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A Framework for Enhancing Airlift Planning and Execution Capabilities Within the Joint Expeditionary Movement System

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Summary

In summer 2003, after the major combat phase of Operation Iraqi Freedom, the commander of Air Force forces (COMAFFOR) for U.S. Central Command (CENTCOM), Lieutenant General Walter Buchanan, recognized the need to undertake a fundamental reexamination of the Theater Distribution System (TDS). The COMAFFOR and his Director of Mobility Forces (DIRMOBFOR) manage the Air Mobility Division (AMD)—part of the Coalition Air and Space Operations Center (CAOC)—and are responsible for planning and executing the airlift component of the TDS. The AMD also provides common user airlift services, in addition to other responsibilities, to U.S. and coalition forces within the area of responsibility (AOR). The COMAFFOR noticed several problems associated with the planning and execution of airlift including:

- A backlog of cargo at aerial ports of debarkation/embarkation (APODs/APOEs)
- Incomplete visibility of cargo within the TDS
- Information system connectivity issues with air terminal operations centers operated by the components
- Apparent inefficient use of airlift resources
- A lack of discipline in requesting airlift support
- Perception of inadequate support for intratheater airlift resources.

During the same time period, the Secretary of Defense assigned deployment process ownership to Joint Forces Command and distribution process ownership to U.S. Transportation Command (USTRANSCOM) in an attempt to improve those processes and address problems that arose in Operation Allied Force, Operation Enduring Freedom, and Operation Iraqi Freedom. As part of executing its new responsibilities, USTRANSCOM, with the consent of the Commander of CENTCOM, created a CENTCOM Deployed Distribution Operations Center (C-DDOC) in the AOR. The C-DDOC works for the CENTCOM J4¹ and was created to improve the joint multimodal TDS and better integrate it with the joint multimodal intertheater movement system. The C-DDOC absorbed the personnel and duties of the Joint Movement Center (JMC) when it deployed to the AOR.

Analytic Approach

In light of today's changing security environment, the objective of our analysis was to evaluate options for improving CENTCOM's theater airlift planning and execution to support the joint expeditionary contingency operations. This research should provide a solid foundation for the Defense Department (DoD) to use in addressing issues in the theater airlift planning and execution system observed in recent contingencies. We use an expanded strategies-to-tasks (STT) framework as a "lens" for evaluating intra- and intertheater movement planning and execution processes. This expanded framework incorporates resource allocation processes and constraints in movement planning and execution activities. It also describes how movement resources and processes can be related to operational effects. Finally, this analytic framework recognizes that no optimal solution

¹ As defined in Air Force Doctrine Document-2, *Organization and Employment for Air and Space Operations*, the Air Force terminology used by the authors identifies organizations/responsibilities. The A/J3 is the Operations Directorate; the A/J4 is the Logistics Directorate; and A/J5 is the Plans Directorate (with A standing for "Air Force" and J standing for "Joint").

exists for configuring contingency movement networks. Rather, the network is derived from a set of choices on how limited movement resources can be used (see pp. 6–9).

The first step was to apply the STT framework to theater airlift planning and execution to derive its operational objectives. We step from the National Security Strategy down through National Military Strategy, National Military Objectives, and relevant campaign objectives to reach these. We incorporate extensive input from subject-matter experts at site visits to CENTCOM, CENTAF, ARCENT, USTRANSCOM, AMC, Expeditionary Mobility Task Forces (EMTFs), and the Air Staff.² We then expand the STT framework by applying a useful resource management framework from prior RAND research and a more generic closed-loop planning construct to complete our theater airlift planning and execution framework.

Using this expanded STT framework, we identify *supply-side* processes associated with planning, replanning, and executing common user contingency airlift operations within the combatant commander's (COCOM's) AOR and coordinating these activities within the end-to-end joint movement systems. We identify *demand-side* processes associated with common user contingency airlift operations. Finally, we identify *integrator* processes associated with allocating scarce movement resources to those needs with the highest COCOM priorities.

We use this expanded framework to examine the AS-IS³ set of processes, organizations, doctrine, training, and systems. We identify disconnects and missing processes against those identified as being necessary in the expanded STT framework. We then identify TO-BE options that can be developed to address disconnects and missing processes. Finally, we evaluate the effectiveness and efficiency of the TO-BE options.

² For a complete list of organizations involved in this research, see Appendix A.

³ When this study began, CENTCOM had theater airlift planning and execution processes in place as outlined in doctrine. As such, the term *AS-IS* refers to both the CENTCOM theater airlift planning and execution processes and the processes outlined in doctrine.






AS-IS Theater Airlift Planning and Execution Shortfalls

Using the expanded STT framework with the closed-loop planning construct and the analysis of the theater airlift planning and execution system, we documented the AS-IS theater airlift planning and execution system and compared it with the attributes derived from applying the expanded STT framework to identify existing shortfalls in process, organization, doctrine, training, and communications and systems (see pp. 27–58). The shortfalls are shown in Figure S.1.

Theater Airlift Planning and Execution TO-BE Improvement Options

Our analyses suggest improvements in process, organization, doctrine, training, and information systems (see pp. 59–81).

Figure S.1
AS-IS Theater Airlift Planning and Execution Shortfalls

Processes		<i>Disjointed implementation of planning and assessment processes; network options not related to operational effects</i>
Organizations		<i>Ad hoc network of organizations with inadequate staffing</i>
Doctrine		<i>Conflicting guidance and little delineation of roles of Air Force and other components in multimodal end-to-end distribution system</i>
Education/Training		<i>Little multidisciplinary education/training on multimodal distribution system design and impacts on operational effects</i>
Communications Systems		<i>Many disconnects in critical communications and information systems needed to plan, execute, and enhance end-to-end distribution capabilities</i>

Process and Organization Improvements

Using the analytic approach described above, we generated two organizational options: modifying existing process assignments to the J3/5 and J4 using the expanded STT framework and creating a new line organization responsible for all end-to-end movement (see pp. 59–75).

We first evaluated realigning processes, doctrine, organizations, training, and communications and information systems among existing organizations responsible for planning and executing the joint multimodal end-to-end movement system. This option uses the expanded STT framework and assigns responsibilities for movement planning and execution to joint and component organizations consistent with the demand, supply, and integrator roles.

Building on modified assignment of responsibilities, we then evaluated creating a Deployment and Distribution Movement organization responsible for planning and executing the TDS in conjunction with the intertheater movements system. The director could be dual-hatted with USTRANSCOM to better integrate intertheater movement planning and execution requirements.

We then evaluated using personnel in CONUS, through reach-back, to provide some of the realigned products and services. Using reachback for assistance in tactical-level planning shows promise of better effectiveness and efficiency with a reduced footprint. Reach-back support could enhance routing and scheduling of airlift within the multimodal movement system.

Finally, we looked at creating a Joint Theater Logistics Commander (JTLC) organization that would be responsible for planning and executing the TDS with the intertheater movements system. USTRANSCOM would retain intertheater movement planning and execution processes in this case.

Our analysis suggests that the separation of demand, supply, and integrator responsibilities can strengthen integrated movement planning. Also, the adoption of a closed-loop planning and execution process that focuses on the trade-offs in effectiveness and efficiency of alternative network options has promise for improving decisions on network design. Metrics that show demand side and supply side

trade-offs should be used routinely to reinforce the notion that there is no one right answer, but rather a set of options with greater or lesser effectiveness and costs.

The placement of all joint movement forecasting and prioritization in a demand-side organization focuses attention on the entire range of movement requirements. This single focal point for movement requirements and priorities also fixes one of the main problems in the AS-IS process—that of conflicting movement guidance between sustainment and deployment/redeployment requirements.

The placement of strategic-level (for example, network design and determining key nodes and transshipment points) and operational-level planning functions (for example, changing routes within a specified network or adding capacity) for intratheater distribution within a single joint organization responsible for developing and assessing the effectiveness and efficiency of network options also clarifies responsibilities. While tactical level planning—for example, determining specific airlift routes and schedules—can be enhanced, our analysis indicates that greater payoffs lie in improving the strategic- and operational-level planning processes.

Enhancing existing processes by modifying assignment of responsibility using an expanded STT framework appears to be the least intrusive option. To gain benefit from changes in assignment of responsibilities among existing organizations, this option should be accompanied by improvements in existing processes, changes in doctrine, and training enhancements. Investment in communications and information systems also could be helpful.

Based on our analysis, using an expanded resource allocation STT framework to separate supply, demand, and integrator processes and assigning them to existing organization to improve effectiveness and efficiency should be implemented. Applying the expanded STT framework should help the J4 do his or her job. Either organizational option will work. Then, a thorough review of possible reachback options should be completed and the JTLC option can be explored in depth.

Modifying process assignments using an expanded STT framework is appropriate for several reasons. It is consistent with time-

tested doctrine that has guided contingency operations for many decades. This basic doctrine calls for COCOMs to develop and execute contingency plans subject to oversight by the Secretary of Defense. Using this doctrine, COCOMs are responsible for employing forces. The services are responsible for providing forces. Using our expanded framework, the COCOM is a demand organization. The components and the specified joint commands, such as USTRANSCOM, are supply-side organizations. Thus, at the highest level, the Secretary of Defense is the integrator among COCOM demands and component and specified joint command suppliers.

Modifying existing process assignments also ensures that COCOM priorities are met by assigning operational control of intratheater resources to the COCOM and having access to agreed-on or arbitrated allocations of intertheater movement resources. Given adequate planning and guidance, this option supports agility in meeting dynamically changing battlefield conditions by having in-theater movement resources under the control of the COCOM.

This option also strengthens joint strategic- and operational-level planning and assessment while leaving tactical planning and execution responsibilities in the hands of the components, preserving unity of command.

Using the expanded STT framework to realign processes should be relatively easy because it deals with changing processes and clear assignment of responsibilities to existing organizations. This option does not create a new hybrid organization that the Joint Theater Logistics Command would create. It also does not extend centralized execution. This option would assign intra- and intertheater movement planning and execution responsibilities to standing organizations in each COCOM, at USTRANSCOM, and within each component.

To improve airlift planning and execution within the joint multimodal end-to-end movement system, the following actions are needed to modify and enhance process assignments within existing organizations.

- Airlift planning expertise within the COMAFFOR A3/5 needs enhancing. We estimate that two additional airlift planners are needed for this purpose for each COMAFFOR.
- Assessment capabilities in the AMD should be created. An Assessment Cell should be created and staffed with a small analysis team, potentially through reachback. We estimate that two airlift planners are needed for this process in each AMD/AMOCC.
- Supply-side network planning responsibilities should be separated from demand-side planning responsibilities. The J4 should be established as the integrated COCOM movements planning and execution supply-side focal point. J4 Movement System Planning (currently in X-DDOCs) should be separated from Assessment and Allocation responsibilities (JMC responsibility as outlined in Joint Publications). This move does not affect staffing requirements on its face, but the J4 Movement System Planning Organization would require some of the best-educated and trained airlift planners. Some of these planning functions could be supported via reachback to the COMAFFOR A3/5 enhanced staff and to the TACC and USTRANSCOM DDOC.
- A J3 organization needs to be established and staffed to perform integrated requirements forecasts and guidance (demand-side). We estimate that six total slots would be needed to support this process (three of which would be Air Force slots). Embedding a group of J4 planners within the J3 organization could allow J3 planners to focus on operations while the embedded J4 planners focus on prioritizing movement requirements.
- Reachback support to the TACC for tactical planning can result in lower personnel requirements and reduced footprint. Communications appear adequate to support these processes. Specific reachback responsibilities and organizations need to be defined.

Doctrine, Training, Communications, and Information System Changes

To effectively implement either the improved interfaces option or the creation of the Deployment and Distribution Movement Organiza-

tion, doctrine must be revised and enforced. For example, Joint Publications 4-0, 4-01.3, and 5 will have to be revised just to name a few (see pp. 75–80). Any doctrine that outlines responsibilities for the A3/5, AMD, TACC, X-DDOCs, J3, or J4 will have to be revised. These documents will need to be changed to reflect process and organizational discussions as outlined above.

The improved interfaces and the Deployment and Distribution Movement Organization options also have significant training implications for each of the components, and the Air Force in particular. Each COMAFFOR, as well as COCOMs, USTRANSCOM, and the 18th Air Force, should be provided with trained personnel who are educated and experienced in multimodal movement planning and execution and STT methods and tools. The Air Force may need to invest in multimodal training and establish educational identifiers to track training. STT education could be provided through Air Force continuing education in such venues as the Air Mobility Warfare Center (AMWC) and other Air Force schools. For example, the Contingency War Planners Course and the Joint Air Operations Planning Course could be used to increase awareness. Log 399 could provide immersion for anyone involved in J3 demand generation. The Army's Transportation School could be used for a multimodal planning and execution course aimed at the joint end-to-end movement system development in contingency environments. In addition, graduate courses could be developed at the Air Force Institute of Technology (AFIT).

Communications and information system connectivity will also need to be enhanced. Currently, communications and information system disconnects exist between the AMD and the component operational units and air terminal operations centers (ATOCs) operated by the different components. Different systems and communications architectures carry information on airlift cargo, requirements, eligibility, and status. Some systems use the NIPRNET, some the SIPRNET. These disconnects make it difficult to determine requirements for airlift and effectively schedule it to meet the needs of component operational and support units. A common systems architecture is needed. Perhaps the Global Air Transportation Execution

System (GATES) could be the common system used for all movement requirements. Having Radio Frequency Identification and Detection (RFID) tags read directly into GATES could solve some of the asset visibility issues.