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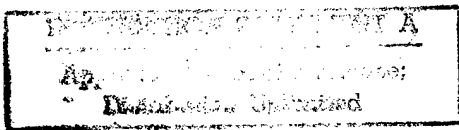
FOCUSED LOGISTICS AND THE SUSTAINMENT OF DEPLOYED FORCES

by

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A paper submitted to the Faculty of the Naval War College in partial satisfaction of the requirements of the Department of Joint Military Operations.

The contents of this paper reflect my own personal views and are not necessarily endorsed by the Naval War College or the Department of the Navy.



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15. Abstract: The operationally based template of Focused Logistics seeks to exploit emerging information processing technologies in order to improve the basic business practices of the military. Within each respective Service, supporting initiatives are currently under development. The Army concept is called Velocity Management while the Marine Corps concept is known as Precision Logistics. The Navy concept is called Expeditionary Logistics and the Air Force concept is known as Lean Logistics. Throughout the period envisioned in 2010 and Beyond, pressure will continue to mount for reductions in inventory, infrastructure, and footprint. The programs implemented by each Service show great promise for such reductions in post, station, and base operations. However, when operating in immature theaters, Focused Logistics cannot be fully implemented until traditional methodologies and rivalries of Service oriented chain of command stovepipes are modified. Traditional requisitioning procedures, Command and Control, and development of theater infrastructure are all outdated. A rational sequence for theater development built on the core competencies of each Service is required.			
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Huge quantities of supplies were unloaded from ships and piled up in such disarray that they could not be identified and issued to combat forces. Ports became so cluttered that identifiable supplies in the holds of other ships could not be moved ashore.

Maj Gen Blank, "The Impact of Logistics Upon Strategy"
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INTRODUCTION

In *Joint Vision 2010* General John Shalikashvili issued his strategic direction to the military in the form of an operationally based template. The precepts outlined will be followed by the respective branches of the Armed Forces as each develops concepts and equipment required to take the military into the next millennium. Recognizing that a radically altered world geo-political environment, force reductions and technological advances have combined to offer both opportunity and challenge unmatched in recent history; the Chairman identified pillars of Dominant Maneuver, Precision Engagement, Full Dimensional Protection, and Focused Logistics as the gauge to be used when assessing and evaluating new doctrine, ideas and requirements. His expectation is that the combination of these four pillars will ensure that the United States military retains a full array of capabilities to defeat opponents across the full spectrum of military operations both now and well into the future. Dominant Maneuver is defined as the multidimensional application of information, engagement, and mobility capabilities to position and employ widely dispersed joint air, land, sea, and space forces to accomplish the assigned operational tasks. Precision Engagement is a system of systems that enables our forces to locate the objective or target, provide responsive command and control, generate the desired effect, assess our level of success, and retain the flexibility to reengage with

precision when required. Full Dimensional Protection is the ability to control the battlespace to ensure that our forces can maintain freedom of action during deployment, maneuver and engagement, while providing multi-layered defenses for our forces and facilities at all levels. (1) The final operational concept of Focused Logistics provides the foundation for this paper.

FOCUSED LOGISTICS

As defined, Focused Logistics is, "the fusion of information, logistics and transportation technologies to provide rapid crisis response, to track and shift assets even while enroute, and to deliver tailored logistics packages and sustainment directly at the strategic, operational, and tactical levels of operation. (2) Further amplification of Focused Logistics was provided when the Joint Warfighting Center published *Expanding Joint Vision 2010, Concept for Future Joint Operations* and added requirements that future logistics systems be as agile as the supported force, be more anticipatory of requirements, and be task organized to support specific missions. Together, these added requirements will ensure that operational planning will be dramatically improved as new logistics information systems and data bases promote collaborative mission planning. These new systems will not only enhance the ability to quickly and accurately generate logistics estimates for alternative Courses of Action, but also translate the commander's concept of operation directly into logistic terms with the aid of decision support aids. (3)

As we move into the period of 2010 and beyond, the real challenge confronting logisticians are the requirements to completely alter the way we *think* about sustainment and the way we *plan* operational support. New business oriented technologies and practices will enhance the ability to accurately plan logistical requirements. In garrison, speed and information will steadily reduce inventory, infrastructure, overhead and cost. However, when

supporting deployed operations, the template of Focused Logistics will not be fully implemented until revisions are made to the current doctrine of single-Service support channel requirements. Further, in order to fully comply with the goal of Focused Logistics, an ability to rationally sequence the development of an immature theater must be addressed. Theater development must be sequenced and synchronized based on core competencies of each Service; able to rapidly develop an immature theater into a fully integrated system of ports, airfields and roads; all while maintaining the ability to support sustained operations.

Traditional practices of managing huge stockpiles of costly supplies, large inventories of expensive equipment and maintaining the "Just In Case" philosophy of spare parts management must be relegated to the past just as surely as the dinosaur. Within the garrison operations of each Service, new business practices and management initiatives are emerging to support the ideas of Focused Logistics.

Army: The Army calls its collective logistics restructuring efforts Velocity Management. The basic concept of Velocity Management is that reductions in administrative lead time, improvements in distribution, and speed of delivery will result in less maintenance down time at the unit level, thereby improving overall readiness while still allowing wholesale stock levels to be reduced. The ultimate goal of Velocity Management is "getting logistics support in the hands of the soldier as fast as any commercial firm would, while providing a hedge against unforeseen interruptions in the logistics system." (4) Coupled with other innovations in the acquisition cycle intended to field new equipment with improved maintainability and reliability built in from production, the Army plans to speed movement of spare parts to reduce inventory and infrastructure.

Marine Corps: The Marine Corps has developed the idea of Precision Logistics.

Simply stated, Precision Logistics seeks to improve basic Marine Corps business practices by studying successful commercial industries such as Pepsi-Cola, Federal Express, Qualcomm and Caterpillar. By harnessing lessons gleaned from these industry leaders, areas such as inventory management, outsourcing, vehicle tracking and distribution have been revolutionized. As a result of Precision Logistics, a whole new focus based on calculations of Repair Cycle Time (RCT) and Order Ship Time (OST) has emerged. By focusing on RCT and OST instead of traditional readiness rating, the Marine Corps has demonstrated reductions in the time required to repair organic equipment by up to as much as 70% while actually raising readiness rates. (5) In cooperation with the Defense Logistics Agency, the Marine Corps is using information and speed in the requisitioning and distribution processes to replace inventory and footprint.

Navy: The Navy is taking a hard look at the cost of logistics and all aspects of the supporting infrastructure. Under the aegis of a program designated Expeditionary Logistics, this program for improvement is the first ever logistics plan jointly developed by a combined effort of both the Navy and the Marine Corps. According to a presentation given by the Deputy Chief of Naval Operations (Logistics) at the Naval War College in March 1997, the long term goal of this Naval service logistics network is to "transform the infrastructure-intensive system into one that provides equal or better support at lower cost." (6) Built on four cornerstones of Precision, Information, Transformation and Partnership; Expeditionary Logistics seeks a framework that focuses on support for the operational concepts "Forward...From the Sea," and "Operational Maneuver From the Sea." This robust vision for the future challenges Navy and Marine Corps logisticians to streamline infrastructure, break old paradigms and transform the current support

system into a leaner, more efficient and less costly organization fully capable of sustaining any mission at any time world wide. (7)

Air Force: The Air Force is setting the standard for the other services to match with their idea known as Lean Logistics. According to General Henry Viccellio, Commander of the Air Force Material Command, the goal of Lean Logistics is replace inventory with information and fast transportation in order "to trim fat from the processes that make material support to customers sluggish, unreliable and costly". (8) By adopting more modern business practices, the Air Force now uses speed to transport repair parts to where they are needed and thereby reduce the cost associated with multiple caches of equipment at various sites. By taking such actions, the Air Force has shown that reductions in inventory are possible, even while making their depots more responsive to the customer. Faster turnaround of repair parts, faster processes, and a leveraging of technology are expected to provide even better support with less inventory. When combined with an associated initiative intended to reduce maintenance to two levels, the Air Force has shown the potential for a 50% reduction in their spare parts inventory.

Regardless of the name applied to the concept, it is apparent that each Service has quickly realized the potential for improved inventory management and seems headed in the same direction with their attempt to support the pillar of Focused Logistics. Computerized management tools provide greater visibility of inventory. Faster delivery systems and adoption of modern business practices give each Service the ability to respond more quickly to customer demands. Hand-in-hand with this combination of faster customer response and modern business practices will come the ability to reduce the huge costs associated with spare part inventories. The fiscal impact and significance of these initiatives are staggering. Current

Army spare part budgets are now up to a total of \$6 *Billion* annually while the latest available figure for the Marine Corps' inventory of spare parts was \$779 *million* in Fiscal Year 1996. (9) As each Service Chief continually faces the requirement to balance force modernization with maintenance of current readiness levels, any initiative to save money will be immediately welcomed.

TECHNOLOGY

As Services develop and carry out their Focused Logistics supporting strategies, each must be fully aware of similar actions and initiatives taken by the others. A true joint system will emerge only when ideas, concepts and requirements are shared and traditional stove-piped characteristics of service distinctive systems eliminated. To ensure that the respective Service systems are fully capable of supporting joint operations, the Joint Staff (J4) has identified common logistics system enablers with which each service system must comply.

Global Combat Support System (GCSS): GCSS is the logistics oriented portion of the Global Command and Control System (GCCS) being fielded to replace both the Worldwide Military Command and Control System (WWMCCS) and the Joint Operations Planning and Execution System (JOPES). GCSS is a system-of-systems that will "provide commanders total visibility of unit personnel and equipment, sustainment, inventory, logistics resources, health services resources, and material requisitions based on common data inputs submitted by subordinate units". (10) While there are many components and subsystems of GCSS, the Automatic Identification Technology and Intransit Visibility elements are of greatest interest.

Automatic Identification Technology (AIT): AIT ensures the capture of current and accurate source data for automated information systems. This system-of-systems approach will

provide the commander with the ability to see and track all requisitions processed in-theater; give him visibility of in-storage, in-process, and in-transit assets; and act on information to improve total logistics performance. AIT incorporates devices such as bar codes for individual items, optic memory cards for multipacks and containers, radio frequency tags for containers and pallets, and a movement tracking capability using satellite links for convoys, trains, and barges. Within AIT, the subsystem Joint Total Asset Visibility (JTAV) is the capability to provide user with timely and accurate information on the location, movement, status and identity of units, personnel and equipment and supplies. (11)

Intransit Visibility (ITV): The United States Transportation Command (USTRANSCOM) is Executive Agent for the development of an ITV capability within the Defense Transportation System. While ITV is critical to the successful implementation of JTAV, it is not a subordinate subsystem. Simply put, ITV is the capability to trace, from origin (e.g., depot or commercial vendor) to destination, the identity, status, and location of DOD unit and non-unit cargo. The capability to track passengers and medical patients is also provided.

ITV will be realized by putting items into a box, placing that box into a larger multipack, then putting the multipack on a pallet or into a container. The associated information of each subordinate item is recorded on a laser card and/or radio frequency tag of the larger box that can then be scanned as it passes through each transportation node enroute to a destination. The data read by radio frequency interrogators at each node is passed on a near real-time basis to USTRANSCOM's Global transportation Network database at Scott Air Force Base, Illinois. (12)

Under the umbrella of Focused Logistics, the technologies of GCSS, JTAV, and ITV will enhance the individual respective Service initiatives of Velocity Management, Precision

Logistics, Expeditionary Logistics and Lean Logistics. Improved speed of deliveries, decreased repair cycle time, and enhanced overall readiness will all contribute to reducing excess inventories. When applied to providing support to deployed forces, these enhancements should ultimately result in a reduction of the logistics footprint.

FOOTPRINT REDUCTION

New systems and concepts that take us into the 2010 time frame and beyond must ensure that the unfolding logistics structure retains the current full spectrum capability. The Measure of Effectiveness for emerging systems has to be a combination of efficiency *and* effectiveness. Any new system that provides only improved efficiency without ensuring the effectiveness demanded by combat operations must be discarded just as ruthlessly as a system that is effective but does nothing to promote efficiencies. The demands of a unit deployed to a distant theater must be met with the same effectiveness and efficiency as the requirements levied by a unit conducting day-to-day maintenance at home ports, bases and stations.

Focused Logistics will allow both greater accuracy in identifying on-hand inventory and the capability to track in-coming cargo. This combination should allow logisticians to support a deployed joint force with a greatly reduced the logistics footprint. To underscore this point, Paul Kaminski, Under Secretary of Defense for Acquisition and Technology, has stated that reduction of the logistical footprint is one of the best ways logisticians can support the deployed Joint Force Commander (JFC) (13). The improvements fostered by Focused Logistics should directly influence deploying forces in two ways. First, enhanced asset visibility can provide a significant decrease in the amount of initial supplies and support equipment transported to a distant theater during the early phase of deployment when competition for strategic lift assets is

most keen. Secondly, since subsequent deliveries and resupply can be made faster, the need to build large stockpiles can be eliminated or at least reduced as smaller stockpiles will be capable of providing sustainment at theater logistics nodes. Reduced footprint will decrease the physical real estate/area required for storage and result in proportionally lower security requirements. Finally, as inventory accuracy and speed of delivery are improved, large stockpiles of critical assets can be reduced and these items can then be made available to another theater.

From Humanitarian Relief to Peacekeeping to Major Regional Contingencies, the application of Focused Logistics' ability to reduce the logistics footprint must be aggressively pursued. However, a balance between the ability to reduce logistics footprint and the risk this reduction will create for non-availability of critical supplies must always be considered. The key to striking this balance lies in a careful analysis of the operational factors of Space, Time and Force. It is the combination of these factors that will ultimately determine how quickly an effective transportation and distribution network can be established.

OPERATIONAL FACTORS

When analyzing theaters/areas for deployment of U.S. military forces, the operational factors of space, time, and force are normally the best starting points. In this context, the term "space" includes not only distances across which personnel, equipment and supplies must be transported, but also an assessment of physical features such as natural resources, population density, urbanization, ports, airfields and roads. (14) The analysis of "space" must also look at the geostrategic position of the country/theater of operation relative to coalitions, alliances or treaties that the U.S. may have in the region. When conducting deliberate planning, it is best to

assume that (a) ports and airfields will not be available, (b) that logistics infrastructure will be immature, and (c) that the country's geopolitical position will be isolated. If plans are based on these basic assumptions, things can only get better once planning for actual operations begins.

The second operational factor to be considered is "time". In a world where relevance is increasingly defined in terms of closure rate, forces that are packaged as broadly capable and rapidly deployable will do well in both budget battles and political decision battles regarding Force Deployment Options. Since by definition a crisis will arise quickly, the movement of forces to the employment area is often *the* decisive issue. Correctly estimating the duration of the crisis may be an important criterion, but the prime consideration in assessing "time" will usually be limited to delivering a credible force to the area as quickly as possible.

The final operational factor to consider is "force". Here the term force means the combined capabilities of all Services available to the JFC, their levels of training, and their logistical support requirements. (15) The larger the "space", the larger the "force" and the longer the "time" will be for deployment. All factors must be considered together and *no* factor can be an independent variable. The successful Commander will always seek the best possible balance.

COMMAND AND CONTROL (C2)

There remains one major area to be resolved before Focused Logistics can be fully implemented to support deployed forces. Under existing laws and doctrine, each Service has the responsibility to organize, train and equip the forces it provides to the geographic Commander In Chief (CINC) or subordinate JFC. During deployment, the responsibility to provide supply and sustainment for component forces still resides with parent Services even though forces are assigned to the CINC or JFC. In order to achieve true economies of scale for

classes of supply common to more than one Service, the CINC or JFC will routinely task the largest single user of a particular commodity to manage that class of supply for all components. During large operations or operations with an extended duration, management of Subsistence (Class I); Petroleum, Oil, and Lubricants (Class III); and Ammunition (Class V) has been historically assigned to the Army component as their units are typically the largest consumers. Experience has shown that this arrangement works well for common supplies and there is little initiative or reason to challenge this practice.

Repair Parts (Class IX) are a completely different issue. While requirements for common items such as food, fuel, and ammunition can be easily planned and wholesale delivery by bulk carrier readily scheduled, the requirements for spare parts cannot be so easily planned. As stated earlier, each component still follows its own procedures and requisitions repair parts through an independently stovepiped Service chain of command without regard to the others. In reality, the lack of coordination in submitting requisitions results in an inadvertent competition between Services as each seeks to obtain a limited number of available repair parts. Since no methodology for forecasting seems able to predict corrective maintenance or spare parts requirements with any great degree of accuracy, maintenance personnel have traditionally resorted to double ordering, scrounging, and otherwise hoarding private caches of repair parts. Besides this local stockpiling, there is often (if not always) an unwitting competition between Services for the limited transportation assets available to bring requisitioned spares into theater. In a mature theater such as Europe or Korea, such competition is significantly masked by existence of parts already in theater stockpiles and availability of multiple transportation nodes and modes. With safe commercial airports available, the combination of U.S. Air Force,

Federal Express, and United Parcel Service can all deliver critical parts to deployed units quickly and effectively. However, in theaters without safe commercial airfields, availability of commercial carriers is naturally restricted and competition for Air Force airlift is as uncoordinated as it is intense.

To eliminate this redundant and destructive competition, a C2 that genuinely controls all theater requisitions and distribution must be developed. The challenge is to develop a system that will synchronize requisitions to operational requirements, eradicate traditional stovepiped competition and still be responsive to the needs of the deployed force. I believe that the solution is simple. When deployed, all Components should be required to submit their spare part requisitions directly to the JFC (J4) instead of to normal Service channels. Upon receipt of a Component requisition, the J4 validates the requirement, determines the urgency of need as related to pending operations, assigns the appropriate transportation priority and forwards the requisition directly to the Defense Logistics Agency (DLA) Emergency Supply Operations Center (ESOC) at Ft Belvoir, Virginia. The ESOC, already manned 24 hours a day and seven days a week, locates the required part from DLA's world-wide inventory, ships the part directly to the deployed unit, and bills the parent service. Since requisitions are transmitted electronically, no significant delay would be incurred by redirecting the requisition to the JFC J4 for subsequent transmission to the DLA/ESOC. Competition for scarce resources can then be resolved by the JFC (J4) based on realistic operational requirements. A system of prioritization, figured out by the local Commander, will eliminate competition for scarce resources and increase effectiveness and efficiency when dealing with both requisitions and transportation.

The requirement to develop a Joint Logistics C2 system may take Congressional action

concerning Title 10. Exact procedures and methodology for application are beyond the scope of this paper. However, I believe that any Joint Theater Logistics C2 organization envisioned by Focused Logistics will be remain ineffective until the JFC J4 is given true authority to **command and control** Component requirements instead of being limited to the traditional ability to merely coordinate.

To support the Joint Logistics C2 structure that will eventually emerge, a supporting organization similar to the traditional Theater Army Area Command will be required to manage those classes of supply that are common to all. The Army is attempting to develop a rapidly deployable modular Theater Support Command structure. In essence, this proposed organization would be drawn from existing personnel and equipment assets on an as-required basis and be rapidly deployable, capable of port operations, airfield operations, transportation, storage and warehouse operations shortly after arrival in theater. (16) While an admirable concept, I believe that it is unnecessary and counter-productive to create yet another rapidly deployable, ad hoc organization from existing structure when, with only minor modification the agile C2 organization envisioned by Focused Logistics already exists. The Marine Expeditionary Unit (MEU), the Marine Expeditionary Force (Forward), and the Marine Expeditionary Force (MEF) are all capable of furnishing the Command and Control requirements outlined in Focused Logistics as well as laying the foundation for subsequent build up of an immature theater.

PUTTING THE PIECES TOGETHER

In the future, the United States is likely to face a number of very different threats to its security, interests, and way of life. Many of these will be associated with the littorals, those

areas characterized by great cities, well populated coasts, and the intersection of trade routes where land and sea meet. While representing a relatively small portion of the world's surface, littorals provide homes to over 80 percent of the world's capital cities, and nearly all of the market places for international trade. Because of this, littorals are also the place where most of the world's important conflicts are likely to occur.

General Charles C. Krulak
Concepts and Issues '98

As the future of 2010 and Beyond draws ever closer, the words of General Krulak seem to accurately describe the situations we will most likely encounter. In this arena, the rate at which we are able to close decisive force to a distant and immature theater will more and more often directly influence how effective we can be in resolving the crisis.

Unless trouble develops in an area where we are fortunate enough to have forward based troops, the force able to close most effectively is likely to be a Marine Expeditionary Unit (MEU) embarked aboard amphibious ships. This Navy/Marine team is a logical choice for commitment to disaster relief, humanitarian assistance, small scale contingencies, and many of the Military Operations Other Than War (MOOTW). Capable of operating from ships that remain over the horizon, the MEU can employ organic helicopters, amphibious assault vehicles, and Navy landing craft to quickly land whatever combat or combat service support force is required. With their abilities to loiter indefinitely and still land quickly, the MEU is the logical cornerstone upon which a CINC or JFC can develop his theater logistics infrastructure. Arriving with 15 days of sustainment, the ability of the MEU to operate from sea-based platforms gives them the ability to conduct operations with little or no footprint shore. This ability to sea-base the logistics effort is exactly that capability to which Mr Kaminski referred. Should the nature of the crisis grow beyond the capabilities of the MEU, a Marine Expeditionary

Force (MEF) can be quickly closed to the theater using commercial and U.S. Air Force aircraft. Once fly-in personnel link up with equipment loaded aboard the three Maritime Prepositioned Ship squadrons, the MEF can provide a robust force of up to 50,000 Marines and Sailors backed by 60 days of sustainment. Approved requisitions for Joint and/or Combined logistical support can either be satisfied with the MEU/MEF organic sustainment or ordered from DLA as described earlier. Communications assets to execute this concept already exist and procedures can be easily developed. Finally, should the crisis continue to build to a full scale Major Regional Contingency, the logistical infrastructure established by the MEU and subsequently developed by the MEF can easily give way to the Joint Logistics Over The Shore (JLOTS) and transition to the Theater Support Command capabilities brought to bear by arriving Army logisticians.

SUMMARY

The Bible records the Israelite's departure from Egypt in the book of Exodus. As the Operational Commander, Moses relied on the Almighty to provide all his logistical support and sustainment. In spite of Moses' lack of logistical preparation and planning food, water, and medical supplies all appeared just when needed. Unfortunately, for modern logisticians, today's Joint Force Commander will assuredly require a more definitive concept of logistics support for his operations. By developing an effective and efficient theater infrastructure in a logical sequence that is based on the concepts of Focused Logistics and the capabilities of the MEU and MEF, our ability to provide critical support will give the Operational Commander maximum reach and flexibility. Future logisticians can provide operational commanders with

the widest possible range of options only if we establish a rational C2 hierarchy, eliminate traditional rivalries, and develop a Theater Support Command structure that is sequenced and built on a realistic foundation. Together, these actions will finally fulfill the mandate of Focused Logistics and allow us to successfully accomplish our mission.

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