

1) Much of this step is done in the understand phase of the operational design process. The staff either assists the commander in this process or uses the commander's understanding of the environment and the problem. The staff first focuses on the end state and objectives. The end state gets to the ―why of an operational plan and seeks to answer the question, ―How does the leadership want the environment to

function at the conclusion of the operation? Objectives normally answer the question of ―what needs to be done to achieve the end state.

2) Planners at the Combatant Command level must recognize two end states within a Combatant Command level operation, a national strategic end state and a military end state. The national strategic end state describes the President's vision for the region once operations conclude. Planners need to be aware that the national strategic end state is often vague. The military end state is a subset of the national strategic end state and generally describes the military conditions necessary to achieve the national strategic end state. Realize that the military end state or the conditions it achieves will not necessarily achieve the national strategic end state. The JPG will develop the military end state after analyzing the tasks required by strategic direction.

3) Strategic objectives clarify and expand upon the end state by defining the goals to achieve in order to assure US policy. Objectives prescribe friendly goals.

4) The unique challenge for planners at the Combatant Command level, especially in contingencies, is that there is no clear, definitive guidance on end states and objectives in any one location. There is no higher order to simply cut and paste into the emerging plan. Instead, strategic documents such as, the National Security Strategy (NSS), National Defense Strategy (NDS), National Military Strategy (NMS), Presidential Policy Directives (PPD), presidential speeches, and verbal guidance all provide direction and help define an end state and corresponding objectives. Though not directive in nature, guidance contained in various US interagency and even international directives, such as UNSCRs, may also impact campaign end states and objectives.

5) Strategic communication guidance is another source of guidance. It often provides clarity to other guidance. Strategic communication guidance specifies how the US government will engage key audiences to create, strengthen, and/or preserve conditions favorable to accomplishing national policy objectives. The guidance may also describe the coordination of programs to inform and influence key audiences and provide limitations on what and what not to say and do in planning and executing the campaign. Planners need to be aware that this guidance may not be available in the early stages of contingency or crisis action planning. Strategic leaders normally provide such guidance over time, as the interagency community develops a specific policy to deal with an emerging problem. The strategic communication guidance shapes not only the commander's strategic communication guidance, but shapes the whole mission, and it certainly may provide some explicit and implicit limitations that must be considered.

Note

Strategic Communication (SC) is an important component of strategic guidance. Through SC, the United States Government (USG) focuses processes and efforts to understand and engage key audiences and create, strengthen, or preserve conditions favorable to advance USG interests, policies, and objectives. The US military plays an instrumental role in SC, primarily through Information Operations (IO) which includes Public Affairs (PA), and Defense Support to Public Diplomacy (DSPD). SC considerations affect every military operation and are essential when the focus is on gaining and maintaining the support of the relevant population. Information Operations (IO) is not a separate joint function but is made up of thirteen specific capabilities such as Military Information Support Operations (MISO), Electronic Warfare, Computer Network Operations (CNO), Combat Camera (COMCAM), DSPD, PA and others. It is essential to many aspects of joint operations that these capabilities are applied across all of the joint functions. It is critical to understand the link between strategic level SC guidance and the application of information operations at the operational level in order to apply higher level communication guidance to tactical actions. This is the challenge facing the Joint Force Commander (JFC) and their staffs in the operational influence environment. It is the integration of not just IO actions

but integration of all the commanders' informational related activities that will enable the commander's communications strategy and will help achieve the commander's objectives. Joint doctrine is still evolving to support commanders and their staffs to understand how to develop a "communication strategy" at the operational level. It is important to emphasize that joint commanders must achieve information effects to enable achievement of military objectives. This will require synchronization of all the commanders' informational staff elements and capabilities. This can be accomplished through the development of an integrating communication strategy that current joint doctrine supports, but provides little guidance.

b. **Review the commander's initial planning guidance (if provided).**

Depending on how much time the commander has had to understand the situation, he may have a well-developed understanding and visualization of the operation's parameters, or he may be in the initial stages of forming his vision to develop an operational approach. The commander should develop an initial understanding of the environment and of the problem, and a vision of the operation, using the operational design methodology and provide it to the staff as soon as possible. Staffs must understand how the commander sees the environment, how he defines the problem to be solved, and share his visualization of the appropriate operational approach. Commanders and staff must remain open minded and recognize that any initial guidance may change and will mature as the staff provides detailed analysis to the commander to better inform his design.

c. **Determine termination criteria, military end state, objectives, and initial effects.**

Campaign planning translates strategic objectives (or theater objectives if at lower than Combatant Command level) into action by integrating end states, objectives, effects, and tasks among all components of the command. The commander and staff may determine, and then recommend to the Sec Def appropriate termination criteria that will enable achievement of the national strategic end state. These criteria describe the military conditions that must be met before conclusion of the campaign or operation, or before transition of the campaign to a supporting effort that enables other elements of power to achieve the national end state. The commander and staff must then translate those criteria into a concise statement of the military end state, develop a set of objectives that will lead to achievement of the military end state, and begin analysis to determine the specific effects required to achieve the objectives. As strategic aims shift, so must consideration of termination criteria and operational objectives. The commander may provide significant change to his guidance as a result of his reassessment of the environment, the associated problem definition, and the resulting adjusted operational approach. Significant change will almost certainly result in adjusted planning guidance.

d. **Determine known facts, current status or conditions.**

1) Facts are the major pieces of information known to be true and that are pertinent to the planning effort. First, understand and synopsize the geostrategic factors derived from analysis of the environment that will influence the strategic end state. This synopsis is not a laundry list of factors, but a synthesis of the key factors in the environment that will enhance mission analysis, e.g. ―How will the domestic and international environments impact the conduct of the campaign? To answer this question, consider the political long-and short-term causes of conflict, domestic influences, including public will, competing demands for resources, economic realities, legal and moral implications, international interests, positions of international organizations, and the impact of information.

2) The JPG should leverage strategic estimates as useful means to organize and consider geostrategic factors in an attempt to gain a better understanding of their impact and interrelationships. This analysis includes not only a PMESII type analysis, but also the physical characteristics (topography, hydrographic, climate, weather, and demographics) and temporal characteristics (the effect timing aspects have on the

environment and the campaign). The key is to determine potential physical and temporal effects on the possible operations of friendly, neutral and enemy military forces and others. Additionally, they assess factors such as adversary organization, communications, technology, industrial base, manpower and mobilization capacity, and transportation.

e. **Determine assumptions.**

1) The staff develops assumptions in order to continue the planning process in the absence of facts. Assumptions are placeholders to fill knowledge gaps, but they play a crucial role in planning and must be held to a minimum. These assumptions require constant revalidation and reassessment. Facts may replace them as more information is available.

2) A planning assumption must be realistic and essential to continuing the analysis and planning. It is realistic if there is sufficient evidence to suggest that it will become a fact. Another way to think of this is an assumption has a greater probability of being true than not. An assumption is essential if it is required for planning to continue. Assumptions should also be clear and precise. Normally, the higher the command echelon, the more reliance on and greater number of assumptions. Incorrect or risky assumptions may partially or completely invalidate the entire plan. The JPG should develop branches for invalid assumptions to the basic plan.

3) Examples of theater-level assumptions are:

- Political:
  - o Countries A & B will allow over-flight, basing and Host Nation Support
  - o Countries C & D will remain neutral
  - o Country E will support Country X with air and naval forces only
- Forces:
  - o V (US) Corps will not be available
  - o APS 3 and MPS 1 & 2 will be available for employment at C+10
  - o A CSG and an MEU/ARG are forward deployed in theater
- Timeline:
  - o Major deployments begin upon unambiguous warning of enemy attack
  - o There will be X days ambiguous/unambiguous warning prior to enemy attack
- Enemy:
  - o Country X's forces can sustain an offensive for 7 days before culmination
  - o Country X will use chemical weapons once Coalition forces cross the border

f. **Determine and analyze operational limitations.**

Key Points
Constraints are —must do actions.
Restraints are —must not do actions

1) Operational limitations are the restrictions placed on a commander's freedom of action. They may be part of strategic direction or stem from regional or international considerations or relationships. Operational limitations are generally categorized as constraints or restraints.

2) Constraints: Constraints are tasks that the higher authority requires subordinates to perform, e.g. defend a specific site, include Country Y in the Coalition with its caveats, meet a time suspense, or eliminate a specific enemy force. Constraints are —must do actions.

3) Restraints: Restraints are things higher authority prohibits a subordinate from doing, e.g. do not conduct preemptive or cross-border operations before declared hostilities, do not approach the enemy

coast closer than 30 nautical miles, and do not decisively commit forces. Restraints are ―must not do actions.

4) A third category is limiting factors which are factors or conditions that, either temporarily or permanently, impedes mission accomplishment.[lxviii] Limiting factors are neither constraints nor restraints and generally relate to environmental factors such as terrain, weather and infrastructure capacities. For example, the port capacity is X or South Pass is closed to vehicle traffic in winter.

g. **Determine specified and implied tasks and develop essential tasks.**

1) Planners analyze strategic or higher echelon's direction to determine the tasks specified or implied as a part of the given strategic/military end state and objectives. A tip for planners is to look for verbs in the planning guidance or instructions. Note that the civilian leadership may express themselves in non-doctrinal terms. Examples of specified tasks to a combatant command might be:

- Deter Country X from coercing its neighbors
- Stop Country X's aggression against its neighbors
- Reduce Country X's WMD inventory, production, and delivery means
- Remove Country X's regime

2) Note that these tasks should focus on achieving the end state and come from higher's instructions and guidance. They are broad tasks that may require using elements of the joint force, interagency or multinational force. Also, they do not specify actions by components or forces. After identifying specified tasks, the staff identifies additional major tasks that are necessary to accomplish the assigned mission. These additional tasks are implied tasks because they are necessary but not specified. These are tasks that the force must do in order to accomplish the higher echelon's specified tasks. Tasks that are inherent responsibilities or standard, such as deploy, conduct reconnaissance, sustain, are not implied tasks unless successful execution requires coordination with or support of other commanders. Examples of implied tasks are:

- Build and maintain a Coalition
- Conduct Non-combatant Evacuation Operations (NEO)
- Destroy Country X's armored corps
- Provide military government in the wake of regime removal

3) Essential tasks derive from the list of both specified and implied tasks and are those tasks that the force must conduct in order to accomplish the mission successfully. These essential tasks will appear in the mission statement. Examples of implied tasks are:

- Deter Country X from coercing its neighbors and proliferating WMD
- Defeat X's armed forces; destroy known WMD capabilities; and destroy its ability to project offensive force across its borders.
- Stabilize the theater, transition control to a UN peacekeeping force, and redeploy.

h. **Conduct Center of Gravity Analysis.**

1) It doesn't really matter when in mission analysis GoG analysis occurs as long as it is completed prior to course of action development. Ideally the center of gravity analysis of both the adversary and friendly force took place during the operational design process and its determination should be reevaluated during mission analysis. However, if the commander or staff did not conduct a CoG analysis, mission analysis is the next opportunity. The analysis of relevant CoGs is a key step in the design of operations. The purpose is to provide a base of understanding of friendly, adversary (and possibly neutral) systems which, enable development of decisive points and lines of operation and effort which will contribute to achievement of campaign objectives.

2) The CoG always links to the mission and its supporting objectives; therefore, as the mission changes, the center of gravity to accomplish or oppose these objectives may change as well. Planners should strive to identify only one CoG at any level of war, at any given time, in the campaign, or risk diffusing the campaign focus. The exception is when there are two or more clearly distinct 'ways' or approaches to achieving the end state. For example a political or diplomatic approach combined with a military approach would have a different CoG for each approach. Assuming the strategic end state or objectives do not change, normally the strategic CoG will not change during the campaign. However, objectives are likely to change during a campaign especially during phases and transitions and the operational CoG is likely to change. For example, in pre-hostilities, the enemy's mission may be to prevent the US from rapidly deploying and building forces for future operations; therefore, his operational COG might be an effective Anti-Access capability. If successful, then the enemy's objectives might change from anti-access to attacking or destabilizing a neighbor, and his operational center of gravity to accomplish these objectives might then shift to conventional forces if an invasion is his desired option or perhaps irregular forces if he chooses to accomplish these ends indirectly.

3) CoG analysis includes identifying the critical factors that enable the CoG to be the CoG, in order to determine its vulnerabilities. Since the CoG accomplishes objectives, the adversary will protect the CoG. Thus, the CoG itself is rarely susceptible to direct attack, but should be attacked through its vulnerabilities (or by attacks to create a vulnerability), while vulnerabilities of the friendly CoG must be protected.

4) As part of CoG analysis, staffs can determine decisive points. Developing DPs orients on the key vulnerabilities or other critical factors identified during CoG analysis. Ideally, commanders design operations that attack adversary vulnerabilities at DPs so that the results they achieve are disproportionately favorable to the resources applied. At times, planners may not be able to find a vulnerability associated with a CoG, and may have to attack a critical requirement to uncover or create a vulnerability that can be exploited. Commanders and their staffs must determine and prioritize which vulnerabilities or capabilities, or key events, offer the best opportunity to achieve the effects on the environment and organize them into lines of operations or effort that are needed to accomplish objectives.

i. **Develop mission statement.**

1) After identifying the essential tasks, and the relationship of those tasks to the achievement of the national and military end states, the staff normally develops a derived mission statement using the format of who, what, when, where, and why. This statement should be a direct, brief, and effective articulation of the essential tasks and purpose for the operation. This mission statement is also critical in that the commander of the next higher echelon will approve it, or its key elements, and in the case of a combatant commander, the Sec Def and the President will most likely adopt the key elements of the mission statement as they orchestrate unified action and articulate the rationale for military operations to potential partners.

2) Since mission statements are primarily to focus the staff, subordinates, and supporting commands, translation of the actions to doctrinal terms that describe the tasks is important. A mission statement might look like:

> *When directed, USORANGECOM employs joint forces in concert with Coalition partners to deter Country X from coercing its neighbors and proliferating WMD. If deterrence fails, the Coalition will defeat X's armed forces; destroy known WMD production, storage, and delivery capabilities; and destroy its ability to project offensive force across its borders. On order, USORANGECOM will then stabilize the theater, transition control to a UN peacekeeping force, and redeploy.*

j. **Conduct initial force allocation review.**

Review the forces that have been apportioned for the mission (if in deliberate planning) or allocated (if in Crisis Action Planning). Forces that are apportioned for planning may not actually be available for execution. Determine if the apportioned or allocated forces are sufficient to accomplish the mission and the specified and implied tasks. This is an initial look, recognizing that detailed force requirements cannot be determined until a concept of operations is developed. But it is necessary to enable the command to identify significant force and capability shortfalls early so that 1) higher headquarters can be alerted that additional forces and capabilities will be required; and 2) feasible COAs can be developed.

k. **Conduct initial risk assessment.**

1) Risk management is the process of identifying, assessing, and controlling risks arising from operational factors and making decisions that balance risk costs with mission benefits. Strategic guidance may not clarify what US leadership will/will not risk, especially in the political and economic arenas, thus requiring further discussion. In developing the campaign concept, the commander and staff focus on those elements of risk that affect accomplishment of the military end states. The commander must be clear as to what aspects of the campaign are critical to mission success, and where risk must be accepted or avoided. Identification of these elements of risk early allows the staff to analyze them throughout the development of concepts of operation to look for mitigation strategies, and also helps shape assessment methodologies.

2) Some examples of operational risk elements:

- The viability of our coalition of the willing will be threatened by a prolonged campaign
- Pressure from Country M may cause Country Z to limit the use of its seaports for US military use in the campaign
- Collateral damage from friendly military operations to infrastructure and personnel from Country M that are working in Country X may cause Country M to deploy protective military forces to Country X, risking escalation of the conflict

l. **Develop Mission Success Criteria.**

1) Mission success criteria are closely linked to end states and describe the standards for determining mission accomplishment. They should be connected either directly or indirectly to protecting a friendly CoG or defeating an adversary CoG. The commander includes these criteria in the initial planning guidance so that the staff and commands understand what constitutes mission success. Mission success criteria can apply to any operation, phase (phase end states), and force component operation and help determine if and when to move to the next major operation or phase. The initial set of criteria determined during mission analysis becomes the basis for assessment (MoEs & MoPs.)

2) If the mission is unambiguous, mission success criteria could be readily identifiable and linked directly to the mission statement. For example, if the mission is to *evacuate all US personnel from the American Embassy in Grayland*, then mission analysis could identify two primary success criteria: all US personnel are evacuated; and established ROE are not violated. However, more complex operations will require MoEs and MoPs for each task, effect, and phase of the operation. For example, if the specified tasks are to *ensure friendly transit through the Straits 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.

3) 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. Commanders can then advise the senior leadership accordingly and adjust operations as required. Commanders at all levels must develop their mission success criteria with a clear understanding of termination criteria established by national authorities.

m. **Identify Initial Commander's Critical Information Requirements (CCIR).**

1) Commander's Critical Information Requirements (CCIR) are initially developed during mission analysis to help turn assumptions into facts. Some may be those CCIR that are critical to the planning effort, such as emerging policy constraints on forces available, or the progress of the building of the coalition. However, they are not exclusive to mission analysis and will be further developed in course of action development. CCIR are key items of information required by the commander to make key operational decisions. They are generally tied to commander decision points (not the same as Decisive Points discussed above). For example, CCIRs would feed the decision to execute a branch or sequel plans. CCIR are dynamic: commanders add, delete, or alter CCIR throughout the operation to help them gain clarity of the situation and in anticipation of opportunities. CCIR should meet three criteria:

1. Answering a CCIR must support a decision required of the commander that staffs cannot make.
2. The information or intelligence necessary to answer the CCIR must be critical to mission success. (Turning assumptions into facts)
3. The commander designates the CCIR.

2) There are two types of CCIR:

- Priority Intelligence Requirements (PIR). PIRs are intelligence requests which a commander anticipated and gave a priority in orede to support planning and decision making.
- Friendly Force Information Requirement (FFIR). FFIR is specific information that the commander and staff need about the friendly CoG, forces or capabilities required for the operation or follow on operation.

3) Not all PIR and FFIR are CCIR -- only those meeting the criteria above. You may hear of a third type, Essential Elements of Friendly Information (EEFI), used in the field. An EEFI is a key question likely to be asked by the adversary intelligence systems about specified friendly intentions, capabilities, and activities, so they can obtain answers critical to their effectiveness. In other words, what about ourselves do we need to keep from the enemy. EEFIs contribute to friendly force operations security (OPSEC) and in the development of military deception.

n. **Prepare or update staff estimates.**

1) Each staff office develops a staff estimate that is a continuing (running) assessment of current and future operations that feed into the plans assessment process that enable commander decisions. They help determine if the current operation is proceeding according to the commander's intent and if future operations are supportable from the perspective of that staff office's function. The estimate focuses on supportability of the potential mission from that staff section's functional view. This estimate helps the staff provide recommendations to the commander on the best COA to accomplish the mission. The staff estimate also provides continuity among the various members of the staff section. If the staff has not already begun a staff estimate by this point, it should begin one.

2) The estimates are also valuable to planners in subordinate and supporting commands as they prepare supporting plans. Although the staff can delay documenting the estimates until after the preparation of the commander's estimate, they should send them to subordinate and supporting commanders in time to help them prepare annexes for their supporting plans.

o. **Prepare and deliver mission analysis brief.**

1) The JPG will present a mission analysis brief to the commander upon conclusion of the mission analysis and JIPOE. The purpose of the brief is to provide the commander with the JPG's analysis of the mission, offer a forum to surface issues that have been identified, and provide an opportunity for the commander to synthesize the staff's analysis with his own visualization of the operation as described in the operational approach. If the commander did not conduct a separate operational approach briefing, the

operational approach can be covered as part of the mission analysis brief. The commander approves or disapproves the staff's analysis and provides refined planning guidance as well as his intent.

2) The mission analysis briefing is given to the commander, the staff, subordinate commanders and their key staff and unit liaison officers. This may be the only time the entire staff is present, and the only opportunity to ensure that all staff members are starting from a common reference point. The briefing focuses on relevant conclusions reached as a result of the mission analysis. This helps the commanders and staffs develop a shared vision of the requirements for the plan and execution. Immediately after the mission analysis briefing, the commander normally approves a restated mission. This can be the staff's recommended mission statement, a modified version of the staff's recommendation, or one that the commander developed. Once approved, the restated mission becomes the unit mission.

3) In the brief the commander will likely describe his understanding of the environment and the problem and his operational approach to the entire assemblage. This provides the ideal venue for facilitating common understanding, which is essential to unity of effort.

4) Format for the briefing is normally determined by local policy and is typically established by the Chief of Staff or the staff primarily responsible for the planning effort. The level of involvement of the commander in the operational design and mission analysis processes will also influence the level of detail required in the mission analysis briefing. Mission analysis briefs typically include:

- Summary of the JIPOE
- Situation
- Facts and Conditions
- Higher's mission, intent and or guidance
- Forces anticipated to be available
- Tasks, specified, implied, and essential
- Limitations
- Assumptions
- End states, objectives and effects
- Center of Gravity analysis
- CCIR's
- Risk
- Mission statement

p. **Publish commander's planning guidance and intent.**

Key Points

Intent is about the execution of an operation. It generally includes: Purpose, End State, Operational Risk, Objectives, Effects Guidance and, Method.

Planning guidance is about plan development.

1) The commander uses his understanding gained through operational design and refined during mission analysis, along with his experience, education, and wisdom, to develop an overarching operational approach for the campaign. This vision or operational approach is the commander's insight of how to employ military capabilities in an operation, in conjunction with interagency and multinational efforts to achieve success. The operational approach is provided through commander's intent and planning guidance statements and shape course of action development, as well as proposed actions among the interagency needed to accomplish the national strategic end state and objectives.

2) Because commander's intent and planning guidance result from the same analytical processes and are often used in the same sentence, it is easy to assume they are the same thing. However they are very different. The commander's intent is about the execution of an operation while planning guidance is about planning and plan development.

q. **Commander's Intent.**

1) The commander's intent is a concise narrative describing his understanding of the key aspects of the environment, the problem and his idea of how the campaign should progress to achieve the desired end state. The purpose of commander's intent is to focus the staff and assist subordinates and supporting commands during both planning and execution in taking appropriate actions to achieve the desired end state, even when operations do not unfold as planned. Given the complexities of the environment, commanders must empower subordinates to make decisions within an overall intent for success. At the operational level, commanders leave most of the detailed planning and execution to subordinate commanders and require them to use initiative and judgment to accomplish the mission.

2) At the theater level, commander's intent is much broader than at the tactical level. The commander must envision and articulate how operations will dominate the adversary (CoGs) and support or reinforce other actions by the interagency and allies to achieve success. Through his intent, the commander identifies the major unifying efforts (LOEs) during the operation, the points and events (DPs and LOOs, LOEs) where operations must dominate the enemy and control conditions in the environment, and where other elements of national power will play a central role. He links national strategic objectives to theater objectives, and lays the foundation for the desired conditions of the military/theater end state. A commander can include or exclude and express his intent in any format as he desires, however some of the main elements of commander's intent are:

3) **Purpose** clearly answers the question, ―Why are we conducting this campaign? This explanation may look a lot like the end state. However, it must state to subordinate and supporting commanders why the use of military power is essential to achieve US policy and the strategic end state. This articulation is essential to achieve unity of purpose among subordinate commands, but also provides a purpose around which commanders may build consensus with interagency and multinational partners. Thus, this statement is important to build unity of purpose amongst key shareholders that precedes unity of effort in planning and execution.

4) **End state** specifies the desired military end state. The commander uses the military end state developed during his operational design process and mission analysis as a basis to articulate this statement of military success. Additionally, since military forces may have to support other elements of power, the commander also explains how and when these supporting efforts will end.

5) **Operational Risk** focuses on mission accomplishment. The commander identifies portions of the operation in which he will accept risk in slower or partial accomplishment, including a range of acceptable risk and how assuming risk in these areas may impact overall outcome of the mission.

6) **Objectives** provide clear statement of how goals of the operation will lead to achievement of the military end state. The commander may also relate operational objectives to the national strategic objectives in order to enable the staff and components to better develop COAs that will ensure proper nesting, and better interaction of all elements of power.

7) **Effects Guidance** provides a vision of the conditions and behaviors in the environment that must be in place at the successful conclusion of the operation. This guidance enables the staff and components to better link the objectives as visualized by the commander with concepts of operation that may result in tasks to achieve those objectives.

8) **Method** provides visualization for subordinates on the arrangement and synchronization of operations to develop options for action. While method focuses on how the commander envisions operations will achieve the military end state, it should also explain how to support policy aims as the command becomes a supporting effort to the final achievement of strategic ends at conflict termination. Key is that method does not describe the specific conduct of these operations. The method enhances concept of operation development and understanding by others, but does not describe details. Though the commander may give detailed guidance on the method, generally he should not, in order to provide the maximum flexibility to the JPG in developing COAs.

r. **Commander's Planning Guidance.**

1) Once the commander has given his intent, he will normally provide the staff and subordinate commanders with planning guidance that provides additional clarity and detail essential to facilitate timely and effective COA development. Planning guidance should enable the staff and components to understand the major themes and guiding principles for the operation and develop detailed COAs for action. However, guidance should not be so specific as to limit the staff from investigating a full range of options for the commander. Planning guidance provides a framework, the ―left and right limits, to develop options to integrate the use of military and non-military power. The content of planning guidance is up to the commander and depends on the situation and time available. No format for the planning guidance is prescribed.

2) Planning guidance may include; an approved mission statement, and the logic for the mission, a description of the operational environment, a clear statement of the problem to be solved, the center of gravity and whether to take a direct or indirect approach, key assumptions, key operational limitations, a discussion of national-strategic end state (or higher headquarters' end state), including any updated strategic guidance, termination criteria, commander's visualization of the operational approach for the operation to achieve the end state, military objectives, commander's initial thoughts on desired and undesired effects needed to accomplish objectives, acceptable and unacceptable areas of risk, any coordinating instructions, to include requirements to coordinate/plan with inter- and non-governmental agencies, and coalition partners, strategic communication and information operations guidance and initial thoughts on CCIR .

3) The commander may provide guidance in a variety of ways and formats, based on his preference. Additionally, the commander can give guidance in written or verbal form. The key challenge is to ensure universal understanding of the guidance across all elements of the command, supporting commands, and enabling agencies. The commander may issue updated planning guidance throughout the decision-making process. Because the COA development process will continue to analyze the environment and examine effects on enemy, neutral, and friendly elements, the commander may participate in the COA development process as the JPG examines issues, challenges, and limitations. This engagement may also cause the commander to revisit his operational approach. Consequently, there is no limit to the number of times a commander may issue planning guidance.

Section 4: Step 3. Develop Courses of Action.

Key Points[lxix]

A course of action (COA) is a potential way (solution, method) to accomplish the assigned mission.

Each COA expands on the commander's operational approach by providing additional details such as, who, what type of action, when, where, why, and how.

COAs are modified by adjusting joint force capabilities.

Some elements of operational design (CoGs, DPs, LOOs, and LOEs etc.) are tools to help form a COA.

Note

Upon the completion of course of action development the bridge connecting operational art and detailed planning has been crossed. The remaining steps of the planning process including course of action comparison, selection, approval and plan production are entirely in the realm of detailed planning.

a. The commander and staff working together translate the commander's intent into a specific, well-developed concept. The staff supports the commander by in-depth analysis and presentation of a range of options for future actions that will accomplish the desired military ends. Planners do this by developing alternative courses of action in accordance with the commander's operational approach. A COA is any force employment option in combination with other elements of power that, if adopted, should result in the accomplishment of the mission. For each COA, the staff must enable the commander to envision the employment of friendly forces and assets as a whole, taking into account externally-imposed limitations, the factual situation in the area of operations, and the conclusions from mission analysis. Equally important, the commander must envision how military force will work in conjunction with the other elements of power to achieve military and strategic ends. (See figure 3-3)

b. A valid course of action should meet the following screening criteria:[lxx]

- Adequate – Can accomplish the mission within the commander's guidance
- Feasible – Can accomplish the mission within the established time, space, and resource limitations.
- Acceptable – Must balance cost and risk with the advantage gained.
- Distinguishable – Must be sufficiently different from other courses of action.[6]
- Complete – Must incorporate:
  - Objectives, effects, and tasks to be performed (Linked to the CoG)
  - Major forces required
  - Concepts for deployment, employment, and sustainment
  - Time estimates for achieving objectives
  - Military end state and mission success criteria

[6] What constitutes, "sufficiently different" is up to the commander. The commander's intent and planning guidance and dialogue will provide clues as to what is sufficiently different.

Step-by-Step Approach to Course of Action Development

Step	Action
1	Determine how much force will be needed in the theater at the end of the campaign, what those forces will be doing, and how those forces will be postured geographically. Use troop-to-task analysis. Draw a sketch to help visualize the forces and their locations.
2	Looking at the sketch and working backwards, determine the best way to get the forces postured in Step 1 from their ultimate positions at the end of the campaign to a base in friendly territory. This will help formulate the desired basing plan.
3	Using the mission statement as a guide, determine the tasks the force must accomplish en route to their locations/positions at the end of the campaign. Draw a sketch of the maneuver plan. Make sure the force does everything the Secretary of Defense (SecDef) has directed the commander to do (refer to specified tasks from the mission analysis).
4	Determine the basing required to posture the force in friendly territory, and the tasks the force must accomplish to get to those bases. Sketch this as part of the deployment plan.
5	Determine if the planned force is enough to accomplish all the tasks SecDef has given the commander. Adjust the force strength to fit the tasks. This should provide the answer to the first question.
6	Given the tasks to be performed, determine in what order the forces should be deployed into theater. Consider the force categories such as combat, protection, sustainment, theater enablers, and theater opening. This should answer the second question.
7	The information developed should now answer the remaining questions regarding force employment, major tasks and their sequencing, sustainment, and command relationships.

[lxxi]

Figure 3-3

c. **Determine Opposing Courses of Action.**

1) Before developing COAs, the staff must understand what other actors may do to shape the environment to their desired end state. Planners use the JIPOE process to gain this understanding. They must consider not only adversary actions, but also neutral and friendly actions that may impede achievement of the desired end state. The staff determines how relevant actors will attempt to accomplish their goals by identifying likely objectives and desired end states, potential strategic and military capabilities, and estimate how the opposition leadership may apply his elements of power – the opposing courses of action (OCOA's). Planners also consider aspects of other adversarial and even neutral actors courses of action as they may support or limit achievement of the desired end state. Typically intelligence planners will lead the staff effort on analysis of the enemy and adversaries. Others with specialzed knowledge can use the same process in analyzing neutrals, civilians, governements and other actors' potential courses of action.

2) The staff's analysis will identify all known factors affecting the opposition's actions, including CoG, time, space, weather, terrain, and the strength and disposition of military forces, as well as other key factors that affect achievement of the desired conditions. The analysis of military capabilities will focus primarily on air, space, naval, ground and SOF assets. Developing opposing COAs requires the commander and his staff to think as the opponent thinks. From that perspective, first postulate possible adversary objectives (ends) and then visualize specific actions (ways) within the capabilities of adversary forces or CoGs, to achieve these objectives. Potential adversary actions relating to specific, physical

objectives normally need to be combined to form course of action statements. Below are the key elements of an OCOA, which may be in the form of a sketch, or a narrative, or a combination:

- Adversary objectives.
- Adversary force posture at the outset of the conflict.
- How the adversary will employ his elements of power to accomplish objectives. (CoG)
- Adversary posture when the conflict is over.
- Aspects of the desired OE opposed by neutral or friendly actors.
- Posture of relevant neutral actors at the outset of conflict.
- Likely actions taken by neutrals (or friendly actors) that may impede our desired end state.

3) The staff will identify both the most-dangerous OCOA, and the most-likely OCOA, based upon the current or anticipated situation. Because the most-likely and most-dangerous OCOAs are normally not the same there must be a conscious decision for a baseline assumption OCOA for friendly planning. Usually, commanders consider the most-likely OCOA as their baseline unless the consequences of not focusing on the most-dangerous OCOA preclude doing otherwise. Remember that the intelligence analysis is only an estimate or guess of the opposing actors' perspectives and probable actions. A thinking and adaptive adversary will change perspectives and OCOA's to maximize his chances for success based on how his opponent succeeds in changing the environment. Regardless of which OCOA supports the baseline planning effort, staffs must develop branches for the other OCOAs, as time permits.

4) After OCOA selection, the staff lists the adversary vulnerabilities from the adversary CoG analysis for friendly exploitation and neutral/friendly potential actions that need to be mitigated. This list aids the analysis of friendly COAs against the selected, baseline OCOA, and also assists determination of advantages and disadvantages of friendly COAs during comparison. Finally, this analysis will not only influence the JPG's development of COAs, but also will form the basis to focus and develop PIR, as well as some FFIR (related to friendly and neutral actions which may impact achievement of the desired end state).

d. **Review the commander's operational approach and develop an initial COA framework.**

The commander provided his operational approach for the operation through his intent and planning guidance. The JPG then analyzes the commander's approach to develop a framework of nested objectives (informed by the problem statement and CoG analysis) and effects that achieve the military end state. This analysis of nested objectives and effects provides a framework for the development of tasks by components and functions that will destroy or neutralize the enemy CoG and achieve the desired conditions. Effects are a good way to translate objectives into tasks by providing a statement of the conditions desired (and undesired) that achieve the objectives. This process provides purpose to the tasks assigned to subordinate commands. It also provides a common framework for other non-military actors to translate into their tasks. Once the commander and staff understand the objectives and effects, that define the operation, with associated measures of effect, they then develop the appropriate tasks, with measures of performance that will create the desired effects, and preclude undesired effects. Not all tasks are connected to effects, e.g. support tasks related to logistics and communications. However, the commander emphasizes the development of effects-related tasks early in the planning process because of the obvious importance of these tasks to objective accomplishment.

e. **Develop Courses of Action.**

1) The JPG develops and analyzes a range of potential military and non-military actions that can produce the desired effects on the environment, given the time and resources available. Some guidelines for development of courses of action are:

- Develop a variety of distinguishable options that accomplish the commander's intent to provide a range of options for his consideration and selection.

- Employ the elements of operational design as considerations for development and analysis of COAs.
- Tentative COAs should focus on CoGs and decisive points
- Sequence and focus joint functions to accomplish the tasks required to dominate and control decisive points.
- Ensure clearly-articulated objectives and effects are the guideline for actions during each phase/period of the campaign.
- Provide only options that are suitable, feasible, and acceptable, based upon time, forces/capabilities, and resources available, and that fall within acceptable levels of operational risk.

2) In developing and analyzing courses of action, the commander and JPG look at all the elements of power to determine how best they can be leveraged against the adversary's critical systems.

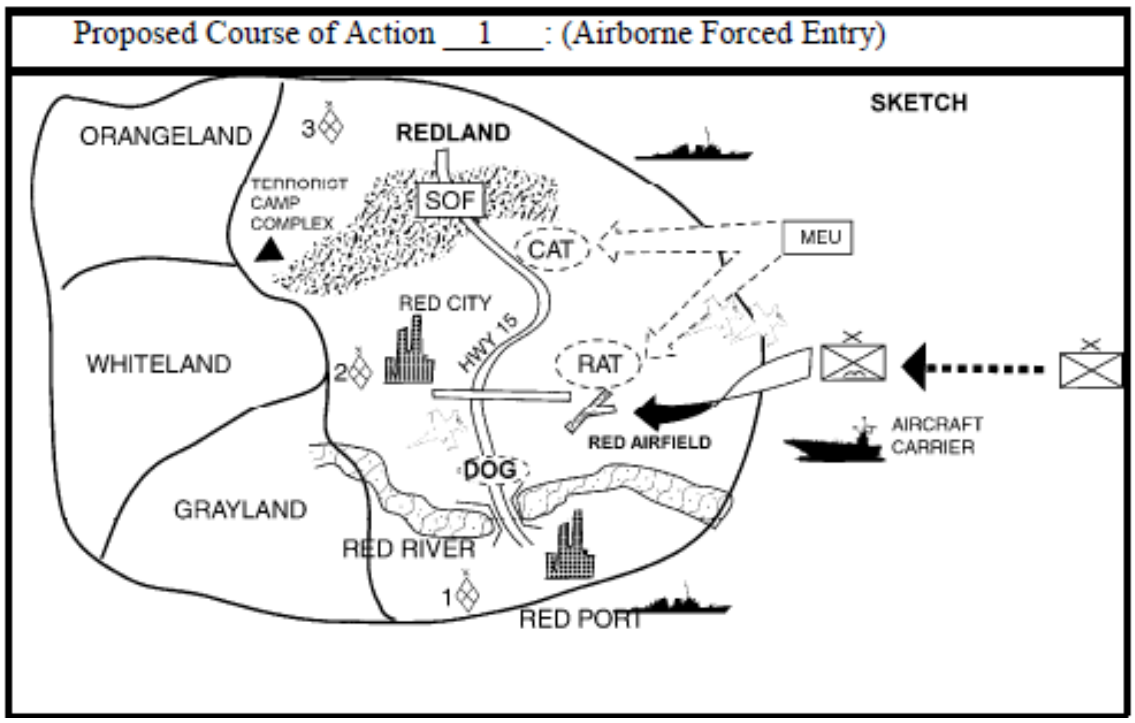
3) An initial COA should be simple, brief, and complete, and answer the following questions:
- What are the objectives and effects that achieve military and strategic success?
- How the enemy CoG is attacked and how the friendly CoG is protected?
- What major tasks must happen and in what sequence to achieve the desired effects and avoid undesired effects?
- Where and how should air, space, naval, ground and special operations forces be applied?
- How much force is necessary?
- Generally, in what order should forces deploy?
- How will the force be sustained for the duration of the campaign?
- What are the command relationships?
- How does the COA achieve the desired end state?

4) Potential COAs may vary the use of military forces, different timing and sequencing of operations, and/or the use of other elements of power (Information, Economic, Diplomatic) in combination with military functions (Movement and Maneuver, Intelligence, Fires, Command and Control, Sustainment, and Protection). In addition, because initial COAs are rough concepts, phasing at this point isn't critical. One method of sequencing during COA development is to organize tasks and lines of operation and effort into Pre-hostilities, Hostilities, and Post-hostilities periods, vice more detailed phases.

f. **Develop an initial concept graphic and narrative.**

Based upon the initial framework, the JPG visualizes how to accomplish these objectives/effects over time. They develop an initial, concept narrative and, if appropriate, a graphic that describes the major actions of the COA. The following sequential steps can help in building the sketch and narrative, but they are not all required to be included:
- Determine forces available/apportioned.
- Determine how much force is in theater and additional forces apportioned for planning. COA development should visualize force requirements at the end of each period (pre-hostilities, hostilities and post-hostilities). Remember at this point the staff is only developing a concept, not refining a plan. The staff can get to this detail later during COA analysis as it checks to see if these forces are sufficient for the tasks required.
- Post decisive points. Review the operational CoG(s) as the point of focus for operations and post the major, decisive points relevant to the COA. These might include ports, population centers, critical infrastructure, major events such as elections, support of key actors, etc. During COA development, these serve as points where friendly actions can, and probably will, come in contact with the enemy, and serve to orient planners on where major tasks/actions must focus.
- Array forces at the military end state. Position forces geographically where they are needed at the end of the operation and determine what those forces will do. Use the sketch to help visualize the forces and their locations.

- Identify initial entry points. Based on initial guidance and knowledge of area access and facilities, display where the forces can enter the area from air and sea deployments, and show the initial bases or staging areas available to support the deployment. Also portray the initial lines of communication that will connect initial forces back to in-theater (intermediate staging bases) and strategic (CONUS or forward-deployed) bases of operations.
- Array forces at pre-hostilities. Visualize force positioning in pre-hostilities after they enter the theater at these potential entry points, and formulate the initial concept for a basing plan and Joint Reception, Staging, Onward Movement, and Integration (JRSOI).
- Maneuver the forces forward to end state. Looking at the sketch with the end state and objectives and effects by period or phase in mind, determine the best way to get the forces into the operations area and to their ultimate locations at the end of the operation from bases in friendly territory. This will help formulate the desired basing plan for the beginning, middle, and end of the campaign.



COA NARRATIVE/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 3-4[lxxii]

g. **Determine the tasks required in each period.**

During each of the periods, analyze how military and non-military actions will produce the required changes in the environment. At the operational level and at this time it is not important yet to identify which subordinate organization will accomplish each of the actions which are the tasks. It is, however, important to also identify tasks for other agency partners (DOS, Dept of Treasury, etc.), Coalition and international organizations (UN, regional organizations), and other non-governmental partners. Focus on the effects desired or to avoid, and consider how to employ air, land, maritime and special operations forces, in conjunction with other forces and elements of power for intelligence, protection, projection, theater opening, sustainment, and information operations. Considerations for tasks include:

- Initial entry into theater: basing, access, and over flight
- Deployment and reception of the force (JRSOI)
- Protection of forces and host-nation points of entry
- Building and maintaining a Coalition force
- C2 with joint, host-nation, and Coalition forces
- How to achieve the desired effects
- Preventing undesired effects/events, such as a humanitarian crisis, loss of local support, etc
- Sustaining the joint force, and additional support required to enable and maintain host-nation and coalition participation
- Post-hostilities conditions, and how the joint force will maintain military gains and transform them into long-term strategic success

h. **Identify main and supporting efforts.**

Main and supporting efforts are a means of prioritizing actions, establishing economy of effort and allocating forces.[lxxiii] The main effort is based on the commander's prioritized objectives. The main effort identifies where the commander will concentrate capabilities to achieve specific objectives. Designation of the main effort can take several forms. The main effort can be geographical (area), for example WWII's 'Europe First'. It can be in functional terms such as 'the amphibious operations or RSOI'. Or as forces or components such as, "the main effort is the land component". Capabilities, or lines of effort can also be designated as main efforts, such as 'advise and assist'.[lxxiv] Efforts other than the main are by definition supporting efforts. As joint planners develop tasks in initial concept development it is more important to identifying what action or function is the main effort. Identifying or specifying who is or performs the main effort is secondary.

Note

'Main and Supporting Efforts' should not be confused with 'Supported and Supporting Commands'. Main and supporting efforts refer to activities and the prioritization of resources for those activities. They are not a command relationship and they do not infer any command relationship between main and supporting organizations.

Supported and supporting are command relationships between organizations and are formally designated in orders. Misunderstanding can occur when an organization, such as the air component is designated as the main effort. The designation as a 'main effort' only brings 'priority' for resources and no command authority over 'supporting effort' organizations.

i. **Test the COAs for Validity.**

Before going further in developing the COAs, determine if the COA meets the validity criteria of adequate, feasible, acceptable, distinguishable and complete. If the COA does not meet the criteria it should be discarded, or adapted so that it does. A caution – after you've adapted a COA, ensure that the adapted COA still passes the distinguishable test. (see paragraph b. Section Four: Course of Action Development)

j. **Determine Initial Command and Control Relationships.**

1) Based upon this initial concept/sketch, develop an initial C2 structure. At this point, identify the basics of how you will organize by components, any JTFs requirements, and how the force will control or coordinate its efforts with the host nation, multinational forces, and interagency elements as necessary. Consider advantages and disadvantages of multinational C2 structures such as integrated, lead nation, parallel or a hybrid. Note that these structures are just models that help start a more detailed discussion on C2.

2) An Integrated Command Structure[lxxv] is where the nations involved designate a single commander, establish a combined headquarters staff composed of representatives from all participating nations and subordinate commands and staffs are integrated into the lowest echelons necessary for the mission. Typically they share common staff operating procedures and to the extent possible common doctrine. This type of structure provides a high degree of unity of effort, and interoperability however it takes times to establish and participating nations agree to give up a degree of decision making authority to the command for this reason it is normally limited to formal alliances such as NATO or Combined Forces Command Korea.

3) A Lead Nation Command Structure[lxxvi] is when all participating nations place their forces under the command of one nation. The lead nation command can be identified by command and staff structures dominated by one nation and subordinated elements retaining national integrity. The lead nation is typically the contributor with the preponderance of forces and or capabilities. It is well suited for time sensitive, ad hoc arrangements needed to respond to unanticipated crisis in that contributing nations can fall in under an already existing headquarters. The United Nations Command in 1950 Korea is an example of a lead nation structure.

4) Parallel Command Structures[lxxvii] do not have a single force commander, they have multiple commands representing each nation participating, therefore, unity of effort replaces unity of command. Participants generally retain their own command and staff structures and establish mechanisms such as coordination centers to coordinate their actions with one another. Cooperation and de-confliction between participants replace command. Parallel structures are used when issues or perceptions of national sovereignty or culture prevent closer integration.

5) Hybrid structures are various combinations of integrated, lead nation and parallel options designed to fit a specific situation. For example, in Desert Strom, there were two lead nation structures used in a parallel structure. The US led the non-Arab contributors, and in parallel, Saudi Arabia led the Arab state contributors with a coordination center between the two.

C2 Structure Considerations

	Unity of Command	Time to Establish	National sovereignty	Interoperability
Integrated	High	Long	Low	High
Lead Nation	High	Quick	Medium	Medium
Parallel	None. Uses unity of effort	Quick	High	Minimized replaced with de-confliction

Figure 3-5

6) Whatever structure is chosen, planners should remember that it is an initial organization around which to continue COA development, and may change when tested in wargaming. Some considerations:

- Geometry – how to allocate the operating space (e.g. Joint Operations Area, Joint Special Operations Area, COMMZ)
- Organization. By functional components (air, land or sea components) or by service components (army, air forces, navy)
- Interagency considerations (coordination mechanisms)
- Multinational considerations (initial coalition command/coordinating structure)
- Information management and technical arrangements to enable effective command and control

k. **Update staff estimates.**

Staff sections analyze and refine each COA to determine its supportability. A purpose of the staff estimate is to determine whether the mission can be accomplished and to determine which COA can best be supported. This, together with the supporting discussion, gives the commander the best possible information from which to select a COA. Each staff section analyzes the COAs, their supportability, and which COA is most supportable from their particular, functional perspective. Because of the unique focus of each staff section, involvement by all is vital to the process. Each staff estimate takes on a different focus that identifies certain assumptions, detailed aspects of the COAs, and potential deficiencies that are simply not known in other sections, but nevertheless require detailed consideration. Such a detailed study of the COAs also involves the corresponding staffs of subordinate and supporting commands.

l. **Develop Evaluation Criteria.**

Key Point

Identify criteria.
Define each criteria.
Detrmine how to measure (objectively quantify).
Decide on weighting.

1) Evaluation criteria are used to measure and determine advantages and disadvantages of a COA. Criteria are based on the particular circumstances of each operation and should be relative to the situation. While some may be found or suggested in the commander's guidance, individual staff sections should identify criteria relating to their functional area.[lxxviii] To avoid bias, the criteria should be objectively measurable as possible. (see figure 3-12) When establishing criteria, the JPG defines each criterion, along with its measurement. This is so that a measurable score from the COA analysis and staff estimates can be applied to the criterion for each COA. For example the criterion of speed in figure 3-12 has a score of 7 weeks for COA 1 and 9 weeks for COA 2. (See Section Six, COA Comparison for more detail evaluation criteria usage.) Weighting or prioritizing some criteria over others is a consideration. Based on prior discussions with the commander, understanding his intent and guidance and experience, the JPG may recommend weighting come criteria stronger than others.

2) Technically developing evaluation criteria is part of COA analysis and not COA development. However, determining the evaluation criteria is a step planners should consider before COA analysis. A case can be made for developing the criteria as early as mission analysis. While the commander may direct some criteria in his planning guidance, the planners normally develop most of them. However, the commander should approve the criteria, regardless of who develops them. For this reason the evaluation criteria should be included and discussed in the course of action brief. (Although specific criteria are not listed in joint doctrine and Fig 3-5, recommends it be part of the brief.) The reason evaluation criteria should be developed prior to analysis is to prevent a bias for one COA from influencing selection of the criteria that favors a COA over another prior to analysis. Criteria may come from insights from mission analysis, and the commander's intent and planning guidance. Additionally the wargaming process, may suggest additional evaluation criteria that may have been overlooked.

3) Two factors are critical in developing effective criteria. First everyone involved in COA comparison must have the same definition and understanding of each criterion. For example, the criterion of 'Risk' is it risk of mission failure or is it risk to forces? Cost, is it actual material costs or is it the cost to intangibles such as morale, prestige or legitimacy? Planners need to agree up front prior to comparison as to what each criterion really means. Secondly to avoid subjectivity and bias each criterion should, to the degree possible, be objectively measurable. Determining objective and measurable criteria requires critical thinking and reasoning, but is not difficult. For example 'Speed' can be measured in hours, days weeks or months. 'Simplicity' can be measured by the number of 'parts' such the number of times the main effort changes or the number of phases, objectives or decision points. 'Flexibility' can be measured by the number of available of branches to react to possible enemy reactions. Just about any criterion can be objectively measured given enough thought and those that cannot be measured should be avoided.

4) Weighting evaluation criteria is a frequent and often helpful technique to identify the most-critical criteria. Weighting, should come prior to formal COA comparison to avoid assigned weight manipulation.

5) Some examples of potential evaluation criteria are:

- Risk (during operations and after; strategic and operational)
- Flexibility
- Time
- Sustainment/support
- Surprise
- Force protection
- Casualties
- Use of Flexible Deterrent Options
- Financial costs

- Impact on Coalition interests
- Selected Measures of Effectiveness (MoE)

m. **COA Check List 'Summary' JTF COA Development incorporating elements of operational design' A Technique"**[lxxix]

- Start with planning guidance including the operational approach, initial intent, and specific COA development derived from design and mission analysis guidance.
- For each COA there is an ***organizing operational concept or focus*** that makes it a distinct COA and seeks to defeat adversary CoGs, forces or functions, or all. (COA 1: "Passive Defense" SOF/FID Approach; COA 2: "Aggressive Deter" Boots on ground.) Write it out, make a simple sketch, and include guidance for that COA from the commander. (Provide a MEU level MAGTF to backstop Grayland forces)
- Begin with your military endstate. Develop objectives (derived from CoG analysis) for each phase– working backwards from post-operations/major operations/pre-operations or with guidance, include all phases. Use the operational approach as a guide. Determine effects to achieve objectives in each phase. Use the design products to assist.
  - All objectives must be oriented against the enemy operational CoG or protect the friendly operational COG either directly or indirectly.
  - If there is a stability phase, the CoG(s) will likely change – objectives should be oriented against the new CoG(s).
  - Based on CoGs, determine decisive points/key vulnerabilities by phase. Attainment of decisive points will cause the enemy to culminate.
- Determine key tasks that achieve the above listed objectives and decisive points– Use tasks developed during mission analysis.
  - Arrange key tasks by phase; envision force arrayal at end of each phase (Phase Charts/sketch); <u>don't forget to include transition criteria, if time available.</u>
  - Determine key basing/posture to begin and end each phase.
  - <u>With time available do an effects/objectives/task crosswalk.</u>
- Assign main effort and supporting efforts by function, line of operation or effort or component (forces) for each phase: what component/function creates greatest effects to achieve phase objectives? Use defeat/stability mechanisms for those main effort tasks oriented on the enemy, population, or friendly COG(s) (see operational approach LOEs)
- Assign reserve, if any
- Include key information themes and messages for each phase
- Determine risks
- Develop a COA Statement. This forms the basis for the Commander's Estimate description of COA.

- Develop Phase Statements based on the above information. Description includes beginning and ending conditions plus key main effort and supporting effort tasks and reserve action, if any.
- Show key events and timings (arranging operations) over phases (CONOPs Phasing Chart)
- Show subordinate commands or functional component tasks by phase (Component/task synchronization)
    - Show Commander's Decision Points with a separate DSM (time available) (This may not occur until after COA analysis/wargaming.)
- Show C2 Relationships by phase, or when there are major changes in C2 relationships
- Display Joint Operating Areas (JOA) and Area of Operations (AO)
- Anticipate friendly culmination points – each function should address overcoming friendly culmination in their functional COA support concepts
- Develop functional support concepts (protection, sustainability, etc.) and deployment concepts derived from tasks assigned to each component by phase
- Develop options that form the basis for branches. Options are descriptions of multiple alternatives to accomplish designated end states as conditions change and they provide flexible decision making at the Presidential and SECDEF level. They form the basis for branches. Example: Option 1 is move from Phase I Deter, to Phase IV Stability. Condition that changed is Greyland agreed to peace proposal that establishes a zone of separation. Further refine options during COA Analysis
- All must meet the COA test for Validity

n. **Initial COA Brief to the Commander.** (See figure 3-6)

At this point in the process the staff has transformed the commander's vision into a number of COAs for his consideration, guidance, and approval for further analysis. This initial exchange expands the commander's understanding on what is and is not possible and helps the commander to better visualize further the opportunities and challenges in the environment. It also helps to confirm and shape the staff and subordinate commands' understanding of the commander's vision. Finally, it helps to identify emerging resource shortfalls and impediments to accomplish the objectives. The goal is to provide the commander an azimuth check before proceeding into COA analysis, and to gain insights on whether the work thus far meets his guidance. At the end of this briefing, the staff must know which COAs should move forward for further analysis and development, with additional guidance on modifications, improvements, and or risk.

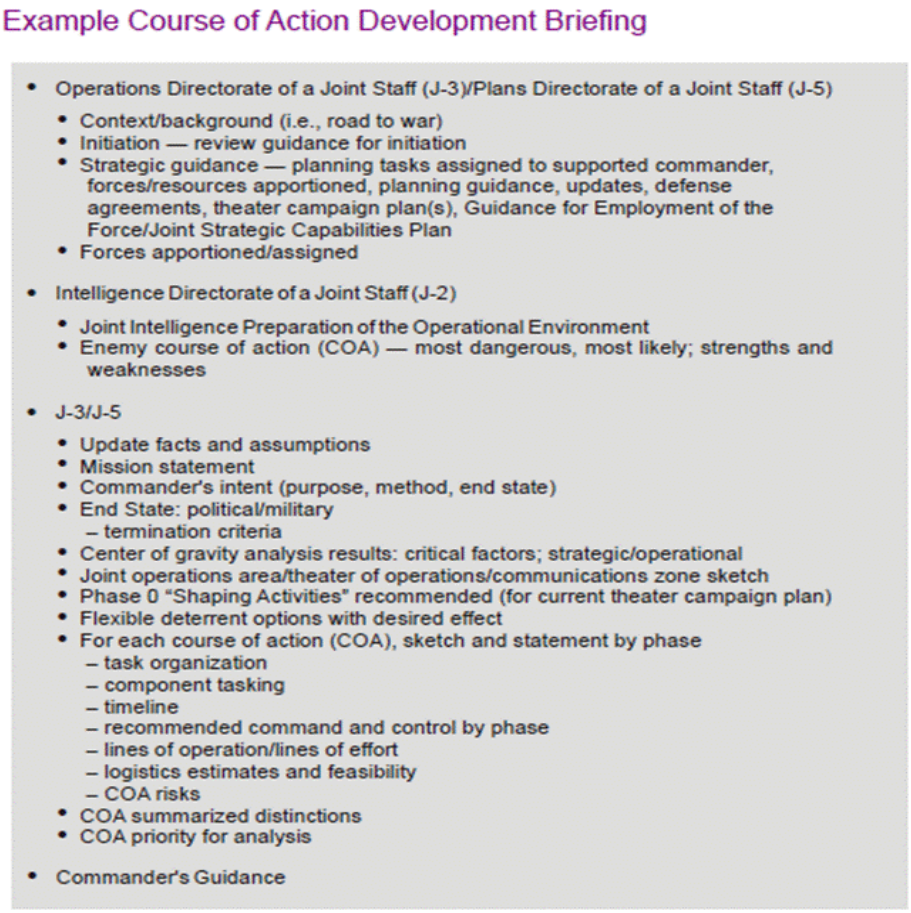


Figure 3-6

Section 5: Step 4. Analyze Courses of Action.

a. Course of action analysis, also called wargaming, asks specific questions about the COA regarding the execution and mission and results in more a detailed understanding of the COA. It answers three basic questions:

1. Can the COA accomplish the mission?
2. Is it supportable?
3. What are the COA's strengths and weaknesses?

b. Wargaming is the primary method of COA analysis. The purpose is to analyze each COA independently to determine the COA's advantages, disadvantages, strengths and weaknesses when measured against the established and defined criteria. Wargaming is a simulation involving opposing forces that use rules, data and procedures to depict an actual or assumed situation. It is an effort to test the COA against a realistic, thinking, and adaptive adversary roll played by the staff. Wargaming assists planners in identifying strengths and weaknesses, risk, and shortfalls for each COA. While joint doctrine refers to visualizing the flow of a military operation as the key element in wargaming, the commander and staff must also consider the application of other elements of national power.

Key Point

There is a fundamental difference in wargaming at the operational level and the tactical level. At the operational level, planning and wargaming are more about conceptual ideas and focuses on "what" type questions. While the tactical level it is less conceptual, more concrete and focuses more on "how" type questions. The operational level is about having the right tasks, matching them against objectives and effects that achieve the end state, prioritizing, sequencing, and resourcing and assigning those tasks to the correct components. COA at the operational level analysis is about asking the question, "are we doing the right things?" While the tactical level, with its focus more on the how, asks the question, "are we doing things correctly?" It is important for planners to acknowledge this and wargame appropriately.

COAs are analyzed against the criteria, not other COAs.

c. **Analysis.**

1) Once the staff has completed COA development they should review them with the commander to verify they meet his intent and guidance. This dialoge is important to keep the commander and staff synchronized. After the review the staff will analyze each COA in detail. The objective is to gather data and to critically analyze the data from each COA, independently, and according to the commander's guidance, in an effort to determine the advantages and disadvantages associated with each COA. (See figure 3-7) It is critical that the analysis be a look at each COA independent from the other COAs. The COA is analyzed against the criteria, not other COAs and planners must be on guard to avoid premature comparisons prior to completing the analysis. Comparison comes after wargaming.

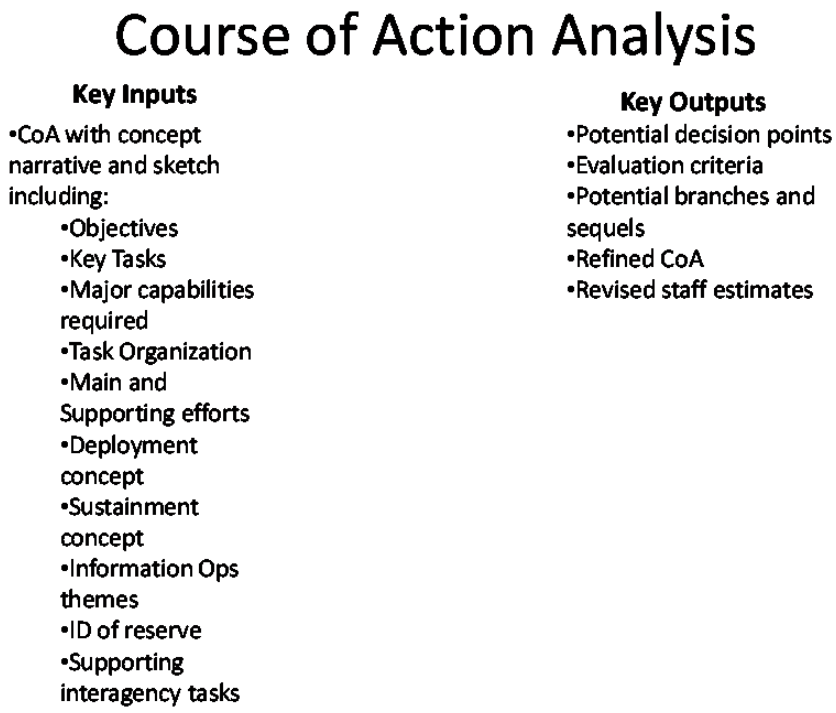


Figure 3-7

2) In analysis the staff is looking for the best answers to the following questions.

- Will the tasks identified achieve the effects that will create the desired conditions and avoid generating unintended effects?

- How will military operations change the adversary and the environment over the course of the operation?
- At what points does the COA not offer enough flexibility to meet adversary actions, and where are branches and sequels required?
- What are the strengths and weaknesses of the COA and how well do they meet the commander's vision for success?
- What are the potential decision points for the commander, and the critical information requirements (CCIR) needed to make those decisions?
- What aspects of the COA might introduce strategic challenges that must be resolved?

Additionally the planners analyze the COA in relation to the evaluation criteria and determine initial results which may be refined during the wargame.

d. **Before starting.**

Wargaming just doesn't happen, it must be planned. Review the wargaming steps prior to starting. Sample Wargaming Steps are:

1. Prepare for the wargame
   - Gather Tools such as maps, unit markers, staff estimates, timelines, deployment data etc. It is absolutely critical that JPG members come with as much detailed information and data (staff estimates) in their functional area as possible.
   - List and review friendly forces. Include mobilization and deployment timelines.
   - List and review opposing forces. Include mobilization and deployment timelines.
   - List known critical events
   - Identify measures of effectiveness (MOEs) to use in wargaming. (See Note on MOEs below)
   - Determine and organize war game participants
   - Determine opposing alternative end states and actions or determine the enemy COA to oppose
   - Select wargaming method –manual or computer-assisted, by event, phase or line of effort
   - Determine level of detail required
   - Select a method to record and display wargaming results – narrative – sketch and note –wargame worksheets – synchronization matrix
2. Conduct the wargame and assess results
   - Purpose of wargame (identify advantages and disadvantages in relation to the evaluation criteria)
   - Basic methodology (e.g. action, reaction, counteraction) – record results
3. Output of wargaming:
   - Results of the wargame brief – potential decision points – potential branches and sequels, additional data for evaluation criteria
   - Revised staff estimates
   - Refined COAs
   - Feedback through the COA decision brief

Note
It is important to identify any MOE that quantifies the intended effects of the COA (e.g. defeat mechanisms). These MOEs should enable a consistent comparison of each COA against each enemy COA. If necessary, different MOEs should be developed for assessing different COAs or types of critical events within a COA (e.g., destruction, blockade, air control, neutralization, ensure defense).

e. **Organize the Wargaming Team.**

1) Typically the JPG organize itself into teams that represent the joint components, coalition forces, joint functions, the opposing forces and possibly neutrals. (See figure 3-8) An option to consider is organizing cells by lines of effort if appropriate. Each team ideally should have both operational and

logistical expertise represented, although this is not always possible. Some team member may have to play multiple roles. Administratively a facilitator leads the wargame, directs the questioning, keeps the game moving and supervises the recorder. A recorder captures the critical data and outcomes of the game and any issues that cannot be resolved quickly. A TTP to keep recording manageable is to use the issue, discussion and recommendation/conclusion format.

2) Typically the data is recorded in a wargame matrix, but other methods are acceptable. The Chief of Plans typically role plays the commander and focuses on the commander's intent, possible decision points and CCIRs. The intelligence planners or other specialists' role plays the opposition. They should have basic functional role players (operations, intelligence and logistics) that use threat information to simulate an adaptive, thinking enemy/environment. The intel/enemy team develops the enemy COAs from the information provided in the JIPOE.

3) The JTF Team focuses on required joint functions such as C2, intelligence, sustainment, fires, movement and maneuver, and other areas such as CCIR's, use of reserve, and control measures. The JTF Cell also considers interagency coordination and support.

4) The Land Component Command (LCC) Team focuses on land actions envisioned two subordinate levels down. Service component representatives that will work for the LCC will represent their service. These individuals are responsible for things like planned requests for forces if capabilities required are not present in the forces selected for planning, and major subordinate element control measures like unit boundaries, objectives, Common User Logistics (CUL) requirements, LCC role in Joint Staging, Reception and Onward Integration (JSROI),etc.

5) The Air Component Command (ACC) Team focuses on actions required by the air component such as aircraft bed-down, maximum daily sorties (Are there enough aircraft to accomplish the support needed?), and conditions required to undertake actions (IAD destruction), etc. The service representative of the largest air component generally leads this cell.

6) The Maritime Component Command (MCC) Team focuses on actions required by the maritime components. These individuals are responsible for considering things like at-sea sustainment, operations area requirements, countermine actions, littoral warfare, C2 and support of marine forces during certain phases, contribution to ACC actions, TMD, and JTF firepower, etc.

7) Special Operations Component (SOC) Team focus on conditions required for envisioned actions, C2 relationships with adjacent units, control measures such as Joins Special Operational Area (JSOA) or restricted areas, and forces/capabilities available versus what is required by mission.

8) The Coalition Team represents all actions required by coalition forces envisioned in the plan. These individuals focus on issues like host nation support, logistics shortfalls, C2 arrangements, communications requirements, LNOs, force capabilities, and national or state concerns. [lxxx]

9) If applicable, the JPG should consider identifying role players for United Nations (UN), Non-govermental organizations (NGO) or other relevant actors in the encironment. These are sometimes refered to as 'Green' or 'White Teams'.

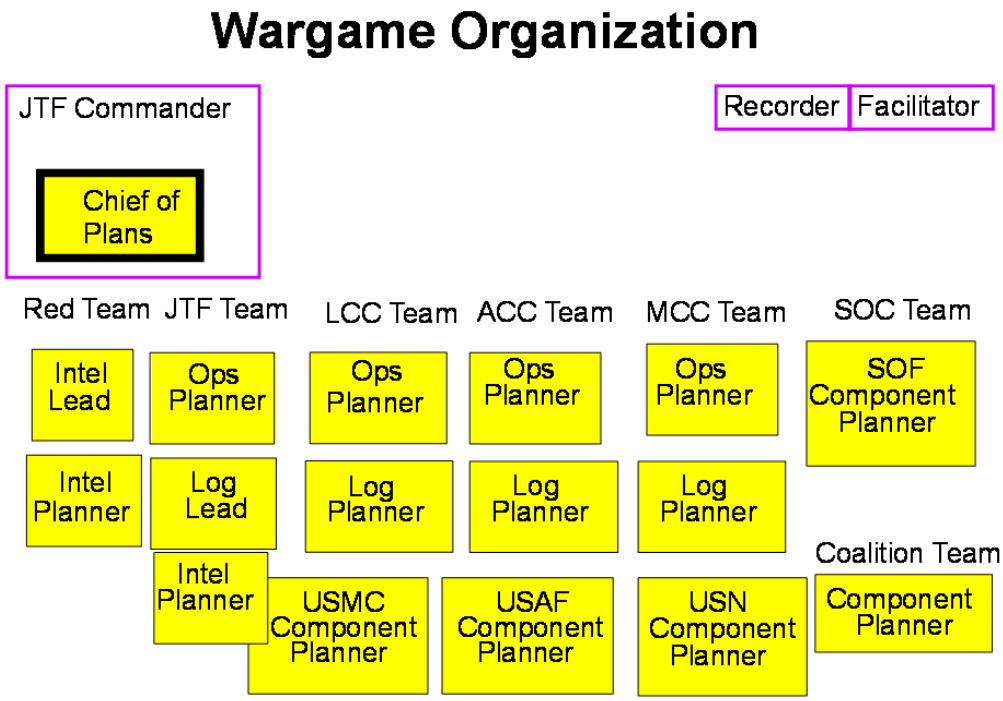


Figure 3-8

f. **Decide what type of wargame to use.**

1) The JPG can chose between computer assisted (automated) and manual wargaming. Computer assisted gaming provides a high degree of fidelity and objectivity and can run through multiple turns much faster than manual gaming. However, it requires significant levels of support and time to build data bases and appropriate mature scenarios with the correct threat parameters. Computer modeling normally resolves questions regarding outcomes during specific moments in the fight, and the gross requirements for logistics and transportation feasibility. Computer wargaming often supports deliberate planning that has longer planning horizons.

2) Manual wargaming may lack the fidelity and objectivity of computer modeling but it requires less overhead and can be faster, especially in immature scenarios and crisis situations. Manual gaming also allows for the introduction of situational understanding and other intangible that are difficult to quantify in a data base. The key thing to remember is that computer simulations assist, but never supplant the combined experience of the people conducting the wargame. For this reason combinations of computer and manual wargaming are often used with the computer 'crunching the numbers' on quantifiable data such as force ratios and logistics factors while planners contemplate the human dimensions.

3) The JPG's decision on which method to use depends on the commander's guidance, time, resources available, staff expertise, information availability, and level (operational or tactical). Planners can mix and modify the methods to fit their specific situation.

4) For manual wargaming, there are several distinct methods available including:

- Deliberate Timeline. This method sequences the wargame turns by day-by-day or in discrete blocks of time. This is the most thorough method for detailed analysis but requires significant time.
- Operational Phasing. Phases are used as the framework for wargame turns. Each phase should focus on the significant actions and requirements by functional area or JTF component for that phase.

- Critical Events. In a time constrained environment this is often the preferred method. The critical events method highlights events such as the initial shaping actions. This technique also allows war gamers to concurrently analyze the essential tasks required to execute the COA. The focus is on specific critical events that encompass the essence of the COA. If time is particularly limited, focus only on the principal defeat mechanism of the critical event. As with the focus on operational phasing, the critical events discussion identifies significant actions and requirements by functional area and/or by JTF component.

5) Other wargaming methods include:
- The Main Effort
- Line(s) of Effort
- Terrain focused (box- specific area, belt-well defined terrain compartments, and avenue in depth-canalizing terrain)[lxxxi]

g. **Determine the level of detail required**.

There are two basic levels of wargaming; comparison and synchronization. The doctrinally correct method is to wargame for synchronization. With the synchronization, planners wargame each COA from start to finish against multiple enemy COAs and in sufficient detail to produce a fully synchronized COA. This type of wargame is well suited for deliberate planning where time is not a critical factor. However, if there is insufficient time for synchronization wargaming, such as in crisis action planning, planners should consider wargaming for comparison. In comparison wargaming the intent is to identify objective data that answers the evaluation criteria. The goal is to provide sufficient information on differences between the COAs as measured by the criteria so a comparison of the advantages and disadvantages can be made. Once a COA is selected the planners would then conduct a full synchronization wargame to provide the details necessary for writing a plan or order.

h. **Wargame each COA independently.**

Wargaming provides the means for the commander and staff to analyze and test each friendly COA against an enemy COA in an action-reaction-counteraction methodology. In time-constrained situations, wargaming against all enemy COAs may not be possible, so carefully consider which enemy COA to wargame. The enemy COA can be either the most likely or most dangerous whichever is agreed upon by the planners and commander. However, the enemy COA selected must remain the same for each wargame otherwise a comparison becomes invalid. Staffs need to guard against the urge to change the enemy COA during wargaming. All COAs must be evaluated through multiple actors' eyes, given their political and cultural perspectives and biases, in order to determine if the proposed actions will change behaviors in the way friendly planners believe.

i. **Conduct the Wargame.**

1) Before the start of each wargame the JPG leader and the Red Cell leader should provide a review of the friendly and enemy COA. The JPG conducts the wargame by assembling information and marshalling the proper tools and teams for analysis, and following a well-ordered process for systemic analysis of the proposed COAs. A simple manual wargame method employs an action-reaction-counteraction format between ―Blue (friendly) and ―Red (enemy) teams. (See figure 3-9) The figure assumes the Blue team starts, however, the team that starts the action-reaction-counteraction, should be the side that has the initiative. A possible framework to guide the flow is to use phases or the Lines of Operation or Lines of Effort to sequentially work through the campaign. Blue, Red, and, if appropriate, 'Green' (neutral actors) teams *THINK* and speak for their forces when directed by the facilitator.

2) A conscious effort must be made to stay at the operational level; however, it is appropriate to envision some tactical activities to determine the feasibility of tasks assigned to subordinate forces. For example

the Blue team land component representative may consider land activities down to brigade level to determine, not how the brigade fights, but if the brigade has sufficient resources to accomplish the action tasked.[lxxxii]

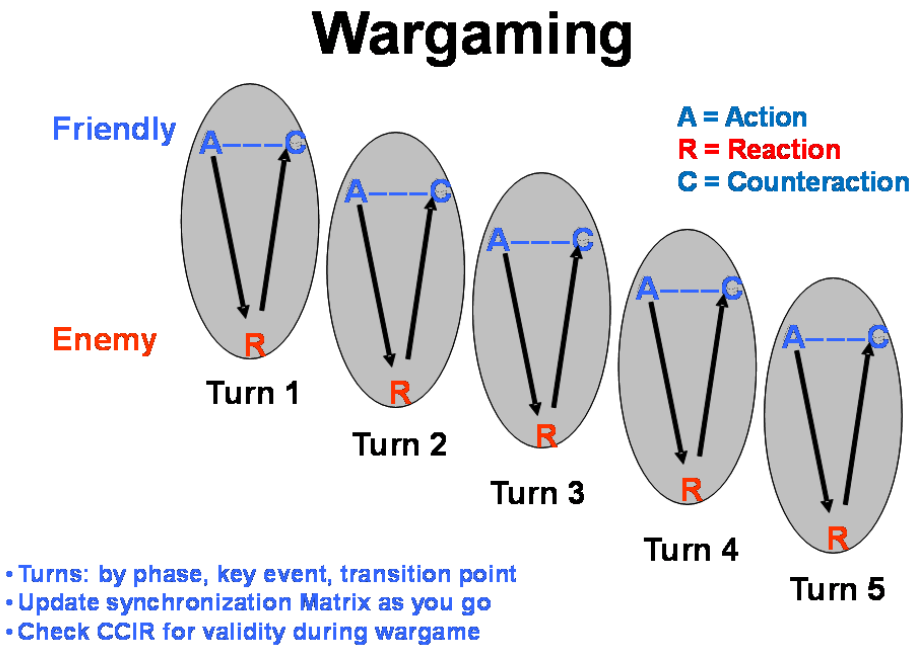


Figure 3-9

3) As the JPG conducts the wargame, they interpret the results of the analysis to ensure each COA remains valid. If a COA is inadequate, infeasible, or unacceptable, they must discard or modify the COA. The JPG may also find that it needs to combine aspects of COAs and develop new ones.

4) Record the Wargame. Proceedings of the wargame can be recorded in a variety of means:

- Narrative describing the action, probable reaction, counteraction, assets, and time used
- Sketch-note which uses a narrative but adds operational sketches to paint a clear picture
- Matrix worksheets with action, reaction, counteraction, assets and time columns, and major event rows (figures 3-10 and 3-12)
- Synchronization matrix organized by phase, time or major events as columns, with functional and other major activity areas as rows. If used as a recording tool, this would form the beginning of the synchronization matrix that will provide the commander and staff a visualization tool for the operation. It can be refined throughout planning, and should be updated throughout the conduct of the operation. The synchronization matrix helps staff officers build the detailed functional annexes that support writing of the operation plan.
- Criteria Matrix showing the evaluation criteria and the measurable data (figure 3-11).
- The Recorder Worksheet combines the synchronization and criteria matrices (figure 3-12).

5) Whichever method of recording is used, it is important to capture the decision points, CCIRs, COA adjustments, potential branches and sequels, and potential undesired effects.

Wargame Recording Matrix

Draw a sketch of the AO here to record key information.

COA _____
Phase_____

	Areas	Action	Reaction	Counteraction
Components	LCC			
	ACC			
	MCC			
	MARFOR			
	CSOC			
	Coalition			
	Interagency			
JTF	Movement			
	Intelligence			
	Strat Comms			
	Firepower			
	Support			
	C^2			
	Protection			
Other	Decision Points			
	CCIR			
	Branch/sequel			
	Risks			
	Host Nation			

Figure 3-10

Criteria Matrix

Criterion	Objective Measurement
Speed (Time to achieve objective)	7 weeks
Sustainment (Throughput in STONs)	3K
Flexibility (# of Executable options or branches	3
Simplicity (# of main effort shifts)	2
Casualties (mil/civ)	2/1k

Figure 3-11

Sample Recorder Worksheet

Critical Event, Phase, Time										
Sequence Number	Action	Reaction	Counter-action	Assets	Time	Decision point	PIR	Controls	Remarks	Criteria

Figure 3-12

j. **Analyze the COA.**

1) The analysis of the COA as a result of the wargame should include the following areas. These questions are a useful checklist for the facilitator and recorder to follow.

- Will the COA achieve the objectives? How long will it take?
- Advantages and disadvantages. What are the major elements of this COA that may present distinct advantages or disadvantages, compared to the evaluation criteria, to the command?
- Critical events, decision points, CCIR. What are the critical events that will determine whether objectives are achieved? What may happen that will require a commander's decision to change the plan? What information does the commander need to make that decision? What elements of assessment must be added to the plan?
- Potential branches and sequels and decision points to execute them. What branches to the plan may be required to deal with possible deviations from the expected campaign? What branches or sequels may be required in the event of more rapid than expected success?
- Risks of undesirable effects. What are the potential second order effects of our actions (or of other actor actions) that may have to be mitigated?
- Strategic challenges that must be resolved. What strategic issues emerged that must be brought to the attention of higher commands/ civil authorities/ partners? What are some possible mitigation strategies to these challenges?

2) After the wargame is complete, there should be sufficient visualization of the operations to ―flesh out the required tasks. Some of these tasks will be directly related to achieving effects that will enable objectives to be met, while others will be ―housekeeping tasks (such as building bases, establishing logistics stocks and resupply routes, conducting JRSOI).

k. **Adjust the COA to mitigate risk and enable it to better achieve objectives.**

After analysis of the COA, the staff can refine the COA to improve its likelihood of achieving the objectives in the time desired and reduce the elements of risk. If the COA becomes significantly

different, then it should be re-briefed to the commander. Care must be taken not to morph the COA so that it not distinguishable from one of the other COAs.

l. **Update staff estimates.**
Record observations about the COAs in the staff estimate, to include functional requirements, relevant challenges to the functional area, and mitigation measures relevant to the staff section's function.

Section Six: Step 5. Compare Courses of Action.

Key Points

Compare COAs against the evaluation criteria.

Avoid bias by using criteria that are objectively measurable.

Key is the ability to articulate to the commander why one COA is preferred in terms of how well the COA meets the evaluation criteria requirements.

a. After rigorous analysis of each COA, the JPG compares the COAs using a common set of evaluation criteria. During the comparison process, the JPG focuses on evaluating the value of each COA through the commander's eyes -- using his visualization of the operation as the standard. The purpose of the comparison is to determine which COA is the best fit for his intent, with least cost and risk, and greatest chance of success. Using evaluation criteria (see earlier discussion in Section 4: Step 3. Develop Courses of Action, paragraph w) derived mostly from his intent and guidance, the staff analyzes and evaluates the COAs against the criteria--not against one another--in order to identify the one that best meets the commander's needs.

b. **Compare COAs using evaluation criteria.**
1) The JPG compares COAs using the evaluation criteria established prior or during wargaming, and possibly modified as a result of the wargame. The JPG must be objective as possible during the comparison and guard against manipulating the criteria or data to promote a favorite COA. To avoid bias the criteria should be as objectively measurable as possible. Figure 3-13 is an example of a matrix comparing two COAs against measurable criteria. In it, each criterion is defined, and measurable data/score from the wargame and staff estimates is applied to the criterion. For example the criterion of speed in figure 3-13 has a score of 7 weeks for COA 1 and 9 weeks for COA 2. For the COA comparison ranking the advantage is to COA 1 as indicated by the + sign. The use of numbers to indicate favorable rankings can also be used. This comparison process would continue for all of the criteria and the COA with the best overall ranking could be recommended. Note in the casualty criterion it is difficult to apply a rank characterization. This is an example where the JPG would want to discuss with the commander and obtain further guidance.

2) Based on prior discussions with the commander, his intent and guidance and JPG experience the JPG may recommend weighting come criterion stronger than others. For example if speed, sustainment and casualties were considered more critical they might be given twice the weight of flexibility and simplicity. Weighting based on a criterion's importance to the mission is acceptable. However weighting criterion to shape the outcome of the comparison is intellectually dishonest and suggests the need to review and possibly select new criteria.

c. **Select the "best" staff-recommended COA.**
After the comparison the staff must select the COA that they will recommend to the commander. The selection must consider not only the JPG analysis, but each staff section's functional analysis of the

COAs. COA comparison has some subjectivity in it and should not become a strict mathematical exercise. By using the data generated during COA analysis and applied against the evaluation criteria and factoring in any weighting the JPG should determine and recommend the COA that best meets the evaluation criteria. The key element in this process is the ability to articulate to the commander why one COA is preferred over another in terms of how well the COA meets the evaluation criteria requirements. Again this is why the use of objective measurable criteria is useful. The practice of subjectively assigning numbers or plus and minus to criterion rather than measurable data risks the creditability of the JPG as the commander may ask for justification and a rationale for the selection of a ranking. It is best to explain the rationale upfront for the selection and definition of the criteria and how each is measured.

Section Seven: Step 6. Approve a Course of Action.

Key Points

The JPG's Course of Action Decision Brief covers two main subjects; results of the analysis, and results of the comparison, which is a recommended COA Other subjects focus on updating the commander' s understanding.

Be prepared to receive additional commander's guidance.

a. The JPG briefs the results of the COA analysis and comparison to the commander to obtain a decision on which COA to develop into the Concept of Operations (CONOPS) for the operation. The brief helps the commander to refine his visualization and provide further guidance on how to proceed with CONOPS development.

Comparison Matrix

Criterion	CoA 1 Objective Measurement/Rank	CoA 2 Objective Measurement/Rank
Speed (Time to achieve objective)	7 weeks / (+)	9 weeks / (-)
Sustainment (Throughput in STONs)	3K / (+)	2.5k / (-)
Flexibility (# of Executable options or branches	3 / (-)	4 / (+)
Simplicity (# of main effort shifts)	2 / (0)	2 / (0)
Casualties (mil/civ)	2/1k / (?)	1.5/1.5k / (?)

Figure 3-13

b**. Recommend COA to the commander.**

1) In the Commander's Decision Brief the staff presents the COA analysis, and the recommended COA. Typically, this briefing provides the commander with an update of the current situation, an overview of the COAs considered, and a discussion of the results of COA comparison. This brief also includes any update on the understanding of the environment resulting from wargaming.

2) A typical COA Decision Brief includes the following:

- Purpose of the briefing
- Update the understanding of the environment
- Update to the friendly situation (military forces and other relevant elements of power)
- Mission statement
- Update of assumptions/facts
- Present each COA • narrative and/or sketch • advantages/disadvantages/risks • needed branches, changes, resources.
- Compare COAs • Relative advantages/disadvantages • Comparison using evaluation criteria and ranking
- Recommended COA
- Commander's approval of a COA or approval of a modified COA and update of any guidance

3) During the brief it is important that dissenting views be heard so the commander can consider all aspects of the analysis. Staff officers should be encouraged to expound on issues in their functional areas if needed. Subordinate commands should also be present, or linked via video-teleconference. Other partners, such as government agencies and key multinational partners should be invited to the extent possible.

c. **Commander selects a COA or approves a modified COA**.

The commander will evaluate the JPG's analysis, apply his own understanding of the environment and the mission and critically evaluate how each COA would accomplish the mission. The commander may select a single COA as presented, or may incorporate the best portions of several COAs to form a new one.

d. **Receive commander's guidance for concept development.**

During or following the COA Decision Brief, the commander will likely provide additional guidance that will enable further development of the concept of operations or plan. Once the COA is approved it becomes the Commander's Concept of Operations (CONOPS). If the JPG only wargamed for comparison they will want to conduct a full wargame of the selected CONOP for synchronization time permitting.

e. **Confirm Updated Commander's Intent.**

Upon hearing the COA analysis, the commander's understanding of the environment may be better and prompt him to refine his intent and guidance

f. **Update staff estimates and the Commander's Estimate.**

Once the commander makes a decision on a COA, provides any additional guidance, and updates his intent, staff officers record the commander's decision and refine their estimates of the plan's supportability from their functional viewpoint. The staff also drafts, for the commander's approval, then prepares the Commander's Estimate, which is a concise statement of how the commander intends to accomplish the mission, and provides the necessary focus for continued planning and developing an OPLAN/ OPORD.

Section Eight: Step 7. Plan or Order Development.

Key Points
Converting a CONOPS to an Operations Plan or Order.
Building the base plan.
Building annexes.
Reliance on running staff estimates provide the foundation and detailed information.
Expand joint functions concepts i.e. sustainment, IO, protection etc.
Briefing the plan for approval.

a. In the next step the full staff develops the CONOPS into an Operations Plan or Operations Order. The CONOPS must be developed to provide the detail required for the staff to build the base plan and prepare supporting annexes, and supporting and subordinate organizations to build supporting functional plans. If the JPG wargamed for comparison it may be necessary to fully wargame the approved COA in order to develop the details need transition from the CONOPS to an Operations Plan or Order. The other key sources for details are the staff estimates that have been maintained and updated through the JOPP process. These estimates will help fill in key paragraphs in the plan or order and serve as the start point for various annexes.

b. Plan or Order Development Primary inputs are:

- Review Planning Guidance. The staff should review the commander's guidance as updated throughout the planning process and as modified as a result of associated discussions with the commander particularly in the COA approval brief.
- Update the Commander's Intent. The commander should republish his intent, with any changes to it that may result from the JOPP process.
- Phase the Concept. Phases are designed to nest with the overall operational intent and sequenced to achieve an end state. Each phase must have a specified set of conditions to begin, and a set of conditions that describe the intended end state for the phase. Recognize that lines of operation and effort are likely to run throughout the phases. Planners need to realize that the doctrinal phasing model is only a model and must keep in mind that each operation is unique and the phasing must make sense for the operation. While planners would like to keep phases flexibly event-oriented, they must also consider the time-oriented resourcing requirements for the activities of each phase.

Note
Subordinate planers must also use the same phasing construct and create nested phasings as the higher organization's so as not to create multiple and confusing phasing constructs.

c. For each phase, the operation's CONOPS should describe the following elements:

- Intent and concept of operations for the phase. The commander's intent for the phase must be clear. Describe the purpose, end state for the phase, and a description of the operational risk to the operation during this phase. Descriptions of the concept of operations may be a narrative of the various lines of operation and lines of effort as they are executed during this particular phase.

- Objectives and effects (both desired and undesired). Describe the operation's objectives for the phase, and the effects that must be achieved to realize the objective. Describe how the force's objectives are related to those of the next higher organization and to other organizations (especially if the military is a supporting effort).
- Tasks to subordinate commands and supporting commands and agencies. The commander assigns tasks to subordinate commanders, along with the capabilities and support necessary to achieve them. Area tasks and responsibilities focus on specific areas to control or conduct operations. For example the assignment of areas of operation (AO) to a service component along with the tasks to perform in that area. Functional tasks and responsibilities focus on the performance of continuing efforts that involve the forces of two or more Military Departments operating in the same domain, air, land, sea, or space, or where there is a need to accomplish a distinct aspect of the assigned mission.[lxxxiii] For example fulfilling the responsibilities of the air component command is a functional task that may be assigned to the service component with the preponderance of air power. When identifying tasks, planners need to consider and include the identification of requests to organizations outside of DOD for support.

Note

A functional task is an integrating and synchronizing task for the efficient management and execution of capabilities shared by more than one service (military department) operating in the same domain, for example Army and Marine forces on land. Responsibility for a functional task is assigned to a particular service component, typically the one with the largest force or capability. With the task assignment comes specified command relationships between the service components relating to the execution of the functional task. The command relationship could include, operational control (OPCON) tactical control (TACON) and supported or supporting. For example the Air Force component commander could be assigned the functional task to provide 'air and missile defense'. He would be designated as the Area Air Defense Commander and given OPCON or TACON of the air and missile defense capabilities of the other services. Depending on the situation and context he could be designated the supported commander for 'air and missile defense'.

- Command and control organization and geometry of the area of operations. Note any changes to the command and control structure or to the geometry of the Area of Responsibility (for combatant commands) or Joint Operations Area (for subordinate Joint Forces) or Area of Operations (for subordinate non-joint forces).
- Assessment methodology. Identify the basic methodology for assessing accomplishment of objectives. Also include assessments to help gauge if the objectives actually support achievement of the end state.
- Risk mitigation. Identify the areas of risk concern to the commander and outline how the risk may be mitigated.
- CCIR and associated decision points. These are especially important for branches and sequels.
- Transition to the next phase. Describe how the force will move to the next phase. Describe the end state conditions for the phase, which should tie directly to the initiation conditions for the next phase. Include a description of transition of control from the force to other parties for aspects of the overall operation.

d. **Develop supporting concepts.**

1) Once the general concept of operations is built, supporting concepts are designed to ensure supportability and coordination among the supported and supporting commands and subordinates. Some of the key supporting concepts are logistics support, force projection, information operations, force protection, and command, control and communications. The staff will review the supporting concepts to

ensure coordination. At the combatant command level, the CJCS issues a planning order or alert order to direct preparation of supporting plans after receipt and approval of the commander's estimate. Similarly, the combatant command issues a PLANORD to subordinates. Subordinate commands generally build their supporting CONOPS upon receipt of the command's CONOPS, but have almost certainly been working in parallel with their higher headquarters. Other organizations will also develop supporting concepts. The command informally coordinates with other government agencies to build mutually supporting concepts. The command will integrate these concepts into the campaign plan.

2) Synchronization is the art of arranging all activities (military and otherwise) in the right sequence and place, with the right purpose, to produce maximum effect at the decisive points**.** Synchronization of the plan takes place once all of the supporting concepts are built. Synchronization continues after development of the plan, through brief-backs, rehearsals, and execution. A synchronized and fully integrated CONOPS becomes the basis of the Base Plan and all of the plan's annexes.

e. **Expand the CONOPS into a Base Plan with Annexes.**

The staff and supporting commands focus on completing annexes and supporting plans. As the staff expands the CONOPS into a complete and detailed plan they work with supporting commands in a parallel, collaborative, and iterative fashion rather than in a sequential and time-consuming manner. Time is always a factor; conducting simultaneous, synchronizing activities at all levels is critical to shorten the planning cycle and make best use of the limited time.

Note	
Annexes include:	
A - Task Organization	N – Space Operations
B – Intelligence	P – Host- Nation Support
C - Operations	Q - Medical – Services
D – Logistice	R – Reports
E – Personnel	S – Special Technical Operations
F – Public Affairs	T – Conseqence Management
G – Civil-Military Operations	U – Notional Counterproliferation Decision Guide
H – Meteorolgical and Oceanographic	V- Interagency Coordination
J – Command Relationships	W – Contingency Contracting
K – Communications systems	X – Execution Checklist
L – Environmental Considerations	Y – Strategic Communications]
M – Geospatial Information	Z – Distribution

f. **Plan Development Activities**[lxxxiv]

1) The supported joint force commander issues a Planning Order (PLANORD) or other planning directive to coordinate the planning activities suppordinate and supporting commands and agencies involved. Typically these activities include:

Note	
Plan Development Activities:	
Force Planning	Feasibility Analysis
Support Planning	Refinement
Nuclear Strike Planning	Documentation
Deployment-Redeployment Planning	Plan Review and Approval
Shortfall Identification	Supporting Plan Development

2) **Force Planning.**

Force planning begins during concept development but must be refined and finalized during detailed planning. There must be a balance between the flexibility provided by the plan and the requirements to identify forces, recalling that inclusion in a plan implies a level of preparation requirement for units. The commander determines **force requirements,** develops a letter of instruction for **time phasing and force planning,** and designs **force modules** to align and time-phase the forces in accordance with the concept under development. Major forces and elements initially come from those apportioned or allocated for planning by operational phase, mission, and mission priority. Service components then collaboratively make tentative assessments of the specific combat and supporting capabilities required. The commands should not be constrained by the apportioned forces, but must be able to provide clear rationale for capabilities required that are not apportioned. The commander typically describes required force requirements in the form of broad capability descriptions or unit type codes, depending on the circumstances. The Universal Joint task List (UJTL) and the service specific task lists are a reference resource that can assist planners in the identification of tasks and the required capabilities.

3) After sourcing the actual forces, the Combatant Commander's staff refines the force plan to ensure it supports the concept, provides force visibility, and enables flexibility. The commander identifies and resolves shortfalls, or reports shortfalls with a risk assessment during his review. The commander then submits the required force packages through the Joint Staff to the force providers for sourcing.

4) **Support Planning.**

The purpose of support planning is to determine the sequence of personnel, logistics, and other support required to provide distribution, maintenance, civil engineering, medical and other sustainment actions in accordance with the concept of operation. Support planning takes place in parallel with other planning, and encompasses such essentials as executive agent identification, assignment of responsibility for base operating support, airfield operations, management of non-unit replacements, health service support, personnel management, financial management, handling of prisoners of war and detainees, theater civil engineering policy, logistics-related environmental considerations, support of noncombatant evacuation operations and other retrograde operations, and nation assistance.

5) Support planning is primarily the responsibility of the Service Component Commanders. Service Component Commanders identify and update support requirements in coordination with the Services, the Defense Logistics Agency, and USTRANSCOM. They initiate the procurement of critical and low-density inventory items, determine host-nation support (HNS) availability, develop plans for total asset visibility, and establish phased delivery plans for sustainment in line with the phases and priorities of the concept. They develop battle damage repair programs, reparable retrograde plans, container management plans, force and line-of-communications protection plans, supporting phased transportation and support plans aligned to the strategic concept, and report movement support requirements. Service Component Commanders continue to refine their sustainment and transportation requirements as the force providers identify and source force requirements. The requirements and transportation planning must be integrated and coordinated by the combatant commander to ensure synchronization with the concept of operations, to reduce redundancies and manage risk, and to integrate transportation requirements with the force flow.

6) **Nuclear Strike Planning.**

Commanders must assess the military as well as political impact a nuclear strike would have on their operations. Nuclear-planning guidance issued at the combatant-commander level depends upon national-level political considerations and the military mission. Although USSTRATCOM conducts nuclear planning in coordination with the supported combatant command and certain allied commanders, the command does not control the decision to use nuclear weapons, that is reserved for the national command authority.

7) **Deployment Planning.**

The operational environment dictates the type of entry operations, deployment concept, mobility options, pre-deployment training, and force integration requirements. The combatant commander is responsible for developing the **deployment concept** and identifying pre-deployment requirements. The combatant command is also responsible for **movement planning**, manifested through the Time-Phased Force Deployment Data (TPFDD) file, assisted by the force providers and TRANSCOM. In particular, TRANSCOM assists greatly with current analysis and assessment of movement C2 structures and systems, available organic, strategic and theater lift assets, transportation infrastructure, and competing demands and restrictions. All recognize that operational requirements may change, resulting in changes to the movement plan. Planners must understand and anticipate the physical limitations of movement assets and infrastructure, and the impact of change, as any change will have effect on the rest of the TPFDD. Finally, the supported command for any particular operation is responsible for **Joint Reception, Staging, Onward Movement, and Integration (JRSOI)** planning. JRSOI planning ensures an integrated joint force arrives and becomes operational in the area of operations as required.

8) The supported joint force command, in coordination with the Joint Staff, USTRANSCOM, force providers, and supporting commands, conduct a refinement conference for deployment and JRSOI. The purpose of the deployment and JRSOI refinement is to ensure the force deployment plan maintains force mobility throughout any movements, force visibility and tracking at all times, effective force preparation, and full integration of forces into a joint operation while enabling unity of effort. This refinement conference examines planned missions, the priority of the missions within the operational phases, and the forces assigned to those missions.

9) **Shortfall Identification.**

The commander continuously identifies limiting factors and capabilities shortfalls and associated risks as plan development progresses. Where possible, the commander resolves the shortfalls, and implements required controls and countermeasures through planning adjustments and coordination with supporting and subordinate commanders. If internal resolution is not possible, the commander reports these limiting factors and assessment of the associated risk through the combatant command to the CJCS. The CJCS and the Service Chiefs coordinate resolution, with one option being acceptance of risk.

10) **Feasibility Analysis.**

The focus of this activity is to ensure assigned mission accomplishment, using available resources within the plan's contemplated time frame. The results of force planning, support planning, deployment planning, and shortfall identification will affect OPLAN or OPORD feasibility. The primary factors are whether the apportioned or allocated resources can deploy to the joint operational area (JOA) when required, be sustained throughout the operation, and be employed effectively, or whether the scope of the plan exceeds the apportioned resources and supporting capabilities. Measures to enhance feasibility include adjusting the CONOPS, ensuring sufficiency of resources and capabilities, and maintaining options and reserves.

11) **Refinement.**

Planners frequently adjust the plan or order based on results of; force planning, support planning, deployment planning, shortfall identification, revised JIPOE, changes to strategic guidance, or changes to the commander's guidance resulting from his continuous design of the campaign. Refinement continues even after execution begins, with changes typically transmitted in the form of FRAGOs (Fragmentary Orders) rather than revised copies of the plan or order.

12) **Documentation.**

"When the [Time Phased Force Deployment Data] TPFDD is complete and end-to-end transportation feasibility has been achieved and is acceptable to the supported CCDR [Combatant Commander], and the

CCDR completes the documentation of the final contingency plan or OPORD and coordinates access to the transportation –feasible TPFDD as appropriate."[lxxxv]

13) **Plan Review and Approval.**

Once completely coordinated, the plan should be briefed to the commander for his validation, as well as to prepare him to brief the plan to the higher leadership. There is no doctrinal format for this brief. However, subject to the commander's style and preference the brief should include:[lxxxvi]

- The situation. Including a general summary and background that ensures subordinate understanding, the higher commander's intent, friendly and enemy forces.
- The mission. The commander's mission statement.
- Execution. Including the commander's intent, objectives, tasks, and assignments for subordinates, phasing with criteria denoting completion.
- Administration and Logistics. Includes the overall concept of support.
- Command and Control. Specifies the command relationships, succession of command and the overall communications plan.

14) **Supporting Plan Development.**

The planning requirements described above enable coordination of the plan. The command's CONOPS drives the supporting concepts, but not until the command completes coordination of all of the annexes to the plan with the supporting commands and agencies to ensure that they have addressed all of the requirements adequately. The command then reviews all of the supporting plans once they are prepared to ensure that the plan is fully coordinated.

15) Planning for multinational operations is coordinated through various means. Individual treaty or alliance procedures set the stage for collective-security goals, strategies, and combined OPLANs, in accordance with US doctrine and procedures. Thus, much information and guidance for joint operations are conceptually applicable to alliance and coalition planning. The fundamental issues are much the same. Host-Nation Support and mutual support agreements facilitate combined operations. Coordination of planning is through established, coalition bodies, and at the theater and operational levels by CCDRs or other subordinate joint US commands that are charged with operational planning matters. This coordination should be continuous throughout the design and planning of the campaign, but there must also be a formal coordination step to validate that all of the coordination has been completed and accepted by all parties.

16) In a similar vein, coordination of the plan with government agency partners is conducted both informally and formally. CCDRs and JFCs should encourage and solicit maximum participation of appropriate interagency planners in the design of operations. Their participation throughout planning is extremely beneficial to expand the perspectives and expertise provided in design and in achieving unity of purpose and then unity of effort in the campaign or operation. However, formal coordination of OPLANs is done at the Department level, once an OPLAN is approved by the Sec Def.

g. **Issue the OPLAN or OPORD.**

Key Points

Along with issuing the plan or order there are two briefs.

Transition brief - Transfers information from the planners to operators who are responsible for executing the plan. Also known informally as a 'handoff brief'.

Confirmation brief – Subordinate commanders brief their understanding of the plan back to the issuing commander. He then confirms that they understand his intent and plan. Sometime it is called a 'back brief'.

1) The approved plan is distributed to all subordinate and supporting commands, agencies, and other appropriate organizations. The command will have a method of maintaining the plan, that is, distribute all changes, and solicit review of the plan.

2) If the plan is issued as an OPORD, it will be immediately transitioned to execution. Effective transition of the plan from the planners who have been intimately involved in developing all of the details of the plan, to the operators, who will not be as familiar with the intricate details of the plan, is critical. A **transition brief** provides an overview of the current and desired operational environment, mission, commander's intent and vision to provide information and direction to those who will execute the campaign.

3) The brief should include items from the order or plan such as the commander's intent, CCIRs, task organization, situation, concept of operations, execution (including branches and sequels), and planning support tools (synchronization matrix, JIPOE products, etc.). It should describe the interaction of the elements of power to achieve the commander's visualization of the campaign. Further, the brief should identify the projected points in the campaign that are of greatest risk and identify the likely decision points in the campaign. Successful transition ensures full staff, subordinate and supporting commands and agencies understanding of the plan, the commander's intent, and the concept of operations.

4) Subordinate commanders give a **confirmation brief** after receiving the order or plan. Subordinate commanders brief the higher commander on their understanding of commander's intent, their specific tasks and purpose, and the relationship between their unit's missions and the missions of other units in the operation. The confirmation brief allows the higher commander to identify potential gaps in the plan, as well as discrepancies with subordinate plans.

5) The senior commander gains insights into how subordinate commanders intend to accomplish their missions. **Transition drills** increase the situational awareness of subordinate commanders and the staff and instill confidence and familiarity with the plan. Sand tables, map exercises, and various rehearsals are examples of transition drills.

h. **Review the plan periodically**

1) Following final approval, the command maintains and updates the plan based on changes in the operational environment, strategic guidance, and resource levels. Note this is a review of a plan shelved for possible execution at a later time. This is not an assessment of the execution of an operations order. The purpose is to ensure the plan remains current and readily executable during future crisis action. Doctrine does not prescribe specific review or assessments tools. However, products used in planning such as higher's guidance, the JIPOE's description of the environment, actors and their capabilities, facts and assumptions contained in estimates and the plan and other planning inputs should be periodically checked to see if they are still relevant.

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Chapter Four

Integrating Operational design, elements of operational design and JOPP/MDMP

This chapter is an outline showing where the tools of operational art, design and the elements of operational design can be applied during the detailed planning process. Too often operational art and the planning process are regarded as separate subjects, one for the commander and another for planners. This artificial separation makes integration difficult. Think of this chapter as a guide for factors to consider or questions to reflect upon during the detailed planning. The intent is to keep conceptual planning linked to the detailed planning processes and steps. Note this material is based on the Joint Operational Planning Process but it is equally applicable to the Military Decision Making Process or similar methodologies.

The Joint Operation Planning Process

Step 1. Initiation

Key Inputs: Strategic planning documents and guidance such as the JSCP, CPG or JCS WARNO /EXORD. (The four listed elements below should be included in any strategic initiation guidance or directive, if not ask for it).

- Objectives (National Strategic and or Military)
- End State (National and or Military)
- Termination criteria (If not provided the staff may develop recommendations.)
- Effects

The higher headquarters should also provide an operational approach or similar 'design' type product that includes the following:

- Environmental description (current and desired)
- Problem statement
- Intent
- Planning guidance on the solution to the problem (operational approach)

Key Outputs: The commander and his team initiate their own operational design process that includes:

- Environmental description
- Problem statement. Once the problem is identified, conduct an enemy CoG analysis of it and determine critical factors. This will inform the operational approach
- Operational approach (Include identification of the friendlyCoG.)
- What actions to take, draft lines of operation/effort
- Initial commander's intent
- Commander's initial planning guidance
- Draft initial mission statement

Step 2. Mission Analysis

Key Inputs: Higher headquarters' order or planning directive. If there is a higher military command it should have all of the elements of operational design in it, but may not. If the higher authority is a civilian entity, you may have to infer or start a dialogue on the elements listed below.

- Objectives (National Strategic and or Higher Military)
- End State (National and or Higher Military)
- Termination criteria
- Effects

- Center of gravity

The elements above can generally be found in a higher headquarters order in paragraph 1. Situation. For the issuing organization they are in paragraph 2. Mission, and paragraph 3 (1) Commander's Intent. For guidance to subordinate organizations they are explained in paragraph 3. Execution.

Discussion of the elements below can generally be found in paragraph 3. Execution. Note these elements are not a checklist or a format guide and each element does not need to be specifically mentioned. For example the concept of anticipation may be addressed by a discussion of branch plans or decision points.

- Decisive Points (May be derived from critical factors in paragraph 1)
- Direct versus Indirect (May also be in the intent statement.)
- Lines of Operation, Lines of Effort
- Operational Reach (May also be contained in operations and logistic estimates.)
- Simultaneity & Depth
- Timing & Tempo
- Forces & Functions
- Leverage
- Balance
- Anticipation
- Synergy
- Culmination
- Arranging Operations

Other inputs: Updated mission specific staff estimates. These can provide data, information and analysis on the following elements:

- Friendly Center of Gravity
- Critical Factors (CC, CR, CV)
- Operational Reach
- Culmination
- Anticipation

Joint Intelligence Preparation of the Operational Environment provides data, information and analysis on the following elements:

- Enemy Center of Gravity
- Critical Factors (CC, CR, CV)
- Forces and Functions
- Enemy Operational Reach
- Enemy Culmination
- Anticipation

Mission Analysis Key Steps.

Determine known facts, current status, or conditions. Some of these will come from the operational design process and staff estimates. Analyze the higher commander's mission and intent to determine higher's and your own:

- Objectives (National Strategic and or higher military.)
- End State (National and or higher military)
- Termination Criteria
- Effects

Determine own specified, implied, and essential tasks.

Determine operational limitations.

Develop assumptions.

Determine own military end state, objectives, and initial effects. Higher's center of gravity analysis helps determine your objectives.

Determine/verify own & enemy's center(s) of gravity and critical factors
- Center of Gravity

Determine initial commander's critical information requirements (CCIR).

Review strategic communication guidance (when applicable). (See note)

Conduct initial force structure analysis. This analysis contributes to determining:
- Leverage
- Balance
- Synergy

Conduct initial risk assessment.
- Informed by center of gravity (friendly) analysis specifically CVs, operational reach and culmination

Develop mission statement.
- Informed by operational design (problem statement)

Develop mission analysis brief.

Prepare staff estimates.
- Informed by operational design.

Publish commander's planning guidance and initial intent.
- Informed by operational design and the operational approach

Key Outputs: Restated Mission Statement. Joint Force Commander's (JFC) intent statement.
- Informed by the operational design process and refined in mission analysis (MA)

JFC's Planning Guidance.
- Informed by the operational design process and refined in MA
- Initial Commander's Critical Information Requirements

Step 3. Course of Action Development

"Embedded within COA development is the application of operational art. Planners can develop different COAs for using joint force capabilities by varying the combinations of the elements of operational design."

Key Inputs:
- Planning guidance from mission analysis and the operational approach process.
- Commander's intent statement from MA.

- Staff estimates (running).
- Joint Intelligence Preparation of the Operational Environment (running).

COA development consists of answering the following questions and considering the design elements listed with the question. What type of military action will occur? (Initial intent and guidance, and mission statement).

- Direct versus Indirect
- Lines of operation/effort. Informed by the operational approach/Commander's intent
- Decisive Points
- Anticipation?

Why the action is required (purpose)? (From the problem statement, intent, and operational approach)

- Objectives (National Strategic and or higher military.)
- End State (National and or higher military)
- Termination Criteria
- Effects (Mission narrative)

Who will take the action?

- Leverage
- Balance
- Anticipation
- Synergy
- Arranging Operations

When the action will begin?

- Simultaneity & Depth
- Timing & Tempo
- Arranging Operations
- Operational Reach

Where the action will occur?

- Lines of Operation
- Simultaneity & Depth
- Operational Reach
- Decisive Points

How the action will occur? (Method of employment of forces)

- Direct versus Indirect
- Simultaneity & Depth
- Forces & Functions
- Leverage
- Balance
- Anticipation/
- Synergy
- Culmination
- Arranging Operations

Key Outputs: Revised Staff Estimates, COA Alternatives including:

- Tentative task organization
- Deployment concept
- Sustainment concept

Upon the completion of course of action development the bridge connecting operational art and detailed planning has been crossed. The remaining steps of the planning process including course of action comparison, selection, approval and plan production are entirely in the realm of detailed planning

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Notes:

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