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contemporary issues

Logistics for the 21st Century: Deployment Distribution Operations Center, Quick Fix or Long-Term Solution?

Operational-Level Analysis: DoD's Strategic Mobility and Logistics Support to the Homeland Security Architecture

Contemporary Issues presents two analytical articles in this edition—"Logistics for the 21st Century: Deployment Distribution Operations Center, Quick Fix or Long-Term Solution" and "Operational-Level Analysis: DoD's Strategic Mobility and Logistics Support to the Homeland Security Architecture."

In the first article, the authors examine the question of whether the implementation of the Deployment Distribution Operations Center into US Central Command's theater of operations substantially changed the Joint logistical process, or was it simply the application of logistical expertise focused on key problem areas. The research finds the latter to be more likely. It is to some degree a fundamental change as to how the deployment and distribution system is focused on warfighter priorities. It is, however, more the application of strategic logisticians brought together to form a physical enterprise resource planning to bring a common operating picture to the entire distribution community.

In the second article the authors provide a comprehensive analysis of Department of Defense (DoD) logistics support to the Department of Homeland Security. The research includes analysis of the homeland security architecture and the national legal framework that govern the Department of Homeland Security and the DoD during homeland security operations and the challenges inherent in this relationship. The article includes a practical analysis of the logistics efforts during hurricane Katrina and the 2004 Indian Ocean Tsunami relief efforts. The authors conclude that there is a demarcation of two concentric logistics mobility missions at the tactical and operational levels; and mobility management for the latter should fall under the purview of US Transportation Command because of its inherent logistics organizational management design. The article ends with recommendations to develop a more formalized and structured architecture for coordinating all federal, state, and private airlift and mobility requirements for relief support and to enhance DoD's critical role in the homeland security.

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Logistics for the 21st Century

Deployment Distribution Operations Center, Quick Fix or Long-Term Solution?

Lieutenant Colonel Patrick Mordente, USAF
Paul Needham, PhD
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Our logistics professionals' achievements in OIF [Operation Iraqi Freedom] were especially spectacular in light of the fact that we supported a 21st century battlefield with a mid-20th century logistics structure.

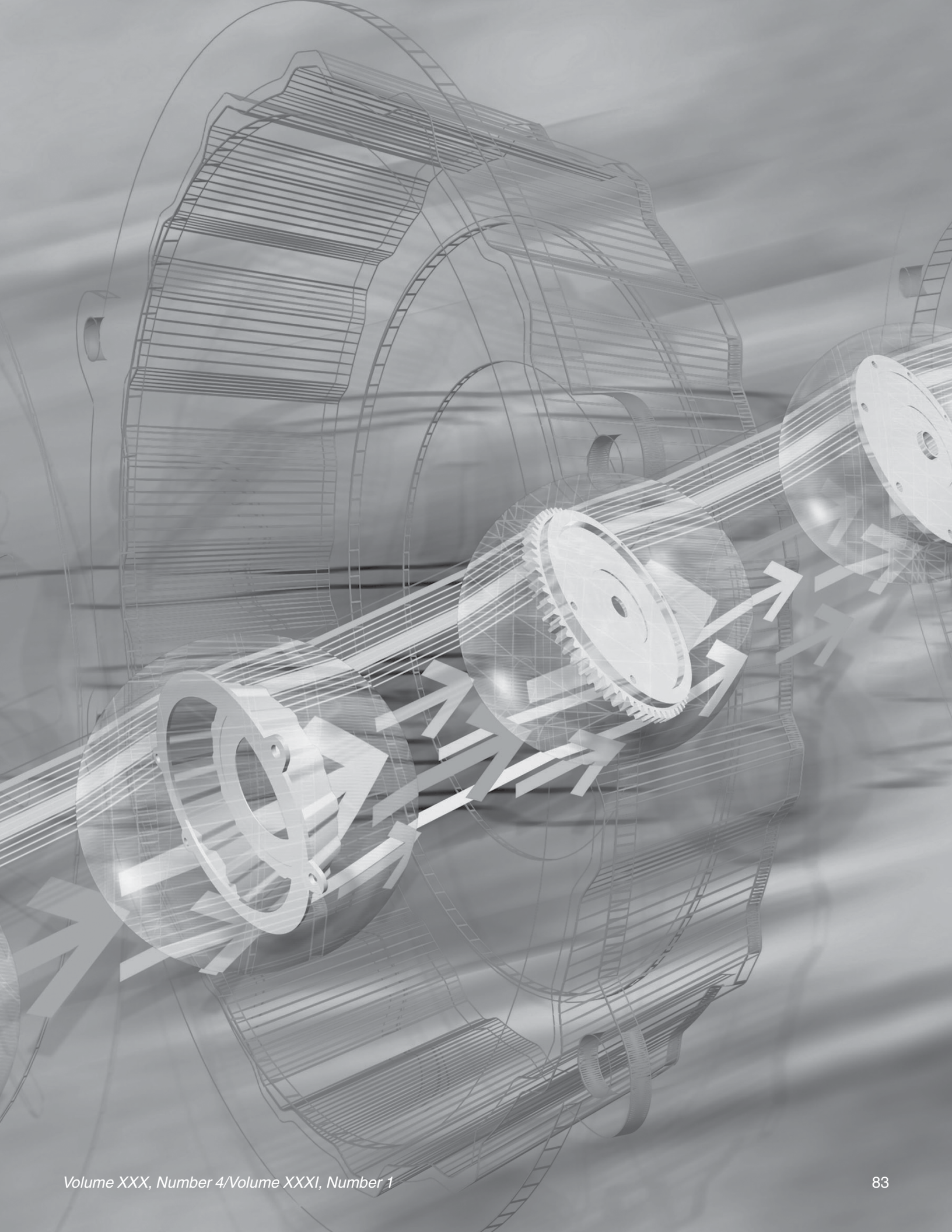
—Lt Gen C.V. Christianson, *Baghram, February 2002*

February 11, 2002 was a cold night in Baghram, Afghanistan as Lieutenant Colonel Ken Rozelsky recalls.[1] He had just stepped off an Air Force C-130 cargo plane with his eight-man advance team from the 682nd Air Support Operations Squadron (ASOS), which he commanded. Lieutenant Colonel Rozelsky's squadron, a combat communications support unit, had been requested by the 10th Mountain Division and 3rd Army in support of the Joint Task Force (JTF) Headquarters for Operation Enduring Freedom. His flight into Baghram was the end of a 7 hour flight and the last leg of a long journey which had started several days earlier at Shaw Air Force Base, South Carolina. For most, this would mark the end of a journey and the start of combat operations, but for Lieutenant Colonel Rozelsky it was just the beginning of many challenges with the Joint military logistics system.

Colonel Rozelsky's first obstacle was trying to get approval for his advance team to begin movement towards the Afghanistan theater. The United States Army had requested his unit be deployed into theater due to its unique communications capability and a valid requirement to support the JTF Headquarters. However, as the request for forces (RFF) made its way through the approval system, it was repeatedly denied at the Air Staff level. With little time left to meet the required delivery date, Colonel Rozelsky was ordered to use unit funds and move into theater by any means possible. Ironically, the first leg of the journey to Afghanistan for the 682nd ASOS was supported by the German airline company Lufthansa. Once on the ground in Kuwait, Colonel Rozelsky was able to schedule further movement into Baghram on an Air Force C-130. Three weeks later the RFF was approved.

Colonel Rozelsky began setting up operations as the rest of his team filtered into theater. With little infrastructure and no established supply lines or procedures, Colonel Rozelsky was forced to become self sufficient. He quickly created his own supply line, consisting of a team of airmen positioned in Kuwait, to purchase much needed operating supplies for the squadron. His supply team consisted of five Airmen—one with an Impact card to make the purchase and four to package, ship, and guard the supplies enroute to Baghram.

Lieutenant Colonel Rozelsky's story highlights a military logistics system that was unable to respond rapidly to unit movement and sustainment requirements. Ultimately, it left Colonel Rozelsky, a supply chain customer and combat squadron commander, thinking that there had to be a better way of doing business.



Introduction

Who lin'd himself with hope, Eating the air on promise of supply.

—William Shakespeare's King Henry IV Part I[2]

Since the dawn of warfare, the ability to execute a successful campaign has rested squarely on the foundation of military logistics. It is from a well established logistical foundation, one capable of rapid response, flexibility, and ability to meet demand, that combatant commanders have the capacity to execute freedom of maneuver and strike at the enemy with continuous force. It is in the role of meeting the warfighter's logistical requirements that one begins to realize that tacticians are responsible for fighting the battle; but it is the logistician that ensures the battle can be fought. An appreciation for the importance and complexity of the relationship between warfighter and logistician is reflected in the remarks by United States Transportation Command (USTRANSCOM) commander, General John Handy, "Good warfighters always want to know where their logistic experts are well before the battle starts and during the battle."[3] However, the US military's most recent combat and peacekeeping operations in Afghanistan and Iraq have highlighted the need for improvement in the effectiveness and efficiency of the strategic distribution process. Improvements to the strategic distribution process will require a systematic approach that tackles issues from the supply point of origin to the final destination point in-theater, and the retrograde of both parts and equipment back to the US mainland. The deployment distribution operations center (DDOC), a Joint logistics initiative by the distribution process owner USTRANSCOM, is a relatively new initiative aimed at improving Joint logistics for the combatant commander.

This article investigates the impact of United States Central Command's (USCENTCOM) DDOC on the military's deployment and distribution system. First, the study will focus the discussion by defining both the players and the processes supporting today's supply chain management as it relates to both deployment and distribution. Second, it will propose a strategic road map for the 21st century Joint logistics system in the form of a balanced scorecard. Third, it will examine the development of the current DDOC concept by defining the DDOC's current mission and organizational structure and how the DDOC concept fits into the balanced scorecard. Finally, by studying key metrics provided by the DDOC's after-action reviews (AAR) and the Logistical Support Agency (LOGSA), it will determine what improvements, if any, were made to the Joint logistics system. Ultimately, this article will answer the question as to whether the implementation of the DDOC into USCENTCOM's theater substantially changed the Joint logistical process or whether the application of logistical expertise simply focused on key problem areas.

Acronyms

AAR - After Action Reviews
ASOS - Air Support Operations Squadron
AOR - Area of Responsibility
CDDOC - CENTCOM Deployment Distribution Operations Center
CFLCC - Coalition Forces Land Component Command
CJTF - Combined Joint Task Force
COP - Common Operating Picture
DLA - Defense Logistics Agency
DoD - Department of Defense
DDOC - Deployment Distribution Operations Center
ERP - Enterprise Resource Planning
GAO - Government Accountability Office
ISB - Intermediate Staging Base
ITV - In-transit Visibility
JDDOC - Joint DDOC
JMC - Joint Movement Center
JOPES - Joint Operational Planning and Execution System
JTF - Joint Task Force
LOGSA - Logistical Support Agency
OIF - Operation Iraqi Freedom
RFF - Request for Forces
RSOI - Requisition and Delivery of Personnel, Equipment and Supplies
RWT - Requisition Wait Time
TAA - Tactical Assembly Area
TAV - Total Asset Visibility
TPFDD - Time-Phased Force Deployment Data
USCENTCOM - United States Central Command
USTRANSCOM - United States Transportation Command

Defining Today's Supply Chain and its Members

When broaching the subject of supply chain management processes within an organization such as the Department of Defense (DoD), one begins to address a broad range of processes and practices that define many different aspects within the military. A basic definition of supply chain management taken from the Global Supply Chain Forum defines the term supply chain management as, "…the integration of key business processes from end user through original suppliers that provides products, services, and information that add value for customers and other stakeholders."[4] As such, the supply chain management processes of today's modern military encompasses an array of organizations within the DoD and affect business practices involving the acquisition, delivery, deployment, sustainment, and final disposition of personnel and equipment in both peacetime and combat.

When evaluating the impact of the DDOC in USCENTCOM's area of responsibility (AOR), we are primarily concerned with that portion of the supply chain that deals with the movement of personnel, equipment, and sustainment from stateside locations to final destination on the battlefield. Therefore, we are concerned with that portion of the supply chain that affects the processes in movement of personnel, equipment, and sustainment from *factory to foxhole* during combat operations. Figure 1 provides a graphical representation.

Figure 1 describes a supply chain environment that moves personnel, equipment, and sustainment through a transportation pipeline, while being supported by a data environment, in order to affect the timely and accurate delivery of requirements to a forward location or tactical assembly area (TAA) for a combatant commander's use in Joint combat operations. The ultimate goal of this process is *the right part at the right place at the right*

time. This figure, simple in its design, is complex in its scope. It involves both a strategic movement from the CONUS to some type of port facility or intermediate staging base (ISB) and the follow-on integration, tactical movement, into the forward battle area. It also encompasses the multitude of Joint- and Services-specific information systems and processes that are required to accomplish the requisition and delivery of personnel, equipment, and sustainment (RSOI).

The strategic movement piece involves a triad of transportation assets ranging from airlift to both sealift and prepositioned supply ships. This strategic piece is often referred to as the *strategic mobility triad* and falls under the control of USTRANSCOM with its three subcomponents of Air Mobility Command, Military Sealift Command, and the Surface Deployment and Distribution Command. The onward movement and integration within a theater of operations is accomplished through the use of tactical transportation assets including airlift, ground transportation, and waterway movement. This tactical piece represents a tactical mobility triad that exists within a theater of operation and falls under the responsibility of the combatant commander. In the case of Iraqi Freedom and Enduring Freedom, the tactical mobility triad is the responsibility of United States Central Command (USCENTCOM). However, unlike the strategic mobility triad assets that are controlled and synchronized by a single headquarters, USTRANSCOM, the authority to direct assets that support the tactical mobility triad is dispersed among functional entities at the Joint Task Force (JTF) staff level (Air Mobility Division) and echelons above Corps, as is the case with Army transportation assets. To further illustrate this point, the following quote was taken from the USCENTCOM Deployment Distribution Operations Center (CDDOC) After-Action Report, Spiral 1, dated May of 2004.

> In order to provide the synchronization of the theater for inbound and outbound cargo and passengers, CDDOC needed to have a directive authority. In its position with Coalition Forces Land Component Command (CFLCC), CDDOC did not own any transportation resources and did not exercise the directive authority that it was supposed to have. Directive authority over the transportation assets rested with the CFLCC C-4 and the 143rd TRANSCOM.
>
> Recommendation: In order to have true synchronization you need to have a capability that ties the forecasted strategic flow of cargo and passengers to tactical movement. If CDDOC is supposed to represent that capability, it must have the authority to direct lift assets to accomplish this effort within the priority scheme developed by USCENTCOM J-4.[5]

This aspect of tactical level command and control has been highlighted, not to suggest that all military transportation assets should be placed under one commander; but rather, to emphasize the self-imposed complexities of the tactical mobility triad. These very same complexities were overcome in the combat air forces through the use of a Joint forces air component commander responsible for the direction, integration, and synchronization of military airborne assets through the use of an air tasking order process that provided unity of effort and domain-wide visibility for airborne assets operating within a given AOR.[6]

The complexities of the intratheater transportation system are equally matched by the multitude of processes and players involved from the tactical through strategic levels of deployment and distribution. From the start of an operation or contingency when supported and supporting relationships are defined between unified commands, until final redeployment of all military forces, an intricate series of actions is performed within the DoD to enable a combatant commander to effectively execute combat operations. The interactions that take place involve USTRANSCOM and other unified commands in the role of a supporting command, along with the Defense Logistics Agency (DLA), USCENTCOM's Joint task force, and the Services' unique sustainment systems. The processes that define deployment and distribution require all these players to form partnerships and accurately communicate information between the Joint staff, unified commanders, the Joint task force, DoD support agencies, and Service headquarters and their deployed units (to include the Reserve component). See Figure 2, Deployment and Distribution Process and Players

However, the process has been further complicated by the fact that many of the logistical business practices found within the Services are unique and stovepiped. In addition, the information management systems that support the overall process are numerous and not necessarily compatible with each other. What is obvious by this point is that data and information management and integration continue to be major challenges to deployment and distribution operations. A process change that enhances the flow of information would have a positive impact on the current system and would produce a measurable improvement in both the deployment and distribution processes.

With the transportation flow and players defined, the example of Lieutenant Colonel Rozelsky's effort to deploy the 682nd ASOS to Afghanistan and then to sustain his unit in theater stress the challenges within the deployment and distribution system.

In the case of the 682nd ASOS movement, had the deployment and distribution system worked efficiently and effectively, the supported commander (USCENTCOM), would have identified and communicated a capability requirement via the Joint Operational Planning and Execution System (JOPES), a data information management system and process. Then, in concert with the Joint staff, supporting commands and Service components, the 682nd ASOS would have been identified and

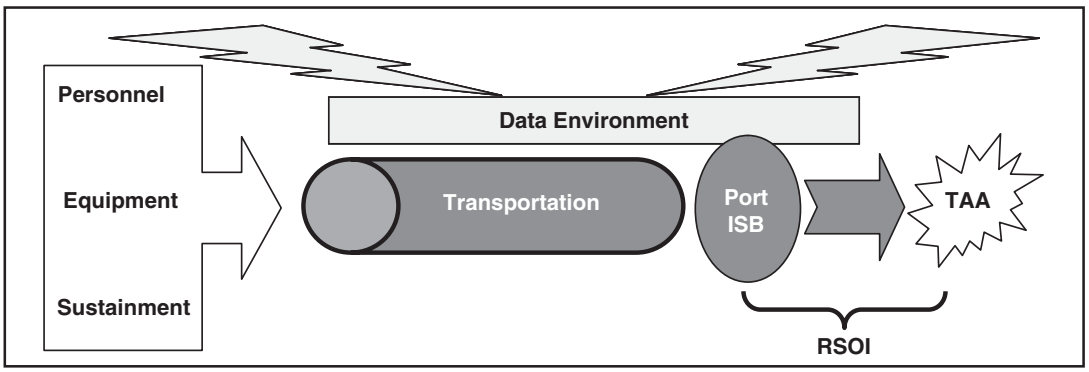


Figure 1. Idealized Suppy Chain—Factory to Foxhole

designated for deployment. Once validated by the supported commander (USCENTCOM), the 682nd ASOS would be entered into the time-phased force deployment data (TPFDD) and scheduled for movement into theater. Current JOPES directives require that the 682nd ASOS movement be scheduled from a point of embarkation to final destination eliminating Lieutenant Colonel Rozelsky's extended wait time for onward movement and integration into Baghram, Afghanistan. Once in position, the 682nd ASOS should have been able to tap into Service-specific supply processes to meet unit sustainment requirements.

The 682nd ASOS story is just one of many and is anecdotal in nature; however, it does serve to underscore a failure in the Joint deployment and distribution process. Nonetheless, once shortcomings in a current process have been identified, but prior to initiating improvement, an organization must define the vision of what the process should be capable of performing; and ultimately, what the process should look like following improvement efforts. It is relatively easy to identify failure points in a process; it is far more difficult to define a vision that captures what the process should look like and be able to deliver. More importantly, the vision must fully integrate and shape both the processes and players into a future logistics system that meets the needs of a 21st century battlefield.

The Future Joint Logistics System: A Balanced Scorecard[7]

When looking at today's Joint deployment and distribution process, there are ten defining gaps impacting capability.[8] First, a modern battlefield consists of operations that are widely dispersed and no longer linear in design.[9] This can become challenging when trying to sustain units spread over a wide area. Second, a nonlinear battlefield, such as Iraq, also has a significant impact on the security of main supply routes (MSRs) and requires the logistician to devote resources to protect assets.[10] Third, the US military is becoming more reliant on contractor support due to a reduction in military personnel.[11] The contractor's support

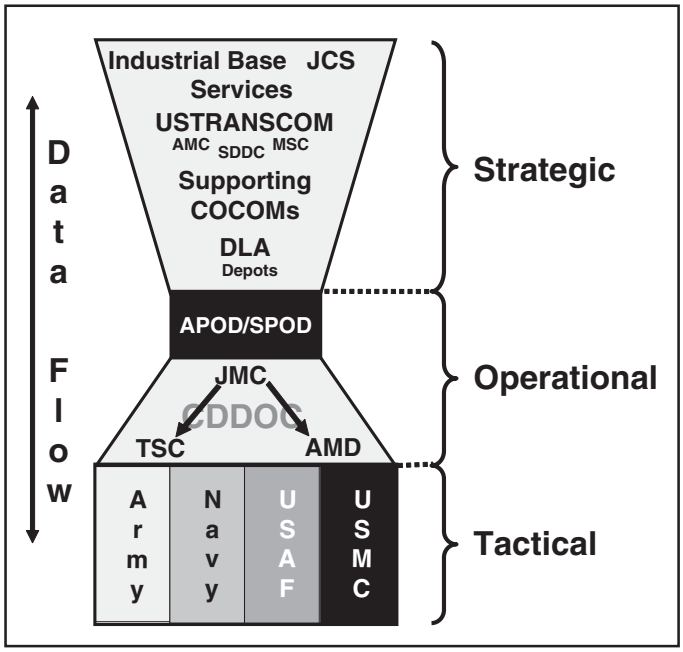


Figure 2. Deployment and Distribution Process and Players

is becoming intertwined with military operations, such that it is driving their presence on a nonlinear battlefield. Fourth, the US military is no longer facing the conventional warrior.[12] America's new enemy is highly adaptive and uses unconventional methods to strike at US forces. Fifth, current operations, and those for the foreseeable future, will require the US military to be Joint and work with (or integrate) with interagency and coalition forces.[13] Sixth, the days of financing combat operations through supplementals are more than likely numbered.[14] Therefore, budget pressures will continue to drive the DoD to work smarter and cheaper. Seventh, Title 10 responsibilities of the Services versus the roles given to the combatant commands (COCOMs) are at times, in direct contradiction of each other.[15] The eighth gap concerns Joint logistics functions where agencies, within the DoD, have been assigned as an executive agent for a given logistics requirement.[16] Currently, these functions have difficulty performing optimally due in part to a lack of training between affected Services. This lack of training results in the absence of a habitual relationship, and a task organization that is ad hoc in nature and done on the fly. Ninth, the current distribution process is inadequate.[17] The warfighter requirements are difficult to see, in-transit visibility (ITV) is limited, and the current system is not flexible in its response to rapidly moving units. The tenth and final capabilities gap is connectivity.[18] Once units move into contact with enemy forces, they lose connectivity and requirements determination becomes difficult. At one point during Operation Iraqi Freedom, rear area support did not receive requisitions for an entire month, forcing a push system to be put into place. With the gaps in the current process now defined, the next step of defining the future logistics system can be accomplished.

First and foremost, a logistics system designed to meet the requirements for the 21st century battlefield must be customer-focused. The customer for a Joint logistics system is the warfighter, consisting of the combat commander and every sailor, soldier, airman, and marine located on the battlefield. When developing a strategic vision for 21st century logistics, the theme of a warfighter-focused process must be evident throughout its entire development. With that said, a good vision starts with a good foundation.

A warfighter-focused logistics system must set itself on the foundation of a learning and growth perspective[19] which includes the "priorities to create a climate that supports organizational change, innovation, and growth."[20] The four areas within this foundational perspective are organizational structure, technological improvement, professional development, and organizational policy. These four areas are interdependent and begin shaping the organization. The learning and growth perspective leads directly to the next level of an internal perspective.

As the 21st century Joint logistics system begins building upon the foundation of a learning and growth perspective, it must take an internal perspective[21] in order to set "strategic priorities for various business processes, which create customer … satisfaction."[22] This perspective can be developed under two categories, achieving operational excellence and strategic relationships.[23] In order to achieve operational excellence, the deployment and distribution system must be capable of delivering "unity of effort, domain-wide visibility, and rapid and precise response."[24] Under the category of strategic relationships,

the future system must be capable of forming a seamless process from *fort to foxhole* and build trust among the various organizations that comprise the deployment and distribution system. Both of these categories are overlaid with a necessity to accurately forecast end-user requirements, which will enhance operational excellence while building strategic relationships. The objectives of an internal perspective are enablers to the objectives from both a financial perspective[25] and customer (warfighter) perspective.[26] A financial perspective is defined as, "[t]he strategy for growth, profitability, and risk viewed from the perspective of the shareholder."[27] In this case, an argument can be made that the shareholder is not only the DoD, but the American taxpayer. The customer perspective is used to develop, "[t]he strategy for creating value and differentiation from the perspective of the customer."[28] In the case of the DoD, where the majority of logistics is internal to the organization, the emphasis should be on creating value for the warfighter.

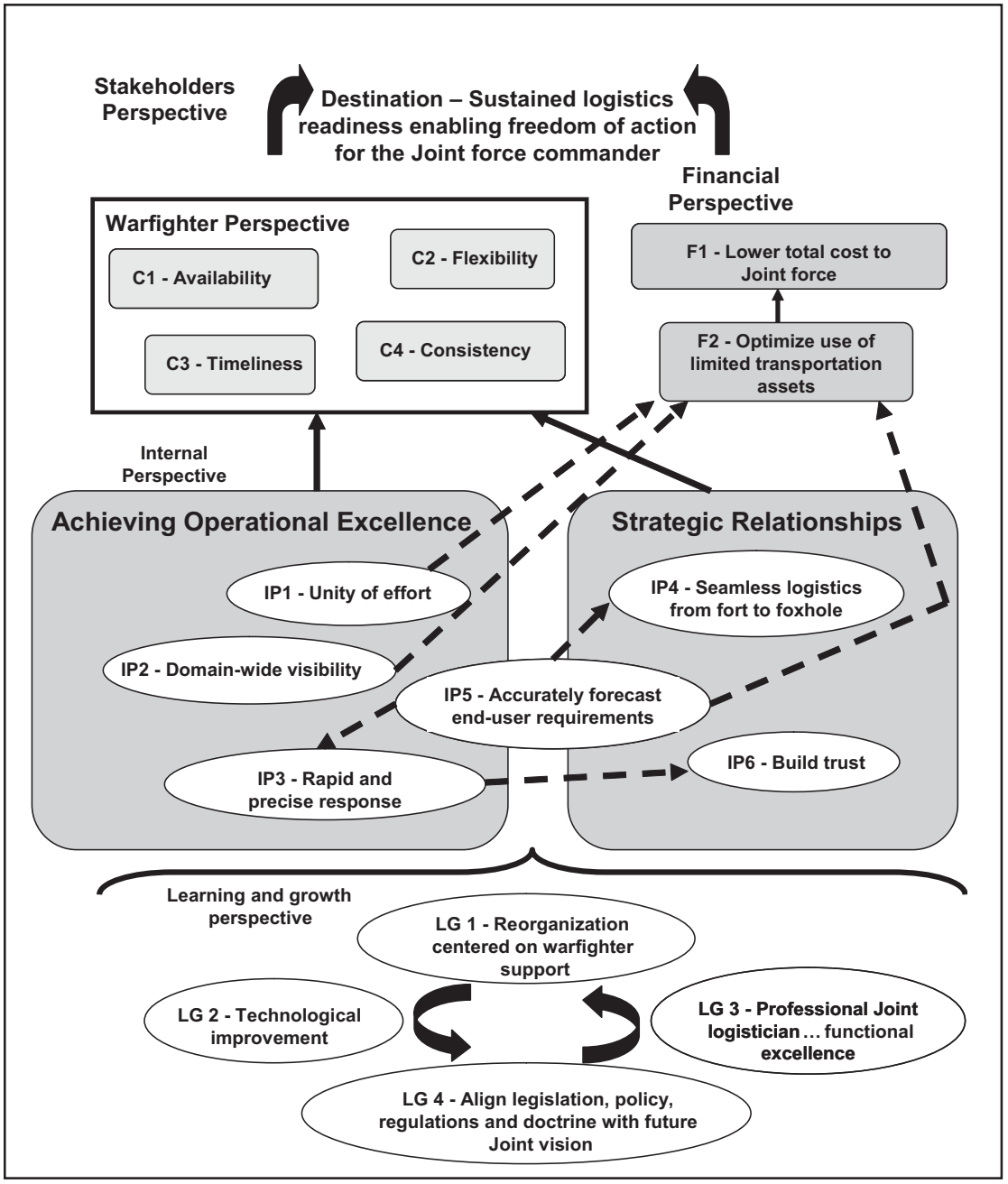


Figure 3. 21st Century Joint Logistics Balanced Scorecard

From a financial perspective, unity of effort coupled with both domain-wide visibility and accurate forecasting of end-user requirements will lead to the optimization of limited transportation assets. An efficient and effective use of limited transportation assets will lead to total cost (cost, resources, and money) savings for the Joint force.

Transitioning to the customer (warfighter) perspective, the overarching subcategories of achieving operational excellence and strategic relationships contribute directly to the customer's perception of the value created by a Joint logistics system. The Joint warfighter requires a logistics system that can provide availability, flexibility, timeliness and consistency. These four characteristics of a logistics system allow unhindered operations and freedom of movement and directly feed the stakeholder's perspective,[29] the final destination of a Joint logistics system designed for the 21st century.

From an overall stakeholder's perspective and vision for the future of military logistics, the deployment and distribution system must be capable of delivering, "sustained logistics readiness enabling freedom of action for the Joint force commander."[30] The concepts presented in Kaplan and Norton's book, *The Strategy-Focused Organization*, coupled with the above discussion, lead to a stakeholder's (constituent) scorecard.[31] See Figure 3[32] for the development and management of a 21st century deployment and distribution system.

How Does the DDOC Fit In?

DDOC Mission

As stated in the USCENTCOM AAR dated May 2004, the USCENTCOM DDOC mission was to,

> Confirm USCENTCOM deployment and distribution priorities, validate and direct CFACC intratheater airlift requirement support

to components and CJTFs, monitor and direct CFLCC intratheater surface distribution support to components and CJTFs, adjudicate identified USCENTCOM distribution and intratheater shortfalls, coordinate for additional USTRANSCOM support, provide total asset visibility (TAV) and in-transit visibility (ITV) for intertheater and intratheater forces and material, and set the conditions for effective theater retrograde.[33]

Figure 2 graphically illustrates where the CDDOC fits into the overall process. The CDDOC was an effort to fill the gaps within the deployment and distribution system between the strategic, operational and tactical levels. In essence, the DDOC formed a physical enterprise resource planning (ERP) environment, vice a virtual environment, that was capable of gathering data from various information systems to enhance the overall common operating picture (COP). The requirement for a physical ERP is necessary due to the vast number of information systems required to formulate a logistics-oriented COP. In addition, the *physical* aspect of the ERP is driven by the fact that much of the data does not exist in systems that are compatible with each other; and therefore, Service and Joint skilled logisticians are required to correlate information feeds.

Future development of the JDDOC (Joint DDOC) concept will take place in each of the geographically aligned unified commands along the same conceptual design as the original CDDOC. Its purpose is:

> A Joint capability solution designed to satisfy the requirements to integrate strategic and theater deployment execution and distribution operations within each of geographic combatant commander's area of responsibility. The JDDOC, under the control, direction and auspices of the geographic combatant commander, directs, coordinates and synchronizes assigned forces' deployment and redeployment execution, and distribution operations … to enhance the combatant commander's ability to execute logistics plans with national partner support.[34]

The DDOC initiative can be used to demonstrate how a concept can be evaluated against the newly developed balanced scorecard for Joint logistics. The DDOC was a doctrinal change (LG 4) to the theater logistical process in the form of a newly developed organization centered on warfighter support (LG 1). It leveraged existing technology (LG 2) and formed a team of professional Joint logisticians (LG 3), with the intent to enhance unity of effort (IP 1) and improve both domain-wide visibility (IP 2) and rapid and precise response (IP 3) of the theater deployment and distribution system. Once established in-theater, the DDOC's objective was to provide accurate (C 1), timely (C 3), and consistent (C 4) logistics to the warfighter. With improved visibility, it was also intended for the DDOC to improve the use and optimization of limited transportation assets (F 2). Finally, the ultimate goal of the DDOC is to provide, sustained logistics readiness enabling freedom of action for the Joint force commander.

Why a DDOC?

Upon this point a page of history is worth a volume of logic.

—Oliver Wendell Holmes, Jr

As Oliver Wendell Holmes points out, history can teach us a lot. Operations Enduring Freedom and Iraqi Freedom are no exception. US forces had operated in that region in the early 1990's in Operations Desert Storm and Desert Shield. However, a recent Government Accountability Office (GAO) Report reveals that we had not learned much from the not-too-distant past. The following are quotes from the GAO report dated August 2005.

> **Operation Desert Shield and Desert Storm-1991**
>
> The deployment of combat forces to the theater of operations in advance of support units created logistical support difficulties. The military's decision to *push* enormous amounts of equipment to the theater and to deploy combat units before support units in the first 3 months of the campaign contributed to the Army's and Marine Corps' problem of limited capability to store and retrieve equipment and supplies during the initial stages of Operation Desert Storm. A small cadre of logisticians was established to receive incoming equipment, supplies, and personnel; support the combat units that were deployed; and build a logistics infrastructure in an austere environment.[35]

> **Operation Iraqi Freedom-2003**
>
> DOD's priority was for combat forces to move into theater first. A study suggested that distribution assets were either deleted from the deployment plan or shifted back in the deployment timeline. As a result, logistics personnel could not effectively support the increasing numbers of combat troops moving into theater. A shortage of support personnel in theater prior to and during the arrival of combat forces was reported, and those who arrived were often untrained or not skilled in the duties they were asked to perform. The shortage resulted in delays in the processing (receipt, sorting, and forwarding) of supplies, and backlogs. Contractors performing distribution functions had become overwhelmed and a Joint contractor military organization quickly evolved. As two divisions entered the theater, the need for a theater distribution center became apparent and an area in the desert was designated as a storage and cross-dock area.[36]

The GAO report cited other similar challenges during Operations Desert Storm, Desert Shield, and Iraqi Freedom. These cited similarities were categorized under the headings of limited communications (as it related to supply), limited asset visibility, misuse of shipment prioritization, shortage of ground transportation assets, and in-theater distribution difficulties.[37]

Retired Army Lieutenant General William Pagonis had witnessed the events of Desert Shield and Desert Storm first hand as General Schwarzkopf's head of logistics for the USCENTCOM theater.[38] In his book *Moving Mountains*, he wrote the following:

> Why, in an era of decentralization, is integration the way to go? Because, as I see it, logistics is a field that is particularly prone to suboptimization. Our logistical mission in the Gulf was to protect and provide for our troops, and thereby aid in the liberation of Kuwait. In support of this mission, our stateside shippers made heroic efforts to stuff every Gulf-bound ship absolutely full, …meanwhile, on the receiving end, our port operators were swamped.… What was needed to resolve that conflict and avoid suboptimization was a *kingpin*—someone who could assess the imperative of each functional area and decide upon a solution that best supported the mission. In the Gulf, I was lucky enough to be selected to serve as that person. I would argue that every complex organization that is involved in materials management, handling, and distribution needs my equivalent.[39]

General Pagonis recognized the need for one logistics voice, a kingpin, setting priorities for the warfighter. He also recognized the need for a kingpin due to the many links that make up a supply chain and can lead to its weakness and cause suboptimization in the overall distribution system. The DDOC could be that one voice that sets logistics priorities for the combatant commander.

The bottom line result of the initial stages of Operation Iraqi Freedom was a theater logistics infrastructure that was slow to mature, resulting in the delay of critical logistics functions ("processing, receipt, sorting, and forwarding) of supplies, and backlogs"[40]) that then inhibited the support systems ability to provide optimal support to combat operations. As a result, USTRANSCOM, in its role as the Secretary of Defense-designated distribution process owner (DPO), in concert with USCENTCOM, DLA, and Army Materiel Command, developed the DDOC concept based upon the Joint movement center concept in order to improve the overall theater distribution system. This was an opportunity for USTRANSCOM, in concert with DLA, to move logistics professionals forward as part of the USCENTCOM organization to affect positive change to the overall deployment and distribution system.

Therefore, with an understanding of the challenges facing the deployment and distribution system, based on both historical precedence and current observations, it was time to put a DDOC type concept into action. On 18 January 2004, the USCENTCOM CDDOC began operations collocated with the JTF land component commander in Kuwait.[41] A team of 63 professionals, primarily from USTRANSCOM and the Defense Logistics Agency (DLA) brought the tactical view to the strategic players in an effort to enhance overall deployment and distribution processes within USCENTCOM's AOR.

DDOC Objectives and Metrics

Metrics drive performance. That is because what is important to an organization is what that organization should be measuring. Therefore, when evaluating performance, the selection of metrics must be accurate, appropriate, and common to all users. That is not to say that all organizations choose the correct metrics to measure their performance. However, what is chosen to be measured, if it has not already shaped an organization or a process, soon will.

When the CDDOC arrived in theater in January of 2004, it came with four well defined objectives.[42]

- Provide total asset visibility and in-transit visibility, sustainment, and retrograde (the process of recovering and returning military material and supplies to units, depots, or prepositioned stock)
- Refine theater distribution architecture in coordination with Joint staff and the Services
- Synchronize strategic and operational distribution
- Develop strategic and operational distribution performance measures

These four objectives drove key initiatives such as Single Ticket, Pure Pallet, and Purple/Green Sheeting. From these initiatives came measurements of success (metrics) such as customer wait time (CWT) on personnel during a unit's intermediate stop prior to final destination, TAV of personnel in transit, and requisition wait time (RWT) primarily on Class IX material. Following is a brief description of some of the initial programs implemented by the DDOC and the initial success experienced by those efforts.

The Single Ticket concept is the scheduling of transportation for military units from a stateside aerial port of embarkation (APOE) all the way through to the *foxhole* in one single movement piece.[43] The Single Ticket concept was not a new concept. The Joint Operation Planning and Execution System (JOPES) processes had directed that units be scheduled from point of origin to final destination. However, units moving into USCENTCOM's theater prior to the establishment of the DDOC would be scheduled only to an aerial port of debarkation (APOD), where they would await further coordination on transportation for movement to their final destination. Single Ticket began *marrying up* the strategic movement from the states with the tactical movement within theater. Just some of the highlights of success are listed below.[44]

- Unit loiter time was reduced from 72 to 30 hours.
- Over 130,000 passengers moved with an average ground time of 30 hours.
- As of December 2004, a Single Ticket Tracker was released providing units with 100 percent TAV of all booked passengers.
- During December 2004, the Single Ticket program moved Air Force AEF deployers. The result was 84.8 percent of the passengers moved in 24 hours or less.

The Single Ticket concept is the scheduling of transportation for military units from a stateside aerial port of embarkation all the way through to the foxhole in one single movement piece.

The results prompted the Commandant of the United States Marine Corps to state, "Tell all of your supporting staff, including your USCENTCOM DDOC and AMD friends, that they are receiving the highest compliments from the Marine Corps!"[45] As the CDDOC tackled the issues associated with troop movement, they also began looking at cargo movement and palletization, which led them to the Pure Pallet concept.

The CDDOC, in concert with US Army personnel, developed the Pure Pallet initiative to eliminate time and material loss when shippers mixed multiple end-user requirements on a single pallet. The mixed pallets required additional movement time because of the requirement for breakdown and reconfiguration at an intermediate point before continuing on to the final destination.[46] In addition, during breakdown many individual items would lose addressing information and become distressed cargo. The following is an example of suboptimization as cited by General Pagonis.

> Although the pallets moved quickly out of the DLA stateside depots, a DLA metric, the additional time required down range to reconfigure pallets, coupled with the lost material, suboptimized the overall distribution system.

Therefore, the DDOC saw a need to implement the Pure Pallet initiative. A pallet that is designated as a *Pure Pallet* has one end-user location requirement on a single pallet, thus facilitating movement to the final destination.[47] A pure pallet is built at the embarkation or depot points stateside.[48] These pure pallets are then shipped with little to no delay to their final destination.[49] For example, 98 percent of the pallets received at Ballad AB, Iraq, a high demand end-user location, are pure pallets.[50] As a result, throughput velocity was increased.[51] However, the CDDOC realized that a lack of true prioritization in cargo movement was also impacting USCENTCOM's distribution system and as a result, began implementing the Green/Purple Sheet Priority System.

Prior to implementation of the Purple/Green Sheeting Priority System, the distribution process within USCENTCOM was susceptible to a prioritization abuse by end users. The overuse of high priority designation by end users caused confusion in the system and led to truly high priority cargo being impacted by the movement of lower priority requirements. The CDDOC developed a method so that the combatant commander and Services could distinguish regular cargo from that of a higher priority cargo requirement. It was simple in design yet very effective in application. It consisted of *green* sheets, controlled by the Services, and a *purple* sheet, controlled by the combatant commander.[52] A movement requirement that was deemed a high priority by either the Services or combatant commander was designated using these sheets; and moved more quickly in response to a high priority need within theater.[53]

Both the Pure Pallet and Purple/Green Sheeting were two initiatives that focused on increasing the throughput velocity in the distribution system. A study of the data supplied by LOGSA in Figure 4 reveals a steady decline in RWT 5 months after the January 2004 stand up of the CDDOC, with the biggest decline taking place between August and September of 2004. Also, RWT values begin to hold steady at close to the expected 14-day standard by February 2005. A cross comparison of the quantity of requisitions per month shows a cyclical ordering pattern leading this researcher to conclude that the reduction in RWT was as a result of improvements and maturation in the theater distribution system, vice a reduction in the volume of requisitions. However, to assume that the DDOC is solely responsible for the reduction in RWT would be incorrect. There are several factors that must be considered when trying to determine the cause of reduction in RWT. They include the establishment of a DLA warehousing facility in Kuwait, the establishment of a theater distribution center (TDC), the eventual arrival of logistical support units into theater in sufficient quantities, and the fact that many units are on their second or third rotation in the Iraqi theater. The last two points do highlight the fact that, after 3 years, the Iraqi theater is no longer new. In other words, logistics maturation has taken place over time. Infrastructure has been built up and processes have been established. Therefore, one would expect a reduction in RWT over time due to an established operational theater.

Implications for Senior Leadership and Future Development

In reviewing RWT data, this research concludes that the extended time period to reduce RWT (a metric that focuses on warfighter support) from 23 days to 15 days, a process that took approximately 2 years, was due, in part, to a slow introduction of logistics assets into theater during the initial phases of conflict. Therefore, one would surmise the TPFDD flow should be adjusted to maintain proper logistics support during the early phases of operation and continue to build support in proper proportion to increased operational requirements. However, during this research it has been suggested that the findings of the GAO, which show a late introduction of logistics support elements into the AOR, reflect the realities of how unified commanders choose to phase forces in the TPFDD flow.[54] If the GAO report truly reflects a change in force flow execution, then it is incumbent upon the Joint and Service logistics and operational communities to redefine business processes and shape future development based on a limited logistics footprint during the initial phases of conflict. The development of the DDOC concept suggests an acknowledgement of this situation and signals a need to overcome shortfalls in the current Joint theater logistics system. In addition, the findings of the GAO report, coupled with a need to implement a DDOC concept, signal the obvious. It acknowledges the need for a fundamental change to logistics support structures, from the tactical to strategic level, to better meet the requirements of a post-Cold War military operating under a force projection strategy vice a forward presence strategy. This research also concludes that the introduction of the DDOC concept into USCENTCOM's JTF staff had a positive impact on the theater distribution system; and given the realities of a limited logistics footprint during the initial phases of conflict, is a move in the right direction. The DDOC is an organization capable of voicing deployment and distribution priorities, and through the DDOC organizational structure, setting warfighter-focused logistics objectives, implementing programs, and focusing on problem areas within the deployment and distribution system for a combatant commander. In addition, it can align both strategic and operational players to meet the combatant commander's warfighting needs; however, based on the metrics

The deployment of the DDOC into USCENTCOM's theater was a result of the shortcomings in the deployment and distribution system that came about due to a conscious delay in the deployment of logistical support into theater despite written doctrine to the contrary.

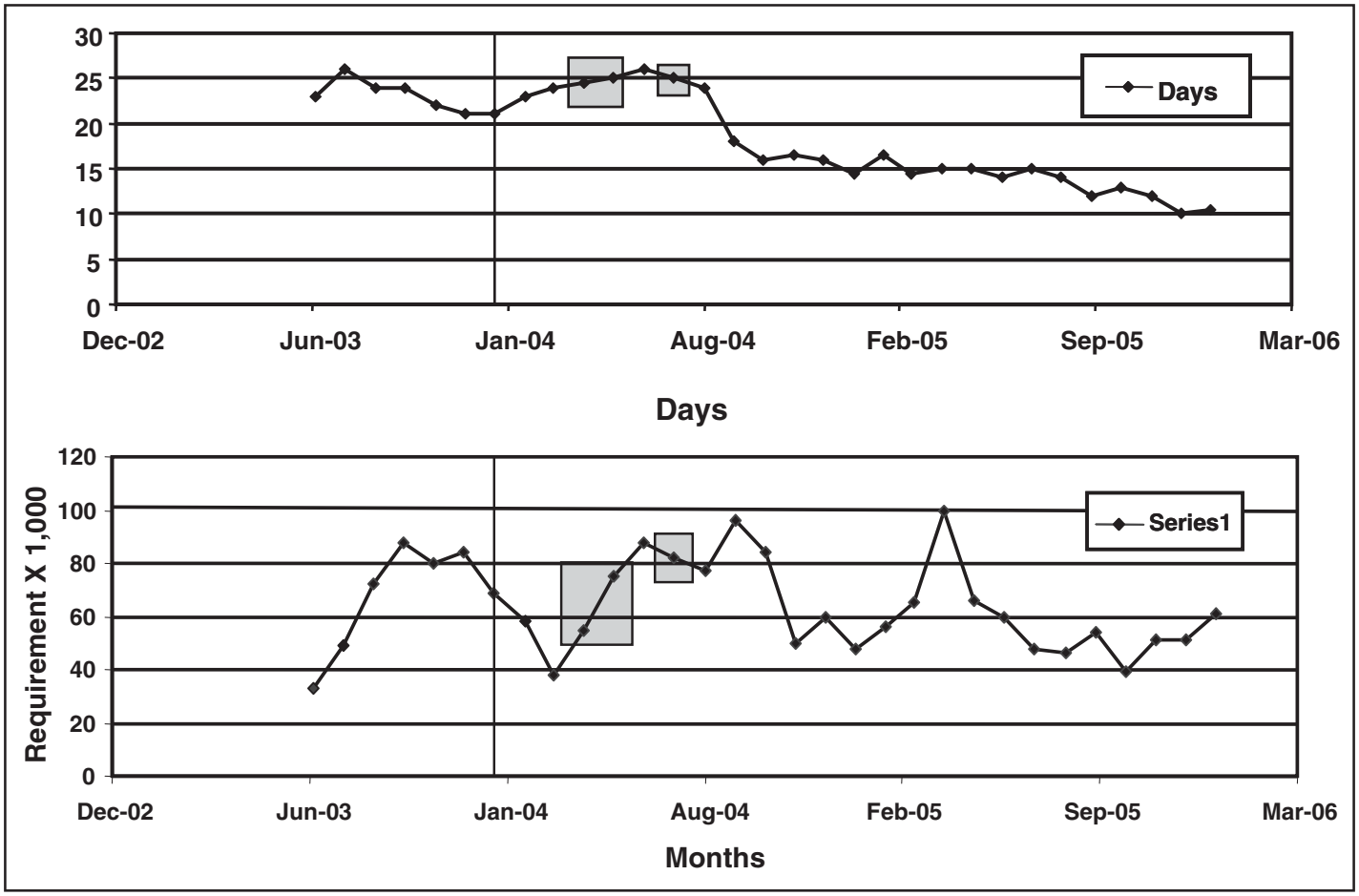


Figure 4. Top Chart: Requisition Wait Time Values for Iraq per Month June 2003 - January 2006; Bottom Chart: Total Number of Requisitions per Month June 2003 - January 2006; Black Line is DDOC Stand-Up; Gray Squares Denote Missing Data Points—Data Supplied by LOGSA

chosen by the DDOC, most initiatives focused on aligning strategic and operational assets to meet warfighter requirements. This research found few, if any, initiatives that directly impacted the processes of the *last tactical mile* with the exception of RFID tagging. In addition, the metrics used to evaluate the DDOC's success were based on programs initiated during the first DDOC rotation in January 2004. This research was unable to find any major initiatives implemented after the rotation of the first DDOC cadre suggesting that the DDOC could be an organization that deploys early in the flow and then those elements that are strategically focused may begin to retrograde back once the logistical infrastructure is established. This would return the theater to a joint movement center (JMC)-focused method for deployment and distribution control.

With these findings in mind, USTRANSCOM should consider future development of the JDDOC to reflect an organization that is used to overcome the realities of a limited movement of logistics assets early in the TPFFD flow. As the Secretary of Defense-designated distribution process owner, USTRANSCOM should maintain primary responsibility for future development and the establishment of standard operating procedures for the various geographically focused JDDOCs. In addition, the development of technology to support an ERP environment should remain with USTRANSCOM in order to ensure standardization across the various unified commands.

Proceeding with the development of JDDOCs in separate unified commands does present a few challenges. The first challenge of allowing DDOC development to take place in separate unified commands has to do with the difficulty in maintaining "habitual relationships and personnel training;" an issue sited as a gap in Joint logistics capability by LTG Christianson, the JS J4. Many of the initial successes of the DDOC were due to habitual relations formed by a relatively small number of Joint logistics professionals. As training packages are developed for future JDDOC implementation, the deployment and distribution community will have to focus on the development of habitual relationships that strengthen the ties between geographic combatant commands and those organizations and unified commands that support the strategic level of deployment and distribution.

Conclusion

The research conducted within this article attempted to answer the question of whether the implementation of the DDOC into USCENTCOM's theater substantially changed the Joint logistical process, or were improvements simply the result of application of logistical expertise focused on key problem areas. The research finds the latter to be more likely. It is to some degree a fundamental change as to how the deployment and distribution system is focused on warfighter priorities. It is, however, more the application of strategic logisticians brought together to form

a physical ERP to bring a common operating picture to the entire distribution community. The research was unable to answer the fundamental question of, "What if?"

The deployment of the DDOC into USCENTCOM's theater was a result of the shortcomings in the deployment and distribution system that came about due to a conscious delay in the deployment of logistical support into theater despite written doctrine to the contrary. What if US forces had deployed in accordance with doctrine and developed the prescribed logistical infrastructure that is fundamental to military operations? Would the DDOC concept have been necessary had a Theater Support Command and a fully supported joint movement center been put into position from the start of the operation? These two questions will remain unanswered. However, given that this new, doctrinally incorporated concept called a DDOC, was an organizational overlay to the JMC, TSC and air mobility division, and not a fundamental change to the logistics system, then what is to say that doctrine will be followed in the future? The challenge to future Joint military operations will be to maintain discipline in the system and execute Joint doctrine as it is written.

Notes

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6. Lieutenant General C.V. Christianson, "Deployment and Distribution Conference," lecture at CSC facilities, Washington DC, January 2006.
7. This section relies heavily on information provided by the JS J4 staff and three lectures given by Lt Gen Christianson, the Joint Staff J4. In addition, the Balanced Scorecard concept is taken from the following: R.S. Kaplan and D.P. Norton, *The Strategy-Focused Organization: How Balanced Scorecard Companies Thrive in the new Business Environment*, Boston: Harvard Business School Press, 2001, 23.
8. Christianson, January 2006.
9. *Ibid.*
10. *Ibid.*
11. *Ibid.*
12. *Ibid.*
13. *Ibid.*
14. *Ibid.*
15. *Ibid.*
16. *Ibid.*
17. *Ibid.*
18. *Ibid.*
19. Kaplan and Norton, *The Strategy-Focused Organization, 23.*
20. *Ibid.*
21. *Ibid.*
22. *Ibid.*
23. A thought of a Strategic Relationship perspective was taken from the Defense Logistics Agency's Balanced Scorecard.
24. Christianson, 2006
25. Kaplan and Norton, *The Strategy-Focused Organization.*
26. *Ibid.*
27. *Ibid.*
28. *Ibid.*
29. *Ibid.*
30. Christianson, 2006.
31. Kaplan and Norton *The Strategy-Focused Organization.*
32. The Balanced Scorecard relies heavily on information provided by the JS J4 staff and three lectures given by LTG Christianson, the JS J4 and DLA's balanced scorecard. In addition, the Balanced Scorecard concept is taken from the *Strategy-Focused Organization* written by Kaplan and Norton.
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49. *Ibid.*
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51. *Ibid.*
52. *Ibid.*
53. *Ibid.*
54. Source left anonymous due to *nonattribution* policy at ICAF.

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