

**THE UNITED STATES NAVAL WAR COLLEGE**  
**JOINT MILITARY OPERATIONS DEPARTMENT**



**OPERATIONAL ART PRIMER**

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The purpose of this primer is to provide the reader an overview of selected elements of operational art. While a deeper understanding of operational art can only be achieved through extensive study and frequent application, most novice planners can certainly benefit by appreciating a handful of key concepts. This primer has narrowed these critical touchstones of operational art to six topics: The Objective, Levels of War, Operational Factors (Space—Time—Force), The Four Questions, Theater Geometry, and the Center of Gravity.

## **Operational Art**

Before going any further, the first question that must be answered is what is operational art? U.S. Joint doctrine defines operational art as, “The application of creative imagination by commanders and staffs - supported by their skill, knowledge, and experience - to design strategies, campaigns, and major operations and organize and employ military forces. Operational art integrates ends, ways, and means across the levels of war.”<sup>1</sup> This “creative imagination” rests upon a foundation of both art and science. Science includes the physics of modern warfare. How long does it take a force to reach a specific location? What is required to sustain a force? What is the seaport and/or airport throughput capacity? What are the enemy’s military capabilities? These types of questions, and thousands of other questions of similar ilk, are the domain of science and are addressed by a myriad of staff estimates. Art, on the other hand, while often informed by science, relies upon intuition, or what Clausewitz referred to as *Coup d’oeil*. This aspect of operational art is honed through operational experience and the study of military theory and history. Some examples of intuition include sensing the approaching culmination of an enemy or one’s own force, or envisioning an imaginative approach to strike an enemy or to conceal one’s own force’s vulnerability.

## **The Objective**

The primacy of the objective is the most fundamental consideration in operational art—all actions should be directed towards accomplishing the objective. Invariably, when one feels that planning or an operation is going off track, the right question to ask is, “What is the objective?” Inextricably tied to the **strategic objective** is the **Desired End State (DES)**. The DES is the ultimate condition (or effect) the political leadership wishes to see at the end of hostilities. This condition encompasses all aspects: political, diplomatic, military, economic, social, informational, environmental, and other applicable circumstances relevant to the conflict. Note the military condition is only one portion of DES. The DES should be part of the strategic guidance received from strategic political leadership.

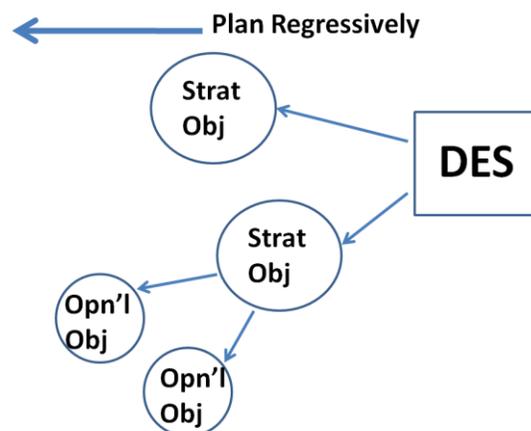


Figure 1 – DES and the Strategic Objective

<sup>1</sup> Joint Publication 1-02, *DOD Dictionary*, <https://jdeis.js.mil/jdeis/dictionary/def.jsp?word=operational+art> (accessed 6 July 2010).

**Planning regressively** (backwards) from the DES, one should then identify the strategic objectives necessary to be accomplished in order to reach the DES (see figure 1). It is also important to remember, similar to the DES, most strategic objectives will require the employment of a combination of instruments of power, not just the military. From each strategic objective—again, planning regressively—one can then ascertain the operational, and later, tactical objectives, which must be accomplished. Failure to plan regressively can lead to an unfocused operation or campaign that meanders rather than staying focused on the DES.

### The Levels of War

In the early days a warrior king would lead his army into battle—he would personally execute the linkage between strategic guidance and tactical actions. As warfare expanded in space and time—both through technology and larger military formations—strategic leaders lost

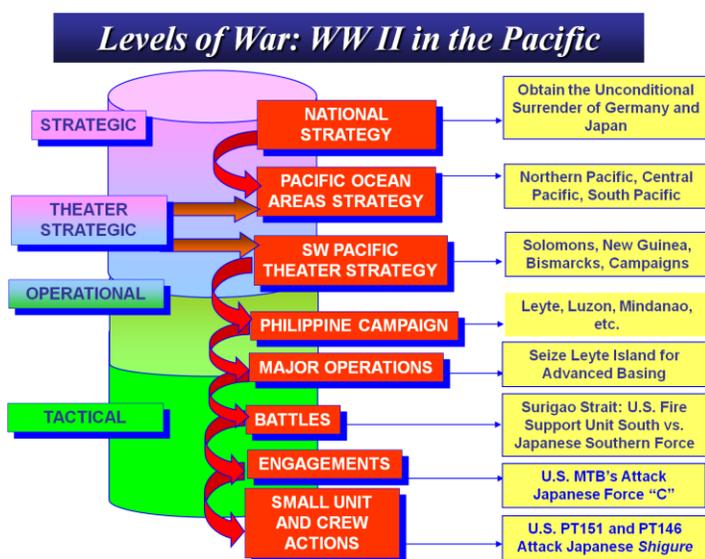


Figure 2. Levels of War during WWII in the Pacific

the ability to personally fulfill the linkages enjoyed by the earlier warrior kings. “The three levels of war—**strategic, operational, and tactical**—help clarify the links between national strategic objectives and tactical actions. There are no finite limits or boundaries between them—in fact, levels can be sub-divided if so required (for example, Combatant Commanders often operate at the Theater-Strategic level of war, a level anchored between the National Strategic and Operational levels of war).”<sup>2</sup> The operational level of war translates strategic objectives into tactical actions. Application of operational art assists in this translation. The key point to keep in mind is that each level of

war has associated objectives. See Figure 2 for an example of the levels of war during World War II in the Pacific.

### Operational Factors: Space—Time--Force

In order to achieve freedom of action, a successful commander must effectively balance the Operational Factors of Space, Time, and Force. The operational art theorist Dr. Milan Vego noted that these factors are pivotal in making decisions at all levels of war. “The higher the level of war, the larger the factors of space, time, and force and hence the more critical for the commanders and their staff to properly balance these factors with the respective objective.”<sup>3</sup> See Figure 3 for a graphic representation of the concept. An illustrative example of balancing the operational factors can be observed by considering initial operations in Afghanistan (OEF). General Franks, the CENTCOM commander, was faced with a dilemma. His objective was to

<sup>2</sup> Joint Pub 3-0, *Joint Operations*, p. II-1.

<sup>3</sup> Milan Vego, *Joint Operational Warfare: Theory and Practice*, p. III-3.

defeat the Taliban and Al-Qaeda forces and effect a regime change. In order to achieve this objective he had to quickly deploy (**Factor Time**) a force into a distant land-locked country with little improved infrastructure and few nearby locations that could be used as Intermediate Staging Bases (**Factor Space**). How was Franks going to balance these two demanding operational factors with the remaining factor of force? While he might have desired to send in a division sized force, to achieve a balance of the operational factors Franks employed a light force of Special Operations and airpower (**Factor Force**).

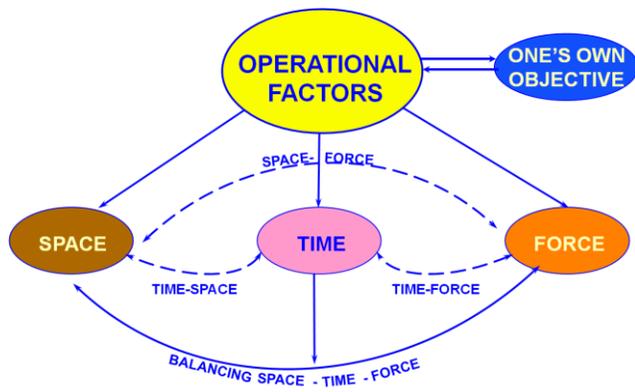


Figure 3. Operational Factors

### The Four Questions

Closely related to the operational art discussions above are the most essential questions that a commander (and staff officer) should answer when considering any operation.

1. **What conditions are required to achieve the objectives? (ENDS)**
2. **What sequence of action is most likely to create those conditions? (WAYS)**
3. **What resources are required to accomplish that sequence of actions? (MEANS)**
4. **What is the likely cost or risk in performing that sequence of actions? (RISK)**

Those aspects of Ends, Ways, or Means which are assessed as “out of balance” become Risk.

Using the OEF example mentioned earlier, the limited forces (Means) employed by CENTCOM meant that the U.S. would be highly reliant upon surrogate Afghan rebels (Ways) to achieve the ultimate objective (End). This limited option left for little flexibility if the surrogate force faltered or changed allegiances (Risk). Few operations are without risk. It is imperative, however, for an organization to identify the risks during the planning phase in order to support the commander’s decision process. Based on an understanding of the balancing of the four questions, the commander may offer specific risk mitigation requirements and/or adjustments to one or more of the other elements of the equation (change the force mix, direct a different approach, or perhaps seek a change to the objective). Operational level risk then is defined as risk to mission or risk to force.

### Theater Geometry

The design of operations has always required the consideration of geographical influences. Even with today’s modern technology, geography often plays a decisive role in military planning.<sup>4</sup> The most basic concept for theater geometry is the movement/maneuver of forces from **Bases of Operation** to an **Objective**. This movement occurs along one or more Lines of Operations. Theoretically, a Line of Operation passes through Decisive Points on the way to the Objective. See Figure 4. **Decisive Points** are defined by joint doctrine as “A geographic place, specific key event, critical factor, or function that, when acted upon, allows

<sup>4</sup> Ibid., IV-49.

commanders to gain a marked advantage over an adversary or contribute materially to achieving success.”<sup>5</sup> Decisive Points often become objectives or tasks for subordinate commands. An example of a Decisive Point could be an airfield and seaport complex required to support the entry of a joint force into an enemy country. This could become a forced entry objective for

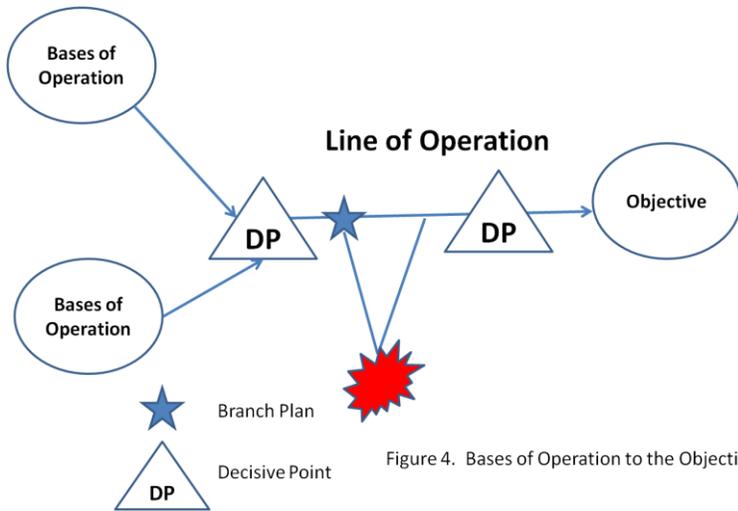


Figure 4. Bases of Operation to the Objective

airborne, amphibious, and/or Special Forces. One should also note that an operation seldom unfolds according to plan. As such, a command will plan for **Branch Plans**. A Branch is defined as, “The contingency options built into the base plan. A branch is used for changing the mission, orientation, or direction of movement of a force to aid success of the operation based on anticipated events, opportunities, or disruptions caused by enemy actions and reactions.”<sup>6</sup>

Essentially, a branch plan answers the question: *What if things do not go according to plan?* If a Branch Plan is properly executed, the force should return to some point on the original Line of Operation (unless the Branch Plan led to a catastrophic success that allowed for direct movement to the objective). An example of a Branch Plan might be contingency planning for the enemy approaching from an unexpected direction. Figure 5 offers another view of the Line of Operation concept that depicts the various Decisive Points along the way to the Objective.

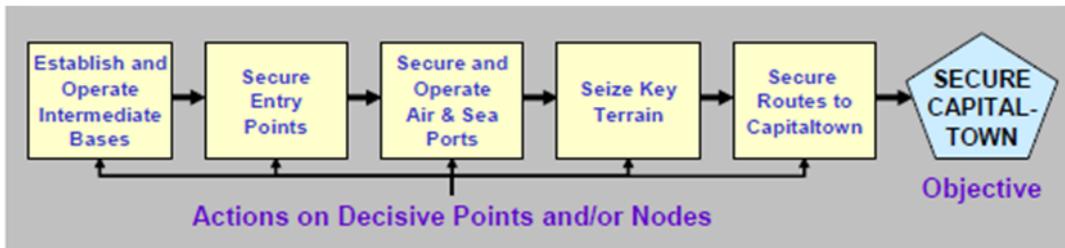


Figure 5. Physical Lines of Operation (JP 5-0)

While all previous examples have reflected the physical movement /maneuver of forces along a Line of Operation to an Objective, the concept is also relevant to the movement of non-physical efforts towards an objective. For example, the requirements of a humanitarian operation or an information operation do not require the physical movement of a force through Decisive Points to achieve a given objective. These non-geographic operations do require, however, the accomplishment of key tasks or intermediate objectives in order to achieve an ultimate objective.

<sup>5</sup> Joint Publication 1-02, *DOD Dictionary*, <https://jdeis.js.mil/jdeis/dictionary/def.jsp?word=decisive+point> (accessed 14 July 2010).

<sup>6</sup> Ibid.

These types of operations apply the same concept of Lines of Operations, but are termed as

**Lines of Effort or Logical Lines of Operation** (see

Figure 6 for an example) and are defined as, “A logical line that connects actions on nodes and/or decisive points related in time and purpose with an objective(s).”<sup>7</sup>

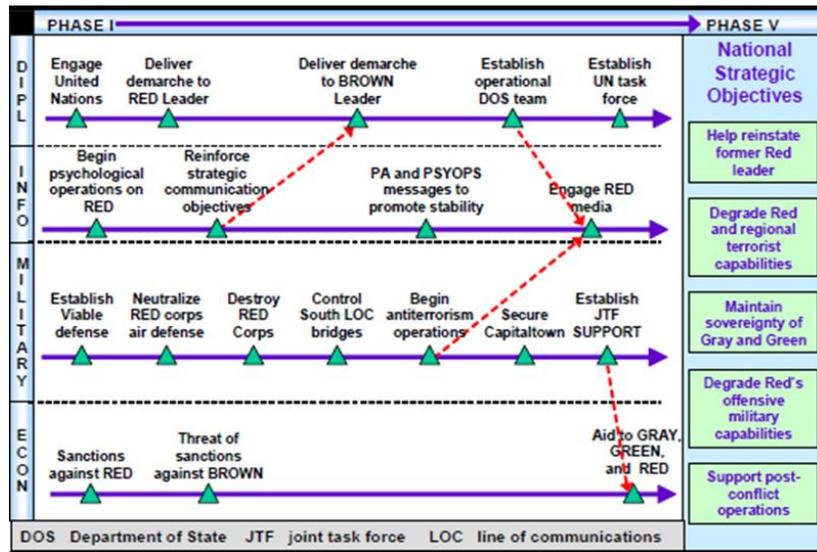


Figure 6. Lines of Effort (JP 5-0)

In addition to the theoretical geometry of the theater, there are also the very practical organizational control measures used in joint operations (see Figure 7). These control measures assign specific geographic areas to various commands based upon function and

mission. The measures are a means of command and control and battlefield deconfliction. These measures are established by a higher headquarters for its subordinate commands and should provide sufficient battlespace for a command to accomplish its assigned objective (s).

**Center of Gravity**

While the objective is the focus of all operations, imposed between the friendly force and its objective is the enemy **Center of Gravity (COG)**. COG is defined as, “The source of power that provides moral or physical strength, freedom of action, or will to act.”<sup>8</sup> A COG is facilitated by its **Critical Capabilities (CC)**.

These critical capabilities are essential to the COG in accomplishing its mission. For example,

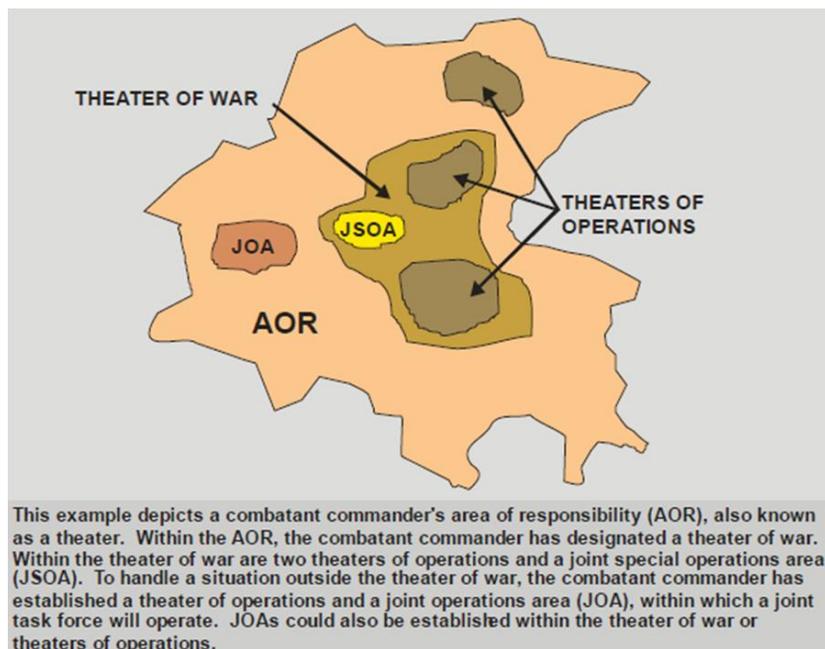


Figure 7. Sample Control Measures in a Theater of Operations

<sup>7</sup> Ibid.

<sup>8</sup> Ibid.

during Desert Storm the Iraqi Operational COG was assessed to be the Republican Guard Divisions in the Kuwait Theater of Operations. Some of the critical capabilities for that COG were its Command and Control, Logistics, the Integrated Air Defense protecting it, the conventional divisions arrayed around them as a first line of defense, and a few other capabilities. Each of these capabilities is composed of **Critical Requirements (CR)**. These critical requirements are the essential conditions, resources, and means for the critical capability to operate.<sup>9</sup> Examples for the Command and Control critical capability might be command post, communication nodes, or key leaders. Since attacking a COG directly is usually costly in resources and combat power, it is often more effective to attack a COG indirectly through one or more of **Critical Vulnerabilities (CV)**. Joint doctrine defines a critical vulnerability as “an aspect of a critical requirement which is deficient or vulnerable to direct or indirect attack that will create decisive or significant effects.” (see Figure 8). One should contemplate those critical capabilities and their supporting critical requirements in this regard, keeping in mind that these weaknesses must bear a direct relationship to a COG and its supporting critical capabilities for it to be assessed as a critical vulnerability.

Striking a weakness that bears no such relationship is simply a measure taken to harvest “low hanging fruit” that offers no decisive benefit. While the planner first seeks critical weaknesses within the critical capabilities and supporting critical requirements as implied by the definition, there might be opportunities found in critical strengths that provide

decisive or significant results disproportionate to the military resources applied. An example might be the integrated air defense (IAD) that is protecting an operational COG. While this critical capability might be assessed as a strength, its neutralization and the subsequent opening of the COG to direct attack may be assessed by the commander as more favorable in regard to the amount of resources and time expended to achieve the desired effects.<sup>10</sup>

One should note that while all of the above discussion has been focused upon the enemy’s COG, the friendly force also has a COG that the enemy wishes to defeat or neutralize. It is incumbent upon the friendly force to thoughtfully examine its own critical vulnerabilities and seek to mitigate risks to its own COG.

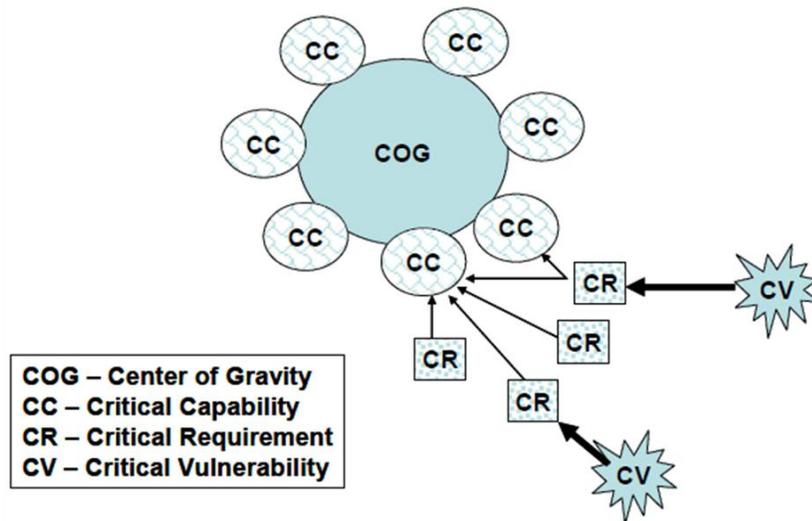


Figure 8. Attacking a Center of Gravity through its Critical Vulnerabilities

<sup>9</sup> Navy Warfare Publication 5-01, *Navy Planning*, p. C-4.

<sup>10</sup> NWC 4111H, “Joint Operations Planning Process (JOPP),” C-4 thru 5. Note, this is a direct extract.