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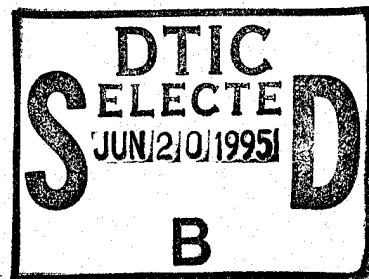
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**DEFENSE TRANSPORTATION CONTROL
FOCUS FOR POWER PROJECTION**

BY

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Defense Transportation Control Focus for Power Projection

by

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Abstract

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Joint doctrine stresses the importance of controlling the defense transportation system. The doctrinal publication on system control states that movements control coordinates transportation resources to enhance combat readiness and the priorities of the supported commander. Doctrine further stipulates that efficient transportation in a theater involves establishing effective organization and movement control procedures.

Doctrine does not address what these control elements are, or how they are applied to the defense transportation system. This paper develops a concept for controlling the transportation function. This concept is based on generally accepted principles of joint and multinational operations and support to the military element of national power. The paper then analyzes the defense transportation system to determine where and how this control can be applied.

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Introduction

The United States charges its armed forces with the missions of ensuring the security of the United States, its possessions, and areas vital to its interests; and upholding and advancing its policies and interests.¹ National leaders and commanders must integrate joint, single-service, special and support operations with a myriad of governmental, multinational and nongovernmental activities into a unity of effort within a theater of operations.² These tasks require the US military to project power and sustain actions through to favorable conflict termination.

Power projection requires military forces, based primarily in the continental United States (CONUS), to rapidly deploy to remote theaters of operations. CONUS installations are used as springboards to launch units and supplies in response to dynamic crises. This effort demands rapid, efficient performance of the defense transportation system.

A capstone publication on joint military doctrine, Joint Warfare of the US Armed Forces, stresses the role of transportation in unified action:

Transportation enables the joint campaign to begin and continue. The projection of power relies upon the mobility inherent in air, naval, and land forces, supported by the defense transportation system. Transportation at the strategic and operational levels of war is a complex operation. It can best be served by a single, sound deployment concept that reflects enroute and theater constraints and undergoes minimum rapid changes (which may create unforeseen, cascading effects). Experience has shown that the cooperation of all supporting combatant commands and Services is required to ensure the efficient coordination and execution of a major deployment.³

The defense transportation system must be robust, responsive and flexible enough to respond to rapid changes in requirements and priorities. Decisive action depends on the system's ability to get the right cargo and passengers to the right place in the theater at the right time.

The means to influence system performance is transportation control. The purposes of this paper are to:

- (1) Review evolution of transportation control policy and doctrine.
- (2) Propose a transportation control concept suited for the projected political and military environment.
- (3) Review current and proposed control procedures and structure for suitability with the proposed control concept.

Control of the Logistics Function

Power projection is a way to accomplish the ends of national security and takes many forms. The term generally associated with support of the military element of national power is logistics. In his classic work, Logistics in the National Defense, Rear Admiral Henry Eccles defined logistics as "the provision of the physical means by which power is exercised by organized forces. In military terms, it is the creation and sustained support of combat forces and weapons. Its objective is maximum sustained combat effectiveness."⁴ Although the range of military operations is broader today than when Admiral Eccles offered this definition in 1959, logistics still provides the physical means for the exercise of military power.

Eccles contended that logistics forms the foundation for development of strategic flexibility and mobility. Further, if such flexibility is to be exercised and exploited, military command must have adequate control over logistics support.⁵ Logistics functions must be carefully planned, monitored, directed and corrected to insure mission success.

Positive control of forces is universally recognized as crucial to combat effectiveness at all levels. Logistics control is just as crucial to combat effectiveness. The ability to focus military and economic power of the United States on specific national objectives requires national leaders and commanders at all levels to exercise positive, decisive control of all means at their disposal.

Transportation System Control

In order to project the power of the United States, military and civilian transportation operators must rapidly move forces and their supplies over vast distances with little notice. The transportation function is crucial to the development of strategic advantage. Effectiveness depends on the flexibility and responsiveness of defense transportation.

Joint doctrine defines the defense transportation system as, "All the land, water, and air routes and transportation assets engaged in the movement of US forces and their supplies during peacetime training, conflict, or war, involving both mature and contingency theaters and the strategic, operational, and tactical levels of war."⁶

An implementing publication, Joint Tactics, Techniques, and Procedures for Movement Control, lists the elements of a transportation system as, mode operations, terminal operations, and movements control. The publication further states that movements control is the most critical element of the transportation system (although Doctrine for Logistic Support of Joint Operations does not even recognize it as an element). The rationale for this distinction is that inadequate control over movement results in waste, reduced efficiency, and loss of potential combat power.⁷

As in combat operations, leaders at all levels are required to translate the commander's intent and priorities to transportation system operators. A commander's means to measure, report, and correct performance of the transportation system is movement control. The need to control the defense transportation system arises from the fact that defense transportation is influenced by factors different from the commercial transportation system.

The law of supply and demand governs commercial transportation. Eccles contends that, "The customer's demand for transportation responsive to his need induces the transportation industry to supply him with it."⁸ Market demands, coupled with competitive pricing, determine

when, where, and how often carriers move goods and passengers. Commercial carriers establish routes and schedules that service existing and potential markets. Lucrative markets drive more routes, while poor markets attract few carriers. Even a cursory review of US airline deregulation proves conclusively that markets drive both routes and schedules. Transportation not used during a specific period is wasted, and therefore represents an opportunity cost. Cargo not moved because of a lack of transportation assets results in lost revenue. Failure to heed market pressures dooms transportation enterprises to failure.

The commercial transportation industry exercises control through schedules, delivery commitments, and various types of direction. Direction ranges from total tracking and visibility exercised by small parcel services (United Parcel Service, Federal Express and Emery) to the loose priority delivery systems of freight firms.

Admiral Eccles saw the need to measure, report, and correct performance of the defense transportation system. The laws of economics are not adequate to optimize defense transportation; direct intervention is required:

In the military world the criteria by which we judge the excellence of a transportation system are quite different and much more complex. It is not possible to place a monetary value on combat effectiveness; nor is it possible to use profit and loss criterion for combat efficiency.⁹

Eccles stresses that the objective of all military logistics is, "The creation and sustained support of effective combat forces." The only true criterion by which to judge logistic effort is the effectiveness of combat forces.¹⁰ Combat effectiveness can often be directly at odds with the laws of economics, or market efficiencies. Logisticians seek efficiency and economy, but these factors should always be subordinate to the needs of combat forces.

In today's Defense Department, system control is governed by sets of intricate, often

arcane, priorities. Control is established by assigning a priority to everything (and everybody) being moved. Cargo and passengers with higher priorities move first on available transportation, and lower priority cargo and passengers wait.

In peacetime, readiness standards and quality of life for military personnel, balanced against declining budgets, are the basis for transportation priorities. Supply and transportation operators strive to maximize efficiency and minimize cost, while protecting readiness.

In crisis and war, this system of control by prioritization is retained. Even time-honored Joint Operations, Planning and Execution System deployment lists rely completely on Service defined movement priorities balanced against programmed lift assets. During plan execution, adjustment of a force deployment is cumbersome and often results in waste.

Control Principles

Control over the defense transportation system must be based on sound principles.

Logistics in the National Defense lists enduring parameters for military logistics. These factors involved the application of industrial power, focused not on profit, but on combat effectiveness.

(1) Logistics is the bridge between our national economy and the actual operations of our combat forces in the field.

(2) Unless restrained by wise, adequate, and timely planning, logistics installations and operations tend to snowball out of all proportion to the true needs of combat support.

(3) Sound logistics forms the foundation for the development of strategic flexibility and mobility. If such flexibility is to be exercised and exploited, military command must have adequate control over logistics support.

(4) The understanding of the nature and degree of logistic control which command should exercise is essential to the attainment of combat effectiveness.¹¹

These principles may seem self-evident, but historical performance on controlling logistics with combat effectiveness as the prime objective has not been good. Lieutenant General (Retired) Joseph M. Heiser, Jr., a leading logistician in three wars describes lack of control as follows:

In my forty-eight years in defense logistics, seven in combat zones in three different wars, I've faced many different, serious logistics problems. In each war, because supplies were low or nonexistent or could not be located, we lost critical time getting the support required by the combat troops. The worst situation is to arrive in combat with an excess of noncritical items and a shortage of critical items. We must accept the fact that even the most carefully conceived logistics plans fail to prepare us for the chaotic environment that can occur in battle. On the beaches of Normandy, for example, the freak weather caused considerable confusion when we often had to unload supplies in deep water under fire. As a result, we often didn't know what we had, or where it was. Needed critical items were probably on the beaches in front of our eyes. The beaches were loaded with a lot of stuff. I mean 'stuff' because we received unidentified items and did not or could not inventory them. All across Europe identifying stock on hand in the combat zone was a problem, making it necessary to request rush shipments of supplies that were probably available. We managed to oversupply our troops in Europe in spite of losing 24 million tons of shipping to enemy submarines and even returning still loaded ships to the United States.¹²

General Heiser found the same problem in Vietnam in 1968:

This same oversupply situation prevailed in Vietnam . . . Oversupply is easy to do, when you consider that we finally achieved an airlift rate from CONUS of 20,000 tons a month. For five years we struggled to determine what we had on shore in Vietnam. By that time too much of it was left for the North Vietnamese. I hope they are still trying to sort it out!¹³

These examples show the "logistics snowball" in full development. Admiral Eccles warned operators in 1959 that it is sometimes better to waste shipping, waiting on properly documented and controlled cargo than to risk the creation of the logistics snowball that General Heiser describes. The more responsive the movement control system is, the lower the levels of forward-positioned supplies can be.¹⁴ The problem was not a lack of supply or transportation, but control and visibility of stocks on hand. One of the significant lessons offered by the study of history is that control must be established and maintained.

Global operations and competition for scarce resources in time of crisis and war demand positive control over transportation operations. Systems operators can insure efficiency, resiliency, and responsiveness only by manipulating the system directly. There is a need to direct operations of the system to insure that the commander's intent is achieved and that combat effectiveness is assured.

Integrate, Coordinate or Control?

Review of joint logistics doctrine reveals a void in the area of transportation system control. The doctrinal publication defines movement control as,

Planning, routing, scheduling and controlling of common-user assets, and maintaining of in-transit visibility to assist commanders and operations staffs in force tracking. It also includes reception and onward movement of personnel, equipment, and supplies over lines of communications in accordance with command directives and responsibilities. Movement control is a system involving coordination and integration of movement information and programs spanning all levels of operations.¹⁵

This definition does not allow for direct intervention in the operation of the transportation system.

Joint doctrine goes on to specify that movement control organizations *coordinate* the transportation assets of all modes, terminals, Services, commands, and host nations during deployment, sustainment, and redeployment.¹⁶ Coordinating authority allows commanders or their agents to consult between forces and Services, but not *compel* action. Coordinating authority is a consultation relationship, not authority to exercise control. Coordinating authority is more applicable to planning or similar activities than to operations.¹⁷

Joint Movements Control doctrine is unclear as to the adequate level of authority for the transportation function. Joint Tactics, Techniques, and Procedures for Movement Control states that, "movement control *coordinates* transportation resources to enhance combat effectiveness and meet the priorities of the supported combatant commander. Efficient transportation in a theater involves effective organization and *control* procedures."¹⁸

The element of *control*, the ability to regulate the transportation function and execute the commander's intent, is cited in Doctrine for Logistics Support of Joint Operations. It defines movement control as "The planning, routing, scheduling, and *control* of personnel and freight movements over lines of communications."¹⁹

How then is this element of control exercised over the transportation function? Current doctrine addresses control as follows:

"Control is inherent in command. To control is to regulate forces and functions to execute the commander's intent. Control of forces and functions helps commanders and staffs compute requirements, allocate means, and integrate efforts. Control is necessary to determine the status of organizational effectiveness, identify variances from set standards, and correct deviations from these standards. Control permits commanders to acquire and apply means to accomplish their intent and develop instructions from general guidance. Ultimately, it provides commanders a means to measure, report, and correct performance." ²⁰

Applying this to the transportation function, movement control includes the following functions:

- (1) Compute transportation requirements.
- (2) Acquire and apply transportation services.
- (3) Direct the transportation system's operation and effectiveness.
- (4) Correct performance deficiencies.
- (5) Monitor and analyze system performance to enhance efficiency and combat effectiveness.

Figure 1 illustrates these functions. Functions occur simultaneously in peace and war and are focused on the goal of combat effectiveness. Only through vigorous execution of control at all levels will goals and priorities be translated to the transportation system.

The functions of transportation control are interdependent, overlapping and must be executed at all levels. This is not to say that the highest level of control must influence low level, routine movements or that low level operators always influence strategic transportation. It is at the seams, the places where various modes of transportation are involved and where schedules or asset availability impact on system operation, that multilevel control is essential.

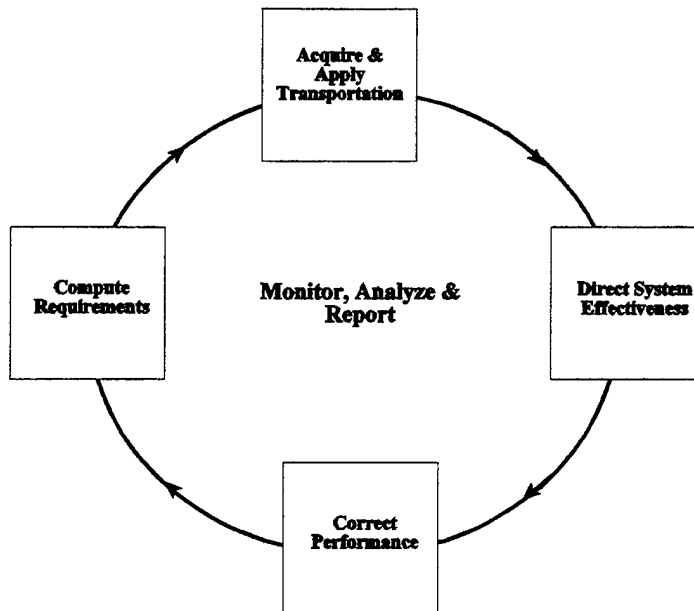


Figure 1, Transportation Control

Defense Transportation System Analysis

The defense transportation system is composed of routes and transportation assets engaged in the movement of forces and their supplies.²¹ For the purpose of analysis, the system is divided into two major components:

(1) Cargo and Passengers that are moved by the system.

(2) Movement assets, origins, destinations, ports, and the routes between them. The elements of the system that move cargo and passengers.

This analysis will treat each element separately. This stylistic view of the system will ease application of control.

A useful parallel can be drawn to a utility system, such as a municipal water works. Cargo and passengers are equivalent to the water that originates in a remote reservoir and is moved to

homes and businesses. The other elements of the system are equivalent to the pipes, pumps, and controls that enable the delivery of the water. Although simplistic, transportation boils down to things that move and the things that move them.

Cargo and Passengers.

Like the water in the simplified example, cargo and passengers use the physical components of the transportation network to get from origin to destination. Exceptions to the analogy are cargo items that start or complete their journey on their own. Items such as trucks or tracked vehicles in convoy, or self deploying watercraft or aircraft are momentarily both cargo and part of the physical transport system.

Unlike the water in the simplified example, things moved in defense transportation are not homogeneous commodities. Cargo and passengers in the defense system have specific destinations. Consequences may be dire if they are not delivered to the right place at the right time. The examples cited by General Heiser were the result of transportation treating all cargo and passengers as homogeneous and interchangeable. The goal was to "keep the pipeline full" rather than to insure that specific units, replacements, and critical supplies got to the right place at the right time.

Much attention has been directed toward cargo visibility and distribution. Services and The United States Transportation Command (USTRANSCOM) are expending resources to develop systems that will provide total asset visibility including passengers, requisition level detail and cargo movements. USTRANSCOM has recognized the need to provide pre- and post-transit visibility of goods shipped.²²

Passengers transiting the defense transportation system have less of a problem with intransit visibility. If system operators are confused as to the passenger's priority or destination,

the passenger clarifies the issue. If a passenger requires diversion or is delayed, an intelligent data exchange (hopefully) is conducted between those controlling the passenger, the passenger and those controlling the transportation system. Many transportation operators have wished that cargo could talk, just enough to tell where it is going and when it needs to be there.

A significant effort is underway to ease cargo tracking. USTRANSCOM has identified more than 150 separate automation systems supporting various transportation functions²³. Service planners and operators rely on these systems for various management tasks, but this systems proliferation makes "single-manager" control impossible. The aim of these efforts should be establishing connectivity, commonality, and interoperability.

Visibility of cargo does not guarantee control. Cargo visibility, in our simplified example, is dye in the water. Knowing the location of cargo is not enough, systems operators must use that data to influence the delivery of that cargo.

The Physical Transportation Network

The physical transportation network is viewed from a system perspective as follows:

(1) Nodes - Origins, points where cargo or passengers change modes of transportation and destinations. In the military context these are home stations for forces, supply depots, sea and air ports, truck and rail terminals, and in-theater destinations or retrograde points.

(2) Links - Routes between nodes and the transportation assets that travel those routes. These are air and sea lanes; truck, barge and rail routes; and delivery patterns for mail and small package services.

The system operates by moving cargo along links between and through nodes. Efficiency of the network is measured in terms of time required to transit the system, cargo "stuck" at each node due to lack of transport assets or lack of direction, or amount of available transport

"wasted" (not used to move cargo in a specific time) at each link. A view of the defense transportation system is offered at Figure 2.

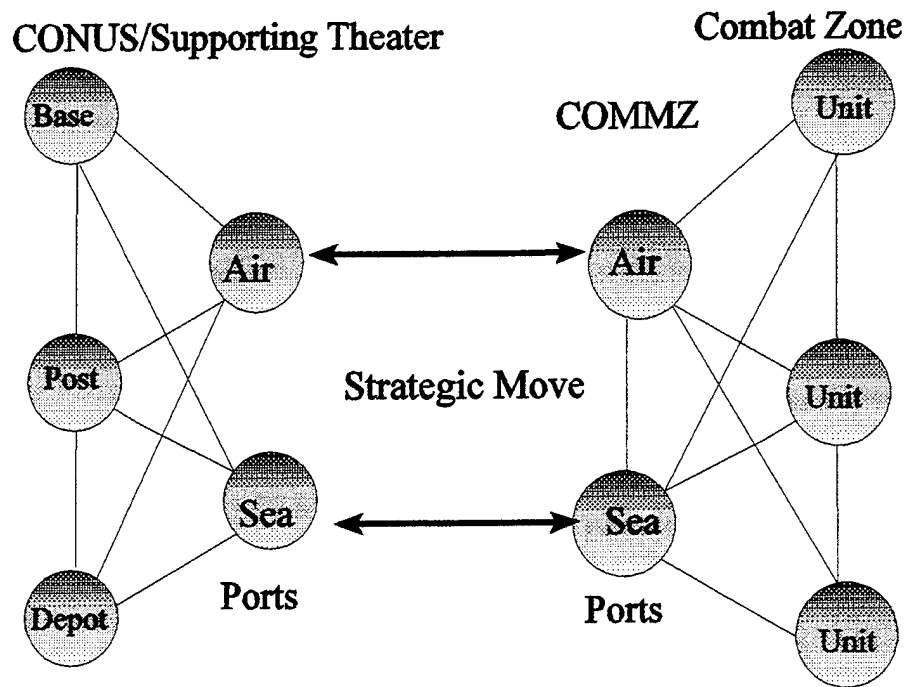


Figure 2, Defense Transportation

For example, cargo at Fort Hood, Texas, moving to an exercise in Germany would start at the node representing the Fort Hood railhead, move along the rail link to the port node of Beaumont, Texas, transit that node to the sea link from Beaumont to the port node at Rotterdam, then complete its journey by transiting that node to the rail link between Rotterdam and Hoenfels Training Area. A similar sequence would be followed by the soldiers who are to operate the equipment during the exercise.

Since cargo moves between nodes, control can be established or reestablished at nodes since the cargo usually has to stop there. Each node requires some level of control. As in the control of combat units, strategic direction is often translated by means of plans and orders to low-level operators, who execute that direction. In the stylized transportation network, nodes are

grouped according to geographic location. These groups can be further defined, in the military context as follows:

(1) **Origins:** Places where cargo and passengers begin their movement. Posts, bases and logistics installations in the United States and in OCONUS theaters supporting unified operations. These nodes are active in peace, crisis and war. Their operation is often viewed as routine and their most common forms of control are related to priority of the shipments or budgetary constraints. Cargo is also required to move between these origins, and retrograde or redeployment cargo and passengers view these nodes as destinations, or stopping points.

(2) **Near-side Ports:** Places where cargo destined for the operational area changes mode to strategic (over ocean or intertheater) transportation. This mode change is critical in the control process, since cargo transloaded on strategic transportation is difficult and costly to divert.

(3) **Far-side Ports:** The in-theater counterparts of near-side ports. These air and sea nodes change cargo from strategic lift to the modes required to move to destinations.

(4) **Destinations:** Ultimate end of the cargo or passenger movement. The simplified network shows destination nodes in the combat zone, and does not depict intermediate nodes such as theater level supply installations or staging areas in the Communications Zone (COMMZ) where forces reconfigure for employment. These nodes will exist in various forms and locations during an operation.

Regulation of the movement of cargo and passengers through that system is the function of movement control. A system of control overlaid on the nodes of the transportation network allows joint force commanders to direct movement of passengers and cargo to meet their intent, priorities and the overall goal of combat efficiency.

Transportation Control Procedures and Organizations

The question is how to exert positive control on the transportation system. Control follows a specific path along the chain of command. In peace, conflict and war, combatant commanders are the vital link in the operational chain of command established by the NCA (the President and Secretary of Defense, or their duly deputized alternates or successors). Directives flow from the NCA through the Chairman of the Joint Chiefs of Staff to the combatant commanders, who plan and conduct the operations that achieve national and alliance or coalition strategic objectives.²⁴

Direction of the transportation system must be exercised at all levels. CONUS installations, strategic moves, and theaters of operations all require direct control over all components of the defense transportation system. Organizations must be overlaid on the system to perform these functions and assure system control.

Today's defense establishment treats movements control differently at every level. Joint Tactics, Techniques, and Procedures for Movement Control states that the theater commanders have a wide range of options for providing movements control. These options range from directing subordinate joint task forces or component commands to establish their own movement control to creating a fully integrated joint movements control organization. The table below depicts moves across the defense transportation system, and their respective control organizations:

	CONUS & Supporting Theaters	Strategic Moves	Theater of Operations
Type Moves	Between Installations Installation to Port Port to Installation	Between Theaters	Port to Combat Zone Between Bases Installation to Port
Assets	Military Truck Military Air Commercial Truck Rail Commercial Air Barge Mail Small Package Service	Military Air Rail Commercial Air Barge Mail Small Package Service	Military Truck Military Air Commercial Truck Rail Commercial Air Barge Mail Small Package Service
Control Organization	USTRANSCOM Unified Commands Installation Transportation Offices	USTRANSCOM Unified Commands	USTRANSCOM Unified Commands Unit Control Organizations

Strategic Movements Control.

While including true military control in the operation of the transportation function might add clarity, it is not a new idea. In February 1992, the Secretary of Defense designated USTRANSCOM the single manager for defense transportation, other than service-unique or theater-assigned assets. USTRANSCOM was also assigned the assets of the Army's Military Traffic Management Command, the Navy's Military Sealift Command and the Air Force's Air Mobility Command. This action was the result of recognition by strategic planners and logisticians of the requirement to direct strategic transportation.

USTRANSCOM describes their movement control organization in their Defense Transportation System (DTS) 2010 Action Plan, Reengineering the Defense Transportation System. Their proposed control organization is the Joint Mobility Control Group (JMCG). JMCG's purpose is to be the focal point to orchestrate and optimize defense transportation system

operations in support of the Unified Commanders and other customers. This group will provide both command and control of global mobility forces and visibility of movement requirements.

USTRANSCOM's proposal meets the requirement to plan, direct, analyze, and evaluate strategic transportation. In its role as a supporting command, USTRANSCOM and its Service components can define requirements, evaluate priorities, commit assets, monitor execution, and correct deficiencies. The strategic portion of defense transportation will get the level of direct control and priority that it needs.

CONUS Movement Control

Control of transportation in the Continental United States has traditionally been the function of local transportation agents. These include Installation Transportation Offices, Air Force Base Transportation Management Offices and equivalent organizations at supply and maintenance facilities. These agents exercise control as a function of resource management, with transportation priorities and budgetary constraints deciding what shipments move when.

The link to the strategic transportation system is primarily based on the local agent's ability to procure commercial or strategic military transportation. Agents contract transportation services using terms negotiated by USTRANSCOM's Component Commands for the movement of defense cargo. If military conveyance is used, then a set reimbursement charge is assessed for the asset "contracted" by the installation. This system allows for defense-wide economies of scale and dependable transportation budgeting.

From the systems perspective, CONUS nodes are cleared by the agent's creating a link adequate to move cargo in a specific period. The size of the link is determined by the buying power of the local agent, which is decided by the installation's budget.

Drawing on both peacetime and recent contingency experiences, USTRANSCOM found

this system of controlling and procuring transportation in CONUS to be suboptimal.

Reengineering the Defense Transportation System points out that this system is fragmented. At the installation level, transportation processes were developed independently for and within modes of transportation. Multiple organizations, even on the same installations, offered competing and even conflicting requirements. Many different procedures and personnel are involved in the process, depending on whether the move is a routine peacetime, exercise, or a contingency requirement.²⁵

USTRANSCOM's proposed solution to these deficiencies is to redefine the Installation Transportation Agent's role and procedures. Their revision calls for transforming local transportation agents into a system of Defense Transportation System (DTS) Agents. This revision represents more than just a name change, it establishes fully empowered agents for the procurement of transportation assets. Agents continue to be Service owned and affiliated, but will be connected to the defense transportation system by a state-of-the-art Command, Control, Communications and Computers (C⁴) System that enable them to access DTS elements directly.²⁶

This is a significant development in movement control. This pattern of interconnected agents effectively establishes a control network for movements from origin to the far-side ports. USTRANSCOM's proposal allows local commanders to exercise routine control over routine movements. Efficiency and effectiveness are promoted through the centralized contracting of transportation and the near-real-time C⁴ systems. In time of crisis, USTRANSCOM's movement control organization, the Mobility Control Center, can intercede directly in the operation of the transportation system. Control of the transportation function from origins to the far-side ports remains the shared responsibility of the CONUS supporting commands, but the Mobility Control Center allows for rapid, responsive control of movements.

Theater of Operations Movement Control

The remaining series of nodes and links in the defense transportation system are controlled by the combatant commands. Combatant commanders are the vital link in the operational chain of command that runs from the NCA through the Chairman of the Joint Chiefs of Staff.²⁷ It is reasonable to expect the combatant command's control organization to be well defined. Quite the contrary is true.

Doctrine allows for a well-developed control structure. All theater combatant commands can activate a Joint Transportation Board or a Joint Movements Center or both. Doctrine goes on to recommend strongly that combatant commanders assign responsibility for theater movement control to a single office, the Joint Movements Center (JMC).²⁸

The JMC is the link with the strategic transportation system. This link is especially critical since USTRANSCOM "pulls" cargo and passengers into the strategic links of the system. The priorities and intent of the combatant commander are expressed to the defense transportation system through the JMC. The organization must be skilled in planning, directing and analyzing theater movements operations.

Combatant commanders have the option to delegate the movement control function to a subordinate command or assign it as an additional staff responsibility. Delegating the function to an executive agent may be workable in theaters with a predominantly US, single-Service force. Here the potential for competition for node and link priority can be solved at the component headquarters, without unified command intervention. Introduction of joint and coalition forces, the way we usually fight, complicates the control process.

Joint and combined theaters provide a major challenge. Potential problem areas include differences in logistical doctrine; stockage levels; logistic mobility; interoperability; competition

between Services, alliance and/or coalition members for common support; and national resource limitations. Unified commanders must deconflict use of highways, rail lines, ports and airfields in a manner that supports mission accomplishment. The notion that logistics is a national responsibility cannot support logistics planning and operations in the combined operational area²⁹.

The need is for joint and multinational direct control. This control will ensure logistic coordination and support multinational operations. A network of complementary control in the combatant commands similar to that being developed by USTRANSCOM in CONUS would complete the process of overlaying control on the defense transportation system. The needs and priorities of all services and nations must be considered, and transportation operators must have the authority to **compel** elements of the transportation system.

System Integration.

Movement control organizations overlaid on the defense transportation system at critical nodes can directly influence the flow of defense cargo. USTRANSCOM has established positive control over elements of the defense transportation system from CONUS origins to far-side ports. Control of onward movement remains the responsibility of combatant commands. This control arrangement is shown in Figure 3.

In-theater transportation control is effective at and between destinations. Corps, divisions, and forward bases can be compared to CONUS installation transportation offices. These organizations use dedicated transportation assets or request support from the Unified Command. They exercise control over dedicated assets directly, and communicate their priorities to the next-higher control organization.

The need still exists for an organization that can exert positive control over transportation in theaters of operations. Such organizations are critical to overall control of the transportation

system, and the ability to directly compel system performance. The intersection of USTRANSCOM's sphere of influence with the control organization of combatant commands is still ill-defined. Inadequate communication and control of cargo delivered into theater leaves potential for creating the "logistics snowball" described by Admiral Eccles and General Heiser.

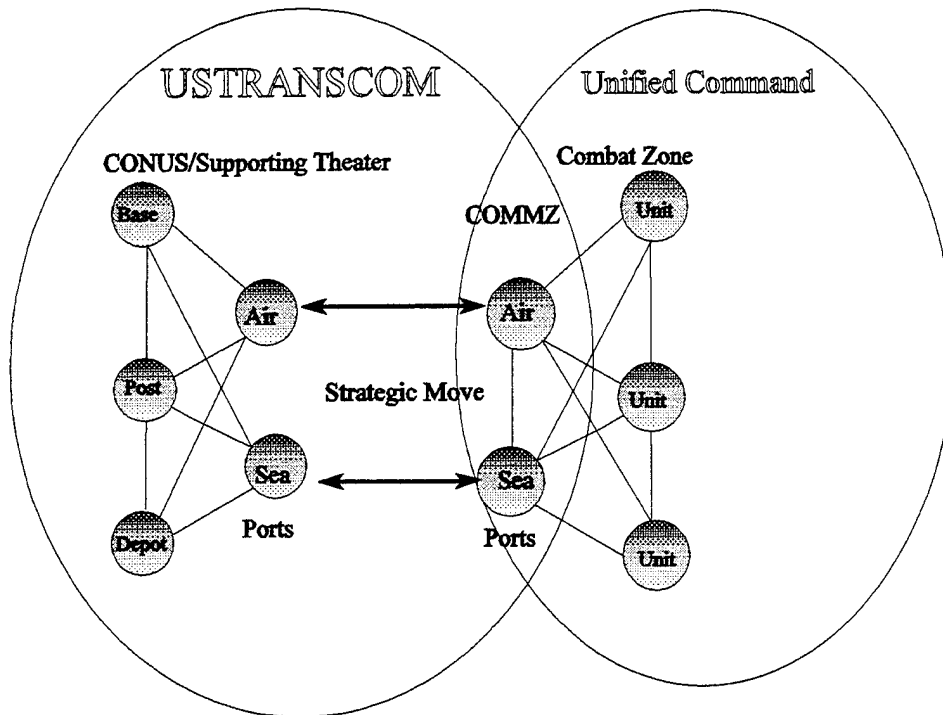


Figure 3, System Control

Conclusions

Power projection demands responsive, efficient performance of the defense transportation system. This system must be robust, and flexible enough to respond to rapid changes in requirements and priorities. Decisive action depends on the ability to get the right cargo and passengers to the right place in the theater at the right time.

Unlike its commercial counterpart, the defense transportation system requires direct control. The objective of control and direction is effectiveness of US forces in operations

throughout the range of military operations. This direct intervention includes the following tasks: compute transportation requirements, acquire and apply transportation services, direct the transportation system's operation and effectiveness, and monitor and analyze system performance to correct performance deficiencies. These functions are interdependent, overlapping and must be executed simultaneously at all levels.

Movement control organizations overlaid on the defense transportation system at critical nodes can directly influence the flow of defense cargo. These organizations exist now, but can be enhanced by the following improvements:

- (1) Implement the movement control organizational recommendations of USTRANSCOM's Defense Transportation System 2010 Action Plan. These recommendations establish system control from origin to far-side ports.
- (2) Establish a full-time network of complementary control in the theaters of operations. This network would complete the process of exerting control from the far-side ports to ultimate destinations.
- (3) Continue refinement of automation systems aimed providing information that enables operators to direct system operation.

The transportation function is critical to power projection and unified action. Defense transportation must be controlled, operate efficiently, preclude waste and accomplish the commander's intent. National leaders and commanders must accurately compute requirements, allocate means and integrate efforts. Segmented operation of the system, based on loose coordination of its components is inadequate to meet the mission. Leaders at all levels must directly compel the transportation function to meet its ultimate goal - combat effectiveness.

Notes

1. Chairman, Joint Chiefs of Staff, Unified Action Armed Forces (UNAAF), Joint Pub 0-2 (Washington: Chairman, Joint Chiefs of Staff, 11 August 1994), II-1.
2. *Ibid.*, I-5.
3. Chairman, Joint Chiefs of Staff, Joint Warfare of the Armed Forces, Joint Pub 1 (Washington: Chairman, Joint Chiefs of Staff, 11 November 1991), 56.
4. Henry E. Eccles, Logistics in the National Defense. (Harrisburg: Stackpile, 1959), 22.
5. *Ibid.*, 10.
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