*USS George Washington* and *USNS Yukon.*

*A sound logistic plan is the foundation upon which a war operation should be based. If the necessary minimum of logistic support cannot be given to the combatant forces involved, the operation may fail, or at best be only partially successful.*

—Admiral Raymond A. Spruance[1]

U.S. Navy (Jim Vidrine)

# Review Criteria for the **Logistic Plan**

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When logistics cannot support an operation all else becomes irrelevant.[2] But despite the critical role of logistics, joint doctrine does not provide commanders with review criteria to evaluate the logistic plan. Joint doctrine, however, does give combatant commanders a hierarchy of considerations for the operation plan. The principles of war offer broad guidance for the concept development phase. Operation checklists identify lesser but not insignificant issues that require attention during the execution phase. Between these two extremes, doctrine contributes two sets of mid-level standards: operational considerations and operation plan review criteria. Operational considerations address ends, ways, means, and risks.[3] For instance, commanders should determine if military conditions produced in operational theaters

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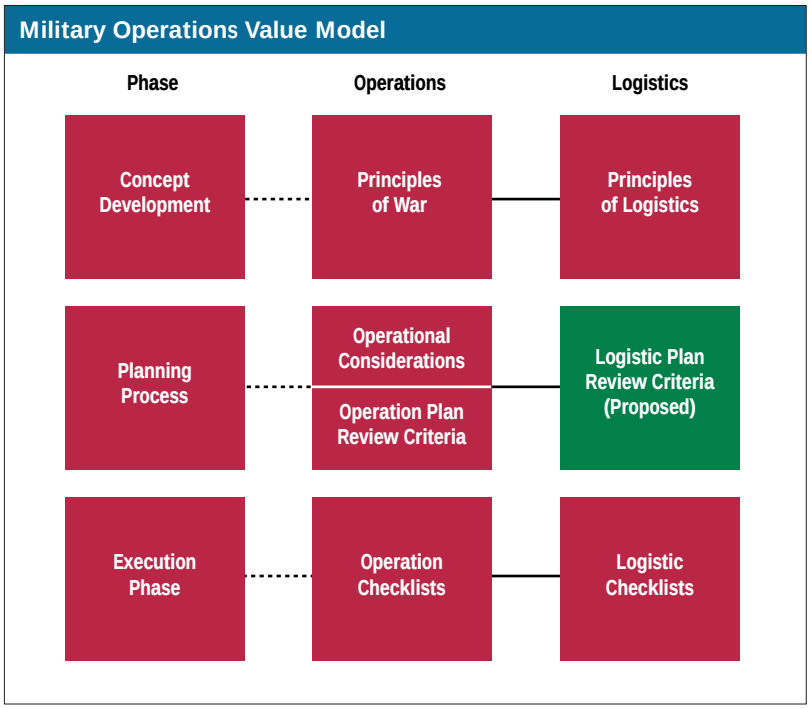


can achieve the strategic goal (ends) and if the sequence of actions is likely to create the conditions (ways). Using the operation plan review criteria commanders evaluate plans for their adequacy, feasibility, acceptability, and compliance with joint doctrine.[4] Commanders must be wary of a proposed plan that does not satisfy both operational considerations and the review criteria.

Combatant commanders do not possess comparable mid-level criteria for the logistic plan. The library of joint publications provides principles of logistics and logistic checklists. Between the principles and checklists one would expect review criteria for the logistic plan, a short list with probing questions to determine how well logistics will support a military operation. But no such criteria exist. Commanders will have more confidence in an operation if they can evaluate the logistic plan against a separate set of criteria rooted in principles of logistics.

**commanders should not expect logisticians to ignore resource constraints**

## Review Criteria

The proposed review criteria have four distinct characteristics. First, they define the limits of the logistic system and available resources. In delineating the system they defuse the inherent tension between planners and logisticians. Planners must be encouraged to adopt an unconstrained vision and develop an operation plan that achieves strategic objectives dictated by higher authorities. The plan designed with such a vision places tremendous demands on the logistic system. Tension arises when logisticians compare an operation plan against the capabilities of the logistic system and decide that the plan may not be supportable. As Joint Pub 4-0 explains, at that point planners and logisticians have reached an operations-logistics gap. To integrate operational intentions with logistic capabilities commanders must bridge it and either lobby for more resources or pare down the plan. Resolution is imperative. It is a basic tenet of joint doctrine that an operation plan cannot "break" the logistic concept without sacrificing the operation itself.

Logistics is inherently a constraint. Henry Eccles once defined it as "military economics" wherein all resources are finite. Elsewhere he remarked, "At the strategic level economic forces limit our ability to create combat forces; operational logistic factors limit our ability to employ our combat forces."[5] Combatant commanders should thus use logistic plan review criteria to determine the limits of the logistic system and where an operations-logistics gap may exist.

Second, the review criteria allow information to be managed by exception. Once aware that logisticians are resource-constrained and that review criteria seek to identify the limits of available resources, commanders should not expect logisticians to ignore resource constraints. Instead logisticians will provide exceptions that do not meet criteria. Candid answers reduce the information for commanders to matters that demand their attention.

Third, these criteria fill the void previously identified between the principles of logistics and the logistic checklists. Finally, they have universal application. Their interpretation depends upon the particular circumstances surrounding an operation and service perspectives of both combatant commanders and their subordinate logisticians.

## Responsiveness

The first criterion is that the plan must be *responsive* to force needs. Joint Pub 4-0 advises that responsiveness means having the right support at the right place at the right time. Despite its limitations, a logistic system that answers the needs of combat forces will allow them to reach their full potential. To be responsive logisticians must anticipate a range of requirements. Commanders may need logistic mobility to support advancing forces, flexibility to sustain expanding forces, or simply heroics to reconstitute exhausted forces. In response logisticians may apply three concepts of operational art: the arrangement of operations, logistic discipline, and synchronization.

C–5 delivering supplies during Southern Watch.

DOD (Frank Rizzo)

How well a logistic system responds to the demands of the arrangement of operations will determine the success of phasing, the branches and sequels, and ultimately the timing, tempo, and momentum of an operation. Since the outcome of any phase is uncertain, each has branches and/or sequels of its own. To be responsive logisticians must marshal logistic support accordingly for each phase and all possible branches and sequels. Anticipating such prospects, they may ascertain that the logistic system cannot accommodate the unique demands for a particular branch or sequel. Time and distance factors or availability of critical items may limit support.

The calculus of logistic support is further complicated by the uncertainty arising when one phase transitions to the next. How quickly can the system respond? For instance, phases may be sequential or concurrent. If in the fog of war phases planned as sequential become concurrent, logistic needs will multiply across the support spectrum. During the development of a response to the first criterion, logisticians may find that support is impossible if planned sequential operations (logistically supportable) become concurrent (and perhaps insupportable).

## The Logistic Snowball

Responsiveness is a hostage to logistic discipline. Since transport, supplies, and logistic personnel will always be limited, they must be distributed to best meet the requirements of combat forces and the arrangement of operations. Logistic discipline promotes economy, efficiency, and effectiveness. But its absence can ultimately create a logistic snowball, "a huge accumulation of slush [that] obscures the hard core of essential combat support."[6] If combat or logistic resources are not allocated appropriately, additional resources must be expended to reallocate them to

combat forces in need. Expediting material consumes time and other resources to pinpoint and move a handful of critical supplies. A logistic system that is not disciplined and must consume additional resources to overcome the logistic snowball cannot respond as well to the operational needs of a commander.

Logisticians must be sensitive to synchronization and its associated demands for responsive logistic support. Synchronization suggests there is a decisive time and place where combat forces will produce maximum relative combat power against enemy forces. Unfortunately, this poses a dilemma. Achieving maximum relative combat power in a synchronized maneuver, combat forces will simultaneously generate the greatest logistical demands for sustainment. At the peak of battle resource availability will be at a premium. Resources needed to schedule, arrange, transport, and distribute supplies may not be readily available or could be obstructed by the proximity of combat. Thus synchronization may bring combat forces to their culmination point before the logistic system can resupply them. A system that does not resupply before the culminating point is unresponsive.

**logisticians will encounter great difficulties in supporting forcible entries**

General Walter Bedell Smith, USA, described the difficulty of coordinating logistics with the movement of combat forces. "It is no great matter to change tactical plans in a hurry and to send troops off in new directions. But adjusting supply plans to the altered tactical scheme is far more difficult."[7] This challenge does not diminish the need for logistic support to be responsive to the demands generated by the arrangement of operations and synchronization. Combat forces that do not receive the right support at the right place at the right time may be placed in grave danger. Thus, as Joint Pub 4-0 describes, responsiveness is the most important of the seven principles of logistics and the centerpiece of the first logistic plan review criterion.

## Sustainment

The second criterion is that the plan should *sustain* the force. The concepts of sustainability and sustainment appear throughout joint doctrine. Sustainment is pivotal to operational logistics,[8] and sustainment planning is one of the five pillars of joint operation planning.[9] In addition, it is a principle of logistics that can be measured in terms of "availability" or "days of support."

Operational art provides a myriad of issues to consider regarding the sustainment of combat forces. For instance, logisticians will encounter great difficulties in supporting troops that conduct forcible entries into immature theaters. Light forces with limited supplies are inserted initially and their success often depends upon prompt arrival of properly balanced combat and support forces. If operations security is critical, combatant commanders may delay follow-on logistic preparations to conceal operational intentions.

In an immature theater logistic intelligence is required to determine the extent of in-country resources. Absent host nation support logisticians must develop an infrastructure to support the forces. They must be flexible and balance a myriad of issues, including survivability of the logistic system, needs of expanding forces, and avoidance of bottlenecks.[10] Viewing a logistics system as a critical vulnerability, an enemy may attack it and its sustainment capabilities. Operations and logistics must be closely coordinated to ensure survivability of such systems.

According to Eccles, "Logistics is the creation and sustained support of combat forces and weapons. Its objective is maximum sustained combat effectiveness."[11] Logistics may even dictate the options available to commanders when forcibly entering an immature theater. The following is a description of planning for Operation Overlord:

*Logistics was greatly responsible for the preference of American military chiefs for a cross-Channel attack for the main effort as opposed to a Mediterranean or other approach on the Continent. . . . Logistics dominated the definition of objectives, the choice of landing sites, the size of the assault force, and plans for building up the initial forces and pushing inland.*[12]

Sustainment of forces ashore was critical because "the men who planned Operation Overlord were well aware that the success of an eventual Allied invasion of Europe would depend above all on their ability to feed in troops and equipment at a higher rate than the enemy."[13] Regardless of the theater (mature or immature), type of operation (forcible or permissive entry), or type of warfare (attrition or maneuver, conventional or special operations), sustainability and sustainment are the crux of successful military operations and of the second review criterion.

## Logistic Culminating Points

The third criterion is determining the *logistic culminating points.* Joint Pub 3-0 indicates that logistics fixes the operational reach of combat forces—the distance over which military power can be concentrated and employed decisively. It can extend operational reach by forward basing, transport, effective lines of communication, and throughput of supplies. It also dictates the

Landing ships in Italy, 1944.

U.S. Army

characteristics of operational reach, including the size of combat forces, depth of attack, and speed of advance. With operational reach combat forces can achieve positional advantage relative to the enemy center of gravity. "The ability to maneuver," according to Joint Pub 3-0, "must be a trait not only of combat forces but also of the logistic resources that support them."

Operational reach has a finite range beyond which a logistic system cannot support forces. At that point where the offensive becomes logistically overextended forces encounter the logistic culminating point. Beyond it, offensive combat power no longer sufficiently exceeds that of the defenders to continue the thrust and consequently freedom of action is inhibited. Joint Pub 3-0 provides operational logisticians with a prescription to prevent the arrival of the culminating point:

*Synchronization of logistics with combat operations can forestall culmination. . . . At both tactical and operational levels, theater logistic planners forecast the drain on resources associated with conducting operations over extended distance and time. They respond by generating enough military resources at the right times and places to enable their commanders to achieve strategic objectives before reaching their culminating point. If the commanders cannot do so, they should rethink their concept of operations.*

More than one logistic culminating point may exist. A short supply of ammunition, fuel, or some commodity may create its own. Logisticians must identify such points to combatant commanders. Otherwise, past any culminating point logistics starts to command the commanders.

## Operational Risks

The next criterion is *identifying the risks* in executing the plan. Combat operations require prudent risk management. Combatant commanders must weigh the risk associated with movement or positioning of forces against expected benefits and may elect to either reduce that risk

**"a real knowledge of supply and movement factors must be the basis of every leader's plan"**

or accept it to achieve some objective. Logistic culminating points are the ultimate risk and are accorded their own logistic plan review criterion. But the logistic plan has other risks. The tempo of operations may cause forces to expand faster than what the logistic system can support, bottlenecks in supply distribution, or loss of asset visibility in theater. Moreover, the system is vulnerable to direct and indirect attacks on friendly lines of communication, operational fires directed at friendly logistic infrastructure, political decisions that affect access to host nation support, loss of logistic command and control systems, and the effects of information warfare.

In addition to operational risks, the logistic plan may not adhere to the remaining principles of logistics. It may not be flexible, simple, economical, or survivable, and there may be lingering doubts about whether it is attainable. This criterion should identify the risks for commanders who must assess them and plan accordingly. As Sir Archibald Wavell observed, "A real knowledge of supply and movement factors must be the basis of every leader's plan; only then can he know how and when to take risks with those factors, and battles are won only by taking risks."

## Meeting the Unexpected

The fifth criterion is that there must be ample resources to *react to unplanned contingencies*. Logisticians can never have sufficient resources to respond to every conceivable contingency. But careful analysis should reveal which requirements are likely and which can and cannot be satisfied. This analysis may persuade commanders to follow a less risky course. Logisticians who can affect operational decisions have mastery over logistics. Equally important, they avoid a course that can create a logistic bottleneck and enslave logisticians, commanders, and forces to logistics.

For example, suppose a commander intends to execute action "A" to initiate battle. It has a highly desired strategic endstate but may generate substantial casualties. The logistician anticipates that they would inundate in-theater medical units and that the additional medical assets required to be flown in would overwhelm the transport and distribution system. He envisions that this logistic bottleneck will develop into a formidable problem. The airlift system from the strategic to tactical theaters would have to adapt to a new and more urgent priority of transporting medical resources. Airlift assets would have to be rescheduled, unloaded, reloaded, flown into theater, and compete with other missions for material-handling equipment, cargo-handling personnel, warehousing, and distribution. Dedicating such assets to a more robust medical infrastructure leaves fewer to sustain combat forces. In addition, the lead time for other critical nonmedical supplies increases.

Logisticians must inform commanders of the sufficiency of in-theater resources to react to an unplanned contingency, the risk of creating a logistic bottleneck as friendly forces react to this contingency, and the second and third order effects on the sustainment of combat forces.

The logistic plan review criteria provide an agenda for both commanders and logisticians to discuss the merits and hazards of the logistic plan. They define the limits of the logistic system to support an operation beyond which commanders incur additional and possibly unacceptable risks. The criteria are not intended to make logisticians arbiters between the feasible and the infeasible. Nor are logisticians expected to respond recklessly or boast of capabilities the system cannot deliver.

On the other hand, logisticians must be able to convincingly discuss the ability or inability of a logistic system to respond to and sustain combat forces. Fortitude is needed to identify both the culminating points and risks associated with military options. In addition, they must candidly explain to what degree a logistic system can react to unplanned contingencies. Using these criteria to identify limits and risks, the greatest contribution made by logisticians is helping commanders to see the most viable course, isolate its logistic risks, and bridge the operations-logistics gap. Armed with logistic plan review criteria, combatant commanders can quickly identify the critical logistic issues and determine if the logistic plan supports the operation plan. A sound operation plan must have adequate logistic support. As Admiral Spruance reminded us, if combat forces do not receive adequate logistic support operations will suffer and may ultimately fail. JFQ

NOTES

[1] Naval Doctrine Publication 4, *Naval Logistics* (1995), p. 33.

[2] Joint Pub 4-0, *Doctrine for Logistic Support of Joint Operations* (1995), p. II–1.

[3] See Joint Pub 3-0, *Doctrine for Joint Operations* (1995), p. II-3.

[4] Joint Pub 5-0, *Doctrine for Planning Joint Operations* (1995), pp. I-13 through I-14.

[5] Henry E. Eccles, *Logistic Research Notes* (Washington: The George Washington University Logistics Research Project, 1961), p. 3.

[6] Henry E. Eccles, *Military Concepts and Philosophy* (New Brunswick, N.J.: Rutgers University Press, 1965), pp. 83–85.

[7] Walter Bedell Smith, *Eisenhower's Six Great Decisions* (New York: Longmans, Green, and Company, 1956), p. 82.

[8] Operational logistics "encompasses those support activities required to sustain campaigns and major operations," according to FM 100-5, *Operations*, p. 12-3.

[9] The pillars are mobilization, deployment, employment, sustainment, and redeployment planning. See Joint Pub 5-0, p. I-3.

[10] Joint Chiefs of Staff, *Joint Doctrine Capstone and Keystone Primer* (1995), p. 60.

[11] Eccles, *Logistic Research Notes*, p. 22.

[12] James A. Huston, *The Sinews of War: Army Logistics 1775–1953* (Washington: Government Printing Office, 1966), p. 523.

[13] Martin Van Creveld, *Supplying War: Logistics from Wallenstein to Patton* (Cambridge: Cambridge University Press, 1977), p. 206.