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## Logistics

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**RESTRICTED****LOGISTICS**

A Staff Presentation delivered  
at the Naval War College  
on 5 October 1951 by  
*Captain John M. Sweeney, U. S. N.*

Before World War II Naval Logistics was more of a theoretical than a practical problem. Logistical support was considered a matter of routine by a majority of the officers of the Navy. In fact, the only logistic problems normally presented were those involved in fleet exercises and winter cruises. These were usually of such short duration that ships required only fuel, provisions, and emergency repairs, having stocked to capacity in all other items before leaving home bases. In addition, the ships were in excellent materiel condition, having received thorough upkeep prior to their departure from port. After Pearl Harbor, Logistics became more and more of a consideration until finally logistic planning and the fulfillment of requirements became one of the major problems of the war. Fleet Admiral King stated in his report to the Secretary of the Navy in 1944:

“WHATEVER ELSE WAR IS, SO FAR AS THE  
UNITED STATES IS CONCERNED, IT IS A  
WAR OF LOGISTICS.”

Initially, in this presentation, I should like to establish the relationship between strategy, tactics and logistics. As I see it, this can be done in two ways, namely:

- (1) By stating historical instances prior to World War II illustrating the importance of Logistic planning,
- OR

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(2) By refreshing your minds on the several instances of World War II and the more recent ones of the present Korean conflict.

History is replete with instances of how lack of an appreciation of logistics has caused the loss of a campaign and in some instances the loss of a war. For instance, Napoleon met disaster in Russia because he failed to make adequate provision for his logistic support. The Confederacy lost the war between the States because the lines of communication to Europe were successfully severed by the Union forces and hence the South was deprived of logistic support from the old world. In World War II Marshal Rommel was defeated in Africa because of the failure of his logistic support across the Mediterranean.

Probably the most recent example of the importance of logistics in any campaign is found in operation Overlord during World War II. In that campaign there were two essential logistic bottlenecks, namely, the availability of landing ships and craft and the availability of transport aircraft. The Allies were forced to postpone the landing from 4 May to 6 June 1944 principally because of the shortage of amphibious craft necessary to carry both personnel and supplies to the beaches. We know that our logistics of the past war worked but they were not efficient. In World War III, which in my opinion will be a war of scarcity, we must do better logistics planning. Let's take a more recent example, the present limited war in Korea. In the first eleven months of the Korean War five hundred thousand personnel were transported from Japan and the United States to Korea; six million measurement tons of dry cargo were shipped to the same destination, carried in MSTs and vessels chartered to MSTs; five million tons of petroleum products were delivered at the Korean beachheads. These figures do not include the personnel transported during amphibious op-

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erations within the Korean theater or evacuated from the besieged beachheads. The amphibious lift from Hungnam and Inchon during the evacuation of these ports amounted to 410,000 measurement ton of cargo, 18,600 vehicles and 259,000 personnel. All this equipment came initially from the Navy, Army, and Air Force supply systems, which have respectively 2,000,000, 600,000 and 450,000 separate items in their respective systems. None of this equipment, POL, and supplies delivered in Korea was done automatically. All of it took planning, planning of the most laborious and minute nature.

It should be apparent from the last figures that I gave you that *Logistics is a science without which no military, naval or air operations can be planned or successfully carried out.* Therefore, I think we can truthfully say:

**STRATEGY AND TACTICS PROVIDE  
THE SCHEME FOR THE CONDUCT OF  
MILITARY OPERATIONS—  
LOGISTICS PROVIDES THE MEANS  
THEREFOR.**

Now let us proceed to an examination of the essential elements of any logistics problem, large or small. These three elements are:

**DETERMINATION OF REQUIREMENTS  
PROCUREMENT  
DISTRIBUTION**

Regardless of the size of the logistic problem, these elements are always present. The precise way in which they intermingle and the degree in which each affects the issues, of

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course, will vary, blend and overlap according to the special circumstances.

The determination of requirements extends from the extremes of the determination of the over-all national and international requirements for the conduct of a global war all the way down to the determination of requirements for a small task unit engaged in a minor operation. In all cases the basic approach is the same and this basic approach is similar to the estimate of the situation as applied to other military problems.

Upon the proper determination of requirements and their relationship to the over-all economic potential of the country depends the decision as to the type of war we can fight. Whether or not we can assume the offensive will be determined by whether or not our logistics can support such an offensive.

This I believe brings us face to face with a fundamental principle which is:

### **THE DETERMINATION OF REQUIREMENTS IS A RESPONSIBILITY AND PREROGATIVE OF MILITARY COMMAND.**

The determination of military requirements is, of its very nature, a military function as it flows directly from the strategic decisions of the joint Chiefs of Staff in the implementation of their strategic plans in support of the national policy.

Today, we find that the requirements problem is one of the most troublesome that confronts the Department of Defense. The problem is accentuated by the fact that we are facing a probable continued, long drawn out partial mobilization, rather than the full mobilization as visualized prior to the Korean War. In World

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Wars I and II it could be correctly assumed that any sacrifice of the civil economy was justified to aid the military effort. However, our present-day effort calls for a powerful and prolonged military build-up without too much drain on our economic resources or civilian economy.

This new political and economic background for the war effort has important implications for requirements determination and for feasibility tests. In particular, we cannot today use the wonderful simplifying assumption that money costs in war-time military effort can be disregarded. Today the physical availability of critical materials has ceased to be a proper criterion for feasibility tests.

In addition, we find that the conflicting demands of the military, allied and neutral, and the civilian economy enter into the whole field of logistics, and to a large degree, logistics efficiency is affected by the proper balance and timing of forces and materials. Over-supply or the supply of materials or forces before they can be used effectively constitutes drains on the logistic support of all other effective forces, the national industrial potential and the civilian economy.

Therefore, it seems evident that no one, except the military commander, is in the position to determine requirements to meet the operational needs. There is nothing too difficult, though at times complex, in the process of estimating requirements. It is not an exact science. We strive for reasonability, even though we cannot expect to attain accuracy. In estimating, the Commander tries to stay within reasonable limits of error. Minor changes in strategic, tactical and logistical planning are often disregarded, if those changes do not appreciably change the end results. The uninitiated in the field of logistics expect a mathematically correct

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answer, without appreciating the fact that all calculations are based on certain valid assumptions, the accuracy of which is within reasonable limits.

In order to assist the Commander and his Staff in the estimation of the military requirements there are certain planning tools or planning factors that work fairly well. Some of these came from experience in World War II. Some are the same as they were in World War I. Men haven't gotten any bigger. They don't eat any more. They do require, however, more ammunition than formerly.

For example, as a result of our landings in World War II there are two good planning factors that can be used for planning any such type operation. These are:

1. A minimum of five measurement tons of cargo is required per man to support an overseas movement of troops.
2. That after this man has been established overseas one ton of cargo per month is required to keep him there.

Now let's take a look at the second fundamental element in any logistic problem, i. e., procurement. After the requirements have been estimated, the next step is to determine the method of obtaining the finished products needed. Procurement, therefore, includes the translation of requirements into schedules of production, purchase programs, and the transfer of materials of all types into the hands of the military. As you learned in your study of economic mobilization, production, even for total war, is the province of the skilled producer in the industrial field, supervised

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by the government mobilizer, for despite its subservience to military ends, it is by nature a civil function. Despite this civilian control, procurement must be responsive to the operational needs and sufficiently flexible to adapt itself to many and various wartime changes in those needs.

The third basic element in the logistic problem is distribution or "How do I deliver what I have to the combat forces?"

For our purposes today, distribution can be logically divided for discussion into two categories. First, that which relates to the procurement phase of logistics, and second, that which relates to the military phase.

The first category—distribution incident to procurement—includes the varied, intricate and numerous movements of materials to production centers and from there in the form of finished products to storage or staging areas. It includes, in the case of manpower, transportation from city, town or country to the production center, whether it be a factory, a mine, a farm or a merchandising post. In short, distribution incident to procurement includes the massive transportation network which binds together the manifold businesses and government agencies which produce and procure the sinews of war and are our economic strength in war.

The second category, distribution incident to the military phase of logistics, includes the movement of weapons, equipment, supplies and personnel to the final user in response to strategic and tactical demands. Such movements are normally from storage to the final user but are also often from the vendor or producer to the final user when the urgency is great.

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From this you can see that distribution is derived from procurement: that it is always involved with strategy, and that it ends up as a vital factor in tactical combat. In general, distribution is concerned with the following:

- (1) Accumulation and maintenance of levels of supply.
- (2) Special accumulation for special operations; storage and issue facilities.
- (3) All means of transportation. Here you will find that as the combat zone is approached and entered, this transportation operation and control becomes a most urgent prerogative and concern of the area, theater or perhaps tactical commander.
- (4) Operations of overseas port facilities. Here again is found the closest relationship between tactical commanders, base commanders, theatre and area commands. All are concerned with distribution and its intimate relation to storage, shore construction, harbor clearance, shipping and shore transport including the control thereof.

One of the most important requirements of the distribution system for a global war is the control of shipping. Shipping physically furnishes a bridge between available supply within the United States and the consumption within the theater of operations. Shipping capacity is a variable that must be determined. It is dependent upon the proper functioning of the other phases of the distribution system. As was the case in World War II it may be susceptible to waste. You may be sure that shipping will be as short in the future as it was in the past. It may be the critical link in the chain of distribution.

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We have briefly examined the basic elements of any logistic problem, which are:

**DETERMINATION OF REQUIREMENTS  
PROCUREMENT  
DISTRIBUTION**

I have attempted to point out that the determination of requirements and so much of distribution as relates to the delivery to the ultimate military user constitutes a relatively purely military phase of logistics.

I have also attempted to point out that procurement and so much of distribution as relates to delivery within the procurement phase constitutes the largely commercial sector of logistics and in that sense it is a phase in which civilian effort and know-how are predominant and civilian control is mandatory.

To illustrate the entirety of the logistic problem let me refresh your minds on economic mobilization. As you remember, economic mobilization is the orderly, coordinated mobilization of all the materiel and human resources of the nation for the most effective conduct of war. It deals, primarily, with the most rapid attainment of the maximum production of the country for the use of the Armed Forces, the civilian and related economies and the provision of the largest practicable number of effective personnel for duty in the Armed Forces.

It is a vast subject and deals principally with procurement. It involves all other elements of the logistic problem. Although under civilian control, it demands the greatest understanding by and cooperation of the Armed Forces as well as of industry, labor and the civilian population.

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Having examined the fundamental elements of any logistic problem, the next logical question you could ask is: "How is it solved?" Logistic problems, similar to any other military problems, are solved by:

### **ORGANIZATION**

### **PLANNING**

### **EXECUTION**

### **SUPERVISION**

The organization of a logistic staff or a logistic staff section is, or should be, based on the assigned task or mission of the force which it serves. There is no set organization for the accomplishment of any military mission, and the organization itself must be tailored to the needs of the force. Like all other staffs and staff sections it must be flexible to meet changing situations. I cannot give you a standard staff organization which will solve all organization problems for any staff or staff section, but I can give you one paramount characteristic, and one requirement of a logistic staff or staff section.

The one predominant characteristic is:

Normally because of the complexities of determining requirements, scheduling production or production goods, shipping control items, etc., the logistic organizations are generally more complex and actually are larger than the purely tactical organizations which they serve.

The one requirement of any logistic organization is that the logistic staff or section must have a thorough knowledge of inter-bureau or inter-departmental coordination, availability of materials, schedules of production of materials, and related problems of the industrial economy.

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After the proper organization has been established, the next important step in the solution of the logistic problem is planning. The underlying principle in logistic planning which cannot be violated without courting disaster is that the strategic and logistical plans must be developed concurrently. The problem of the strategic planner at any level is a difficult one, but without close liaison between the strategic and logistical planners the task of meeting stock levels at the proper time and in the correct quantities is impossible. Concurrent development of the logistic and strategic plans also provides a check and balance on both the strategic and logistic planners. The strategical planner will avoid the pitfall that all things strategically desirable are logistically feasible, while the logistic planner, being cognizant of the strategic concept, can realistically plan for the proper scheduling, procurement and distribution of requisite equipment and supplies. Additionally, the strategic planner is assured that any plans developed are logistically feasible.

In this type of concurrent planning the logistic planner depends on two sources of information:

**First:** He requires advice as to the strategic plans and probable operations on which to determine the character, volume and timing of material support required, and

**Second:** He requires adequate knowledge as to the status of all materiel projects from which to furnish strategic planners a well informed judgment on logistic or materiel feasibility.

The logistic plan is therefore the link between the strategic plan and its accomplishment, since it provides, or should provide, the material support required for the consummation of the strategic plan.

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Changes in the logistic plans are inevitably forced by changes in the strategic and tactical situation. Such changes may be due to acts of God, weather or enemy action as well as the necessity for fully exploiting success. One method to obtain the required flexibility necessary to cope successfully with these changes is to prepare logistic reserves similar to the tactical reserves required in any operation. However, let me assure you, that no matter how carefully such contingencies are provided for, others will arise to plague you. For example, the Fifth Fleet Commander, Admiral Spruance, at Okinawa included in his logistic plan the requisite ammunition requirements to provide for the reserve ammunition needed by the army forces ashore. The requirements for this reserve ammunition were 2 AEs. In his logistic planning Admiral Spruance planned for and brought forward 100% reserve and actually took into Kerama Rhetto 4 AEs loaded with the necessary reserve ammunition. During the first four days of the operation 3 of the 4 AEs were knocked out by kamikazes. This produced a critical situation. However, Admiral Spruance had provided for an additional reserve of 4 AEs suitably loaded at Saipan. He was thus able to call up this additional reserve and meet the necessary army demands for ammunition without any undue interruption to his plan. I believe this is one of the outstanding examples of World War II in which a tactical Commander was fully cognizant of the importance to his operation of not only adequate logistic support but also the necessity to provide the unforeseen contingencies.

One important factor in all military planning and particularly in all logistic planning that must never be forgotten is lead time. Lead time may be defined as:

### **THE INTERVAL BETWEEN TIME OF DECISION TO PROVIDE AN ITEM TO THE COMBAT FORCES,**

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**AND THE TIME SUCH AN ITEM IS DELIVERED  
TO THESE FORCES IN ADEQUATE QUANTITY &  
IN RELIABLE OPERATING CONDITION FOR USE  
AGAINST THE ENEMY.**

Lead time varies from a few hours in rare cases of simple items in ready reserve to five or more years in cases of complex new weapons, which require research, design, test, production and distribution.

In many instances the procurement, training, and distribution of competent operating and maintenance personnel are the determining factors in lead time. For these reasons it is necessary that the tactical commanders realize that logistics officers, while adept at reading the crystal ball, are not magicians who can materialize an item by waving a wand.

Good logistic planning is the culmination of much laborious and detailed work by subordinate officers under the guidance of farsighted commanders who insure close lower echelon liaison and understanding between logistics, strategy and tactics.

In addition, logistics planning requires a very large amount of statistical data to be furnished to the planner. This, in turn, requires careful thought in establishing and maintaining proper records. Admittedly this frequently puts a burden on the man in the field. Therefore, the directive governing the submission of statistical data should be periodically re-examined to insure minimum collection of useless material. The logistics planners must have ready access to the analysis of the results of their planning. Remember, in reality, the planner is the servant of the consumer and should listen to his criticisms.

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Just as strategic and tactical plans require momentum, so does the major logistical plan require momentum. Certain major changes are inevitable in the last days in the formulation of a plan. Each change proposed after the plan has become firm should be examined as to its desirability and feasibility. In many instances, the execution of a logistics plan must be actually started long before the date of issue or implementation of the formal strategic plan. In such cases it may be found that really desirable changes may not be logistically feasible of accomplishment.

Foresight is a paramount qualification for the logistics planner. Just as a good seaman instinctively watches the weather so the logistics planner should constantly be on the alert for strategical and tactical indications and situations which may vitally affect the logistics plan.

The next requirement for the solution of the logistic problem is the supervision of the logistics plan. Supervision of the planned logistic action is just as necessary as it is for strategic or tactical action. Supervision involves very close relation between planners and doers. It requires common sense and a high degree of experience. It cannot be too rigidly compartmented for then barriers will be set up between the strategic and logistic planners and mistakes will be perpetuated.

Unfortunately, the proper conduct of supervision requires many reports, which in turn requires the same careful analysis and dissemination as do tactical reports. Supervision is therefore one of the most important aspects of logistics.

## **CONCLUSION**

I have given you a very condensed discussion of the fundamental elements of the logistics problem and pointed out, in gen-

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eral, the method of solving said problem. I have also attempted to establish the inter-relationship of strategy, tactics and logistics, in order to provide each of you with interest, knowledge and appreciation of such inter-relationships. In closing I wish to leave these few thoughts:

First: Logistics mistakes are usually not evident until many months after they have been made and in many instances the momentum of industry and transportation make correction exceedingly slow.

Second: Mere knowledge of techniques, tables or organization, allowance lists, usage tables and the like, will not, in themselves, make a good logistics officer. This knowledge will make a good logistics leg man. Major logistics responsibilities require the highest type of intelligence, foresight and military character, the same qualities and abilities as are required in any competent commander.

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