Logistics . . . It's What Keeps You in the Ring!

by the MSTP Staff

"Throughout the struggle, it was [in] his logistic inability to maintain his armies in the field that the enemy's fatal weakness lay. Courage his forces had in full measure, but courage was not enough. Reinforcements failed to arrive, weapons, ammunition and food alike ran short, and the dearth of fuel caused their powers of tactical mobility to dwindle to the vanishing point. In the last stages of the campaign they could do little more than wait for the Allied advance to sweep over them."

—GEN Dwight D. Eisenhower

"Logistics provides the resources of combat power, brings those resources to the battle, and sustains them throughout the course of the battle."

—Marine Corps Doctrinal Publication 4, Logistics

Using a boxing match as an analogy lets us describe the role of logistics in Marine air-ground task force (MAGTF) operations. If shaping actions set up your opponent and decisive actions are the knockout punch, then logistics is what gets you into the ring and keeps you there. Logistics, with all of its functional areas, is the basis of all sustainment planning. The goal of logistics planners is to design a logistics system that extends the operational reach of the force, increases its endurance, and generates tempo. A well-designed logistics system delivers sustainment and materiel throughout the battlespace to support MAGTF deep, close, and rear operations.

MAGTF Staff Training Program (MSTP) routinely observes MAGTF operational planning teams (OPTs) spending large amounts of time discussing decisive and shaping actions. Sustainment, on the other hand, gets only cursory discussion and is more often than not dismissed as a combat service support element (CSSE) function. Sustainment is rarely discussed in a truly integrated manner across the entire MAGTF. For example, our observations have shown a tendency for unrealistic ammunition buildup and expenditure rates. OPT members have disregarded widely accepted vehicle, aircraft, or vessel movement rates based on vehicle capabilities, terrain and weather restrictions, and enemy actions. This leads to unrealistic maneuver of forces or buildup of combat power during amphibious operations or river crossings. Defying physics may allow you to kill a lot of electrons during a simulation, but that will not "get you into the ring" in actual MAGTF operations much less "keep you there."

A logistics system consists of personnel, organizations, equipment, facilities, and procedures that are integrated to support the force. It should be tailored in size, structure, and procedures to support the mission, composition, and warfighting doctrine of its force. It has two fundamental elements: a distribution system, made up of bases and distribution procedures, and command and control.1 (See Figure 1.) In the end, the success of MAGTF logistics depends on an effective logistics system—a distribution system and command and control.

Marine Corps Warfighting Publication 4-11 (MCWP 4-11), Tactical Level Logistics, states that the foundations of a logistics system are task-organized CSSEs, combat service support installations (bases/facilities/support areas), unit mission assignments (general support or direct support), and resources (their source and management). All established CSS installations, potential installations, organizations, unit mission assignments, distribution methods, and control and command architecture form the framework of a logistics system. Building the logistics system entails the creation or establishment of logistics capabilities.2

Conceptual Logistics System Development

A commander uses his operational design to visualize, describe, and direct those actions necessary to achieve his desired end state and accomplish his assigned mission. Logistics system visualization provides the elements needed for gaining situational awareness, providing input for mission analysis, and initiating decision support products for logistics shaping. Figure 2 identifies and sorts supported unit populations into zones of requirements so that compiled sustainment data and other
CSS requirements can be associated with specific demand zones. Terrain and physical infrastructure help to determine demand zones or regions. The location of CSS installations and organizations, with compiled capabilities data, can be highlighted for reference. The distribution network should be depicted showing existing infrastructure in the area of operations (AO) and area of interest (AI), specifically identifying major and alternate routes, their capacities, and existing logistics/distribution nodes (e.g., air and seaports).

Confirmed capabilities should be used to define a unit’s operating area and operational reach. When distances between existing nodes are beyond the capabilities of our distribution means, additional node locations should be identified (e.g., CSS areas) to fill or bridge the gaps. Distribution means add another dimension to the visualization process. There are three principal means of distribution—ground, air, and sea—with each having multiple suboptions. A commander’s conceptual distribution network links resource locations with requirements zones.

Visualizing the logistics system in this way can help the CSSE commander simplify a complex problem and allows for developing an intelligent and informed course of action (COA) for logistics support. Other MAGTF commanders should understand this process and take confidence in the situational awareness it generates.

Tenets of the Marine Corps Planning Process

The Marine Corps Planning Process (MCPP) tenets of top-down planning, single battle, and integrated planning apply to MAGTF logistics planning. (See Figure 3.) Through top-down planning the MAGTF commander drives all that occurs in the planning process. Subordinate commanders should address logistics in their initial guidance, planning guidance, and wargaming guidance. It is important to realize that when the MAGTF commander initiates a planning cycle, his subordinate commanders begin their planning, too. This simultaneous planning is important as some MAGTF planning issues require bottom-up refinement to complete the MAGTF plan.

The logistics single battle extends from the frontlines of the combat zone to the initial points of the communications zone. It encompasses the AO and the AI. The characteristics of the AO and the AI can assist, as well as hinder, the accomplishment of the logistics support mission.

The MAGTF and its subordinate commanders should synchronize all of their actions across the six warfighting functions. Their agents for synchronization and integration are their representatives in the MAGTF OPT. Just as the ground combat element’s (GCE’s) representative will

Figure 1. Logistics system elements.

Figure 2. Conceptual logistics system.
largely drive integration throughout the MAGTF for the maneuver warfighting function, and the Marine expeditionary force fires representative will largely drive integration throughout the MAGTF for the fires warfighting function, the CSSE’s representative will largely drive integration throughout the MAGTF for the logistics warfighting function. However, all elements of the MAGTF should contribute to the integration of all warfighting functions. The aviation combat element (ACE), for example, has some unique logistics procedures and positioning requirements. They should be folded into the MAGTF concept of support—providing additional support to the logistics single-battle and the MAGTF-wide integration of the logistics warfighting function.

**Logistics Planning**

Planners provide the means “to evaluate the feasibility” of various tactical options and to “determine the adequacy of resources to support them” (Marine Corps Doctrinal Publication 4 (MCDO 4)). For logistics planners this means completing a thorough supporting unit capabilities versus supported unit requirements analysis. The objective of logistics planning is to match the deployment and sustainment activities of the logistics system to the logistics requirements of the Operating Forces. Planners must also understand and integrate joint and multinational force requirements and capabilities into MAGTF sustainment operations. Logisticians need to solicit and understand their commander’s intent and priorities. Planners must consider the prepositioning of supplies and equipment establishing a multimode distribution method and seeking windows of logistics opportunity. Additionally, consideration should be given to the impact of rear area threats on sustainment for ground and aviation operations.

The warfighting functions of fires, maneuver, command and control, intelligence, and force protection sometimes receive short shrift from logistics planners. They allow logisticians to look at all aspects of the battlespace, synchronize their efforts with other elements of the MAGTF, and ensure nothing is left to chance. Plans and orders must demonstrate an understanding of the importance of synchronizing maneuver, intelligence, fires, logistics, command and control, and force protection measures available across the MAGTF. The discussion that follows amplifies doctrine discussed in MCWP 5-1, Marine Corps Planning Process.

Logistics planning can be the most time-consuming of all planning. It is imperative that logistics planners operate efficiently and that their efforts flow smoothly toward the desired end state and not inhibit the completion of the planning process. The product is not the most important element of the planning process. It is the process itself. It is the process that gives us facts on supporting unit capabilities and supported forces requirements. It is within the process that the physical infrastructure of an AO is discovered and its usable nodes and installations integrated into a redundant and flexible logistics system that provides the commander with choices and options he can use during the execution of his combat mission. It is the process that allows the commander information on which elements of infrastructure require protection from destruction and where the logistics system may be vulnerable to enemy actions or the unpredictable nature of weather. It is the process that generates tempo and helps us turn inside of our enemy generating the conditions that leave him outmaneuvered in time, space, and purpose.

The logistics system should be a multisite, multidistribution mode logistics system that is optimized for throughput and overbuilt for capacity to allow for the unpredictable nature of combat. It should account for the distribution system (CSS installations and distribution methods) and the command and control (task organization and mission assignment) of the force. Mission assignments establish responsibilities for the assigned CSSE and supported units. Resources are allocated based on these mission assignments.

Once the logistics system is refined—based on wargaming results—the CSSE commander evaluates his options and designates a primary or most efficient path through the proposed system, establishing some installations and holding others in re-
serve, designating some distribution methods and holding others for unexpected requirements or developments. His decision will most likely be based on optimal throughput capability, flexibility, and redundancy.

Logistics Estimates

Commanders control battlefield tempo by making and executing decisions faster than the enemy. Therefore, commanders must always strive to optimize the time available. They must allow reasonable time for staff estimates and estimates of supportability to be completed. Without them, the commander’s wargame results may be suspect and lead to dangerous conclusions. Commanders must be comprehensive and visualize their end state. The estimate process requires a clear understanding of weather and terrain effects and, more importantly, the ability to visualize when, where, and with whom key battles, times of intense combat, and the force’s decisive action will be fought. Estimates must be as thorough as time and circumstances permit. The commander and staff must constantly collect, process, and evaluate information. They should update their estimates when:

- The commander and staff recognize new facts.
- They replace assumptions with facts or find their assumptions invalid.
- They receive changes to the mission or when changes are indicated.

While the MAGTF G-4 (logistics officer) and the CSSE G-4 (logistics officer) to the MAGTF OPT prepare staff estimates, the other subordinate commands prepare estimates consisting of significant facts, required events, and conclusions based on analyzed data. The analysis addresses the questions: “What do we know? What do we have? What does that mean?” The estimate of supportability is a comparison of supported unit requirements measured against supporting unit capabilities. It gives the supporting unit commander the wherewithal to field questions on mission supportability accurately, as well as empowering him to address combat operations required to facilitate logistics positioning and/or shaping and protected target nominations.

The estimate process is a continuation of the mission analysis process. The estimate is referred to in the mission analysis, COA development, COA wargame, and COA comparison/decision steps of the MCPP, demonstrating the need to keep it current. In the estimate, logistics planners should address the following when accessing an assigned mission or task: (supported unit) requirement, (supporting unit) capability, shortfall (if any), analysis, and (problem) solution. This methodology can be used throughout the decisionmaking process.

Figure 1 shows the relationships between requirements and capabilities that must be considered when establishing a logistics system. The logistics estimate of supportability helps identify significant facts, required events, and analyzed conclusions. Logistics planners can visualize the organizations, installations, and mission assignments that must overlay the three variables (command and control, distribution system, and resources) to design an optimized logistics system.

The MAGTF, GCE, and ACE each prepare a concept of support. These concepts of support address the unit’s plan for the use of its organic (internal) logistics capabilities, ties and links to external sources of support, and how those capabilities will be used to meet the unit’s support requirements.

The CSSE’s concept of operations, the GCE and ACE’s concept of support, and the MAGTF G-4’s integration of host-nation support, prepositioned wartime reserves, and joint and allied considerations and priorities form the basis for the completion of the MAGTF concept of support. Integrated logistics planning across the major subordinate commands can lead to consolidated support planning that demonstrates a complete understanding of how CSS will be provided to the force, eliminating overlaps, gaps, and misunderstandings.

Physical Network Analysis

A physical network analysis is an investigation of your operating environment. Intelligence plays a significant role in the success of this analysis. Logisticians need to communicate their requirements to their supporting intelligence section. The acceptance of encyclopedic data alone can lead to a failure in the analysis.

A logistics system should be designed around the conceptualized distribution system (CSS installations and distribution methods) and CSS command and control (task organizations and mission assignments) in concert with the commander’s vision (MCDP 4). Those conceptual ideas are refined through functional and detailed level planning. Logistics planners should design as much capacity into a logistics system as is feasible within the physical constraints of the AO and AI. A planner knows that a logistics system will be constrained by the physical environment within

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Figure 4. Physical network analysis.
which it is established. Every logistics system has an entry point into the AO. It has a limited number of main and alternate supply routes that exit the point of entry. Even with host-nation support, there are a limited number of transportation assets (ground, air, and sea) available. Movement rates on main supply routes are affected by the terrain they cross. Mountain routes have different challenges than do desert or jungle routes, for example. That does not mean that some constraints cannot be overcome by other distribution methods. The use of ground, air, and sea transportation assets are part of the design process. Other constraints on the efficiency of a logistics system include command and control, critical occupational specialties, and the configuration and characteristics of the supplies and materiel itself. Figure 4 demonstrates the need to build capacity into your logistics system. It is the sum of its parts that creates a logistics system’s capabilities—the CSS installations plus distribution methods plus task organization plus mission assignments plus resources available (MCWP 4–11).

A logistics system can be compared to a pipeline. Every installation and method of delivery increases the diameter of the pipeline, thus increasing the capability of the system. This is a very simplistic model of a logistics system. In reality, logistics planners are building a grid—a logistics grid—with multiple routes and methods of conveyance used to move supplies and materiel from their source to the end user via multiple nodes—end-to-end distribution.

Ground, air, and sea methods of distribution should be used through multiple established CSS installations throughout the AO to increase flexibility, mitigate the effects of weather on operations, and decrease reliance on any one distribution method or logistics node. Planners begin this analysis by identifying all nodes usable for logistics purposes within an AO. A thorough analysis of their throughput capabilities should be calculated. Planners should calculate the distance over which sustainment can be delivered from an established installation. If the operational reach of distribution assets extends to the next usable node, then a CSS installation can be established on that logistics node. If the operational reach of distribution assets does not extend to any known, usable node, then a CSS installation must be created to meet the assigned support mission. CSS installations (any type) can be established to fill gaps in host-nation infrastructure creating infrastructure where none existed and extending the operational reach of the force. These installations become usable nodes within the context of the logistics system.

**T-AVB Employment and ACE Logistics Echelonment**

A physical network analysis enhances the ACE’s ability to echelon support. T-AVB (aviation logistics support ship) employment is central to the ACE’s overall aviation logistics concept and its support of the MAGTF’s logistics system. There are three modes of T-AVB employment: transport, operational, and combination. The pros and cons of each mode can be matched to the MAGTF and ACE’s concepts of operations and concepts of support. This is best determined with an estimate of supportability and a physical network analysis. The analysis of infrastructure within the MAGTF’s AO and AI must account for the fact that the T-AVB is the most effective and economical means for transporting a major portion of potentially deploying Marine aviation logistics squadrons’ (MALS’s) peculiar contingency support packages (PCSPs) for an entire Marine aircraft wing. The T-AVB may be the best or only opportunity to move PCSPs to the theater.

The decision on how to employ the T-AVB must be made very early. The tradeoffs of varying options must be understood. For example, full transport mode equates to a 20- to 30-day “black hole” of no repair capability from all of the embarked MALSs work centers, a potentially far too costly risk to take in support of near-term combat operations. The ACE, through the naval theater logistics agent and the MAGTF CSSE, should be integrated into the MAGTF logistics system. The ACE will additionally “layer” or echelon. (See Figure 5.) its support packages to best manage maintenance. Logistics is, after all, the key to sortie generation. Planning aircraft maintenance can become an economy of force issue—mainte-
nance capability positioned forward versus the feasibility of forward deployment. The economies of scale that consolidation away from combat airfields generates must be weighed against critical capabilities required forward.

Conclusion

Logistics planners design a logistics system that fulfills the commander’s intent and allows him to successfully accomplish his mission. The logistics system must meet the needs of the force from deployment to end state. The logistics system must provide sustenance and materiel throughout the MAGTF battlespace. All established CSS installations, possible installations, organizations, unit mission assignments, and distribution methods form the framework for the logistics system.

The capabilities of the logistics system must be carefully structured. Task organizations must take advantage of the existing or created infrastructure. Mission assignments must align task organizations with infrastructure and supported units. After mapping active CSS installations and identified but inactive logistics nodes within the infrastructure of the AO, the logistics planner can identify the capabilities available to meet the supported unit’s projected requirements. If the supported unit’s requirements change, then resource allocation, task organization, and/or distribution methods should be adjusted as well.

A prioritization of effort should be formally tasked to the supporting unit commander and published to all units within the MAGTF’s AO. All units in the MAGTF should be aware of these command relationships (mission assignments). CSSE commanders should follow the intent of mission assignments and report to their higher headquarters any new or unexpected units (new requirements) within their operating area or supported unit’s AO. Integrated and synchronized planning across the MAGTF can alleviate conflicting support requirements. By so doing, conflicts of interest will be avoided, a prioritization of effort will be ensured, and resource allocation will be reinforced.5

Notes

1. MCDP 4, Logistics, provides the theoretical base for logistics system development and logistics planning.
2. MCWP 4–11, Tactical Level Logistics, provides additional information on the logistics system and its components.
3. MCDP 4, chapter 3 in particular, discusses these concepts in more detail.
4. MCWP 3–21.2 (CD), Aviation Logistics, provides information on aviation logistics planning.
5. MSTP Pamphlet 4–0.2, A Logistics Planner’s Guide, provides additional detail on the concepts addressed above.

MajGen Harold W. Chase Prize Essay Contest

The annual Chase Prize Essay Contest invites articles that challenge conventional wisdom by proposing change to a current Marine Corps directive, policy, custom, or practice. To qualify, entries must propose and argue for a new and better way of “doing business” in the Marine Corps. Authors must have strength in their convictions and be prepared for criticism from those who would defend the status quo. That is why the prizes are called Baldness and Daring Awards.

* Background *

Prizes include $750 and an engraved plaque for first place, $375 and an engraved plaque for second place, and $100 for honorable mention. All entries are eligible for publication.

The contest is named for the late MajGen Harold W. Chase who believed that the Marine Corps’ strength and its usefulness to the country stemmed in large measure from its intellectual openness and from its ability to accept change. The Chase Contest was established in keeping with this philosophy.

* Instructions *

The contest is open to all Marines on active duty and to members of the Selected Marine Corps Reserve. Manuscripts should be typewritten, double spaced, and range in length from 1,500–2,000 words. Please include a disk in ASCII Text or Microsoft Word format with the manuscript. Include a cover page with the title of the essay, author’s name, and identification of the essay as a Chase Contest Entry. The author’s name should not appear anywhere but on that cover page, but repeat the title on the first page of the essay. The Gazette editorial board will judge the contest in January and notify all entrants as to the outcome shortly thereafter.

* Mail Entries to: *
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Deadline:
31 December