

**STRATEGY
RESEARCH
PROJECT**

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**FOCUSED LOGISTICS;
WHAT THE AIR FORCE BRINGS TO THE FIGHT**

BY

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ABSTRACT

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Our world is different from our founding fathers, yet the objectives in the preamble of our Constitution remain constant: "provide for the common defense, promote the general welfare, and secure the blessings of liberty to ourselves and our posterity." Immediately following the attacks on the United States, the military was placed on the highest alert in preparation for war. Critical to preparing and deploying those forces is logistics. In 1996 logistics was considered for the first time as one of the four operational concepts for our military forces as identified in Joint Vision (JV) 2010 and further refined in JV2020, as the concept of Focused Logistics was defined. Focused Logistics is the ability to provide the Combatant Commander with the right personnel, equipment, and supplies in the right place, at the right time, and in the right quantity, across the full range of military operations. This paper examines the Air Force transformation in organizational structures, reengineered processes, advances in transportation technologies, and improvements in information systems to support JV2020 requirements.

This paper concludes that as a vital partner in JV2020, the Air Force has transformed its logistics architecture to meet JV2020 Focused Logistics requirements. Specifically, it will examine how the Air Force implemented the Expeditionary Aerospace Force (EAF), transformed base support functions under Agile Combat Support, linked logistics to the EAF through the Chief of Staff's Logistics Review, and reengineered supply under a Regional Supply Squadron concept. The paper will also show how TRANSCOM and the Defense logistics Agency partnered to develop a Strategic Distribution Management Initiative that support the Air Force's logistics transformation and is linked by Global Command and Control System and Global Combat Support System-Air Force. This paper concludes that the Air Force effectively transformed its logistics architecture to fully meet JV2020 Focused Logistics requirements to provide the Combatant Commander with the right personnel, equipment, and supplies in the right place, at the right time, and in the right quantity.

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FOCUSED LOGISTICS: WHAT THE AIR FORCE BRINGS TO THE FIGHT

On September 11, 2001, the United States came under vicious, bloody attack. Americans died in their places of work. They died on American soil. They died not as combatants, but as innocent victims. They died not from traditional armies waging traditional campaigns, but from the brutal, faceless weapons of terror. They died as the victims of war – a war than many had feared but whose sheer horror took America by surprise.

—Henry H. Shelton
Chairman of the Joint Chiefs of Staff

NATIONAL STRATEGY & LOGISTICS

William Jefferson Clinton, former President of the United States stated, "More than ever, prosperity and security in America depend on prosperity and security around the globe."¹ The start of the 21st Century finds our world very different from that of our founding Fathers, but the objectives in the preamble to the Constitution remain the same: provide for the common defense, promote the general welfare, and secure the blessings of liberty to ourselves and our posterity.² As articulated in the 2000 National Security Strategy, the United States has three modern goals: enhance security at home and abroad, promote prosperity, and promote democracy and human rights.³

To support the National Security Strategy, the senior leaders in the Department of Defense through the 2001 Quadrennial Defense Review Report developed a new strategy for the defense of America. It established the conditions to extend America's influence and preserve America's security.⁴ The strategy is as follows:

- Assuring allies and friends of the United States' steadiness of purpose and its capability to fulfill its security commitments;
- Dissuading adversaries from undertaking programs or operations that could threaten U.S. interests or those of our allies and friends;
- Deterring aggression and coercion by deploying forward the capacity to swiftly defeat attacks and impose severe penalties for aggression on adversary's military capability and supporting infrastructure; and
- Decisively defeating any adversary if deterrence fails.

The most current National Military Strategy published in 1997 states "...there remain a number of uncertainties...among these are regional dangers, asymmetric challenges, transnational threats, and wild cards."⁵ It also states the United States national military objectives are "to promote peace and stability and, when necessary, to defeat adversaries."⁶

Immediately following the World Trade Center and Pentagon attacks, the United States military was placed on the highest alert and told to “lean forward” in preparation for deployment for war. Forces comprising the United States Navy, Marines, Army, and Air Force as well as their reserve and guard components were readied or deployed to the Southwest Asia and forward staging bases for military actions. Essential to forward deployed combat forces are logistics lines of communications. But just how critical is logistics to executing National Security Strategy? A recognized logistics expert Douglas Menarchik states,

“logistics affects military strategy, military strategy affects grand strategy, and grand strategy affects political outcomes. It raises important issues for America’s security policy in the post-Cold War era and is worthy of leadership interest to ensure America’s logistics is in order. America and the international community need to pay more attention to logistics infrastructure, doctrine and its effects on strategy, tactics and military-political outcomes.”⁷

This paper will first synopsise the fundamental processes inherent in logistics support and review the factors of Focused Logistics as they apply to Joint Vision 2020. Then, it will identify and analyze if the operational transformation enablers the United States Air Force has achieved will support Joint Vision 2020 Focused Logistics requirements. For the purpose of this paper the term logistics will only apply to those processes inherently found in an Air Force objective wing; aircraft maintenance to include munitions, contracting, logistics plans, transportation and supply to include fuels.

FOCUSED LOGISTICS

Focused Logistics, as defined in Joint Vision 2020, is the ability to provide the joint force with the right personnel, equipment, and supplies in the right place, at the right time, and in the right quantity, across the full range of military operations. It will result from revolutionary innovations in organizational structures, reengineered processes, advances in transportation technologies, and improvements in information systems.⁸ Logistics transformation is on a fast paced schedule with the following requirement timeline:⁹

- FY 01, implement systems to assess customer confidence from end to end of the logistics chain using customer wait time metric.
- FY 02, implement time definite delivery capabilities using a simplified priority system driven by the customer’s required delivery date.
- FY 04, implement fixed and deployable automated identification technologies and information systems that provides accurate, actionable total asset visibility.

- FY 04 for early deploying forces and FY 06 for the remaining forces, implement a web-based, shared data environment to ensure the joint warfighters' ability to make timely and confident logistics decisions.

Martin van Creveld stated, "logistics make up as much as nine-tenths of the business of war" and that "the proportion of logistical support is a rough indicator of an army's efficiency—a low proportion representing a high efficiency."¹⁰ All services provide unique capabilities to joint operations, but the Air Force brings an attitude shaped by the changes in its environment. Since 1991, the Air Force has "reduced its manpower by 33 percent while the operational requirements have increased by over 300 percent, which have placed an enormous workload on the logistics community."¹¹ This, in combination with the closing of 45 percent of its bases both overseas and in the continental United States (CONUS), required the Air Force to transform the way it operates and supports itself.¹²

Before understanding Air Force logistics concepts, you need to understand its overall organizational structure. As the first step towards Air Force transformation, past Air Force visions laid the foundation for today's culture that streamlined both the operational and logistics structure. It is these organizational structures that will be examined in greater detail.

INNOVATION IN ORGANIZATIONAL STRUCTURES

EXPEDITIONARY AEROSPACE FORCE (EAF)

Former Chief of Staff of the Air Force, General Michael E. Ryan stated,

"In a world that is globally connected, national security and international stability are vital foundations of America's prosperity. Assuring security and stability requires global vigilance, reach and power—global vigilance to anticipate and deter threats, strategic reach to curb crises and overwhelming power to prevail in conflicts and win Americas wars. With Global Vigilance, Reach and Power, the Air Force will provide balanced aerospace capabilities key to meeting national security objectives and realizing the full spectrum dominance envisioned by Joint Vision 2020."¹³

Strategically, the Air Force transformation has returned to its expeditionary roots as an EAF configured for the full spectrum of aerospace operations. The EAF will:

- Give America an adaptive response to crises world-wide with relevant aerospace forces in the 21st century.
- Shape how the Air Force is organized, trained, and equipped to support the national military strategy.

- Allow the Air Force to better manage the force and determine when that force is stressed and where relief should be focused.
- Provide Air Force units, people, and their families' greater deployment stability and predictability.¹⁴

The fundamental objective of the EAF is to enhance the operational capabilities of the US Air Force to make it expeditionary in nature, and effective and effective logistics will be the foundation to sustaining these expeditionary forces. The EAF provides to its clients, the warfighting Commanders in Chief (CINC), a viable combat force now and sustains those capabilities in the future.¹⁵ The EAF operational concept reorganizes Air Force combat forces by operationally linking geographically separated units to form ten Aerospace Expeditionary Forces (AEF)s. Each AEF consists of a powerful complement of air and space assets with manpower drawn from active-duty, Air National Guard, and Air Force Reserve components of the Total Force.¹⁶ An AEF force package is comprised of aircraft, equipment, and personnel tailored to support the CINCs. Each AEF is a cross-section of Air Force weapons systems, 150-175 aircraft, supported by 10,000 to 15,000 men and women.¹⁷ Two AEFs are always deployed or on call to meet current national requirements, while the remaining force trains, exercises and prepares for the full spectrum of operations.¹⁸ An AEF can deploy more than 130 combat aircraft and 10,000 people in 72 hours, and in concert with other military forces stop enemy aggression or quell crises before they escalate.¹⁹ If necessary, the Air Force will deploy five follow-on AEFs in fifteen days to provide the CINCs with options and capabilities to win major theater wars.²⁰

During the development of the EAF concept, shortfalls were identified in specialized career fields and specific types of equipment that could not be cured in the short-term. Consequently, two crisis response Air Expeditionary Wings (AEW)s were identified; those being 366th Wing at Mountain Home AFB, Idaho and the 4th Fighter Wing at Seymour-Johnson AFB, North Carolina. These two wings provide force projection capability for unanticipated contingencies and crises. The two AEWs alternate 90-day on-call periods that correspond to the AEF rotations. Once the Air Force corrects the shortfalls, the two AEWs will fall into the AEF rotation cycle.²¹

AGILE COMBAT SUPPORT (ACS)

The closing of 45 percent of the overseas and CONUS bases reduced logistics infrastructure and required that the Air Force transform its logistics processes to support the EAF. To support the EAF, the Air Force will require a fundamentally redesigned support system

that is highly mobile, technologically superior, robust, responsive, flexible, and fully integrated with operations. To develop the Air Force role in achieving Focused Logistics, one of the four operational concepts in Joint Vision 2020, the Chief of Staff of the Air Force established his vision of ACS. His vision identified ACS as one of the six Air Force core competencies enabling aerospace power to support Joint Force Commander objectives.²² ACS applies to all base operations support functions, but for the purpose of this paper I will only refer to those areas in ACS that are inherently identified as Air Force Logistics; aircraft maintenance to include munitions, contracting, logistics plans, transportation and supply to include fuels.

General Ryan stated, "We'll focus on the expeditionary combat support capabilities that underpin our ability to operate anywhere. Effective, efficient logistics will be key to sustaining expeditionary forces."²³ ACS is the product of processes that ready and prepare aerospace forces for military operations and steady-state peacetime operations that ultimately produce the capability to meet a 72-hour response for bombs on target and flexible sustainment of deployed forces.²⁴ ACS has, as its foundation, five underlying principles that this paper will now cover: responsiveness, effective beddown and sustainment, time-definite delivery, reachback and leveraging information technology.²⁵

Responsiveness is a high velocity process required to support the EAF. From peacekeeping, to aiding developing nations, to conducting counter-drug operations, the military continues to adapt to evolving missions. The key to successful support of those future combat operations is creating robust, responsive and flexible combat support systems.²⁶ The Air Force can no longer afford to maintain massive inventories. Rather, it must shift to a response capability. This minimizes the mobility footprint, streamlines inventories, and reduces costs. Critical to responsiveness is time-sensitive transportation, precise forward-deployed inventories, accurate command and control and a focused depot-level repair capability. The concept of responding quickly and closing with greater speed will require rethinking of many current policies. Reducing repair cycle times and speeding movement are not the only ways to reduce a mobility footprint. Resupply requests must be filled in priority order with information systems capable of supporting the prioritization and providing visibility to the customer while the materiel is in transit.²⁷

Effective beddown and sustainment reduces deployed inventories and requires rigorous effective base support planning (BSP). BSP provides a well-established architecture for assessing requirements and capabilities and a process for planning the needs for prepositioning of equipment and resources. Accurate intelligence is essential as war planners and CINCs must indicate the exact location of a possible contingency to enable adequate preparation of the

deployed location. Effective BSP assesses what deploying forces must bring with them, what can be obtained locally and what is available at the deployed location. There are opportunities to acquire many resources through lease agreements or host-nation support instead of buying and stockpiling them as war reserve materiel.²⁸

To be effective, AEFs must be guaranteed time-definite delivery. Historically, the logistics system has “pushed” the nation’s wartime support to forces in the field to compensate for imperfect resource information and planning systems, resulting in an expensive and wasteful stockpile of materiel in U.S. warehouses and forward locations. The Cold War model of globally prestocking huge quantities of materiel forward and then flowing equally massive quantities from home bases is unsustainable in today’s environment.²⁹ Predictable time-definite delivery of mission-critical requirements will give users the confidence to reduce investments in both cycle and buffer stock inventories. With time definite resupply, the Air Force reduces the mobility footprint of early arriving forces, which frees available airlift, reduces cost and makes it possible to reduce the size and therefore the vulnerability of United States forces. When a combat commander requires an item, the response capability system will reach back to the continental United States (CONUS) and deliver it where and when it is needed. This reachback approach combined with time-definite delivery will make it possible to deploy fewer functions and personnel forward for the deployment and sustainment process.³⁰

Reachback encompasses a complex network that leverages information regarding weapons systems status and requirements. Deployed units transmit status and support requests back to CONUS initiating the mechanism for prioritization of requests and replenishment to forward deployed locations. This process must be supported by information systems that guarantee top priority requirements are flagged and delivered by optimal transportation modes. The success of reachback depends on a seamless data flow from forward deployed locations, to a production capability and then shipped via optimal transportation.³¹ When combatant commanders require an item, integrated information systems “reachback” to U.S. locations and “pull” only the resources required. Depot processes—streamlined and incorporating state-of-the-art business practices—are able to release materiel in a much more timely fashion. Time-definite transportation completes the support cycle by rapidly delivering needed resources directly to the user in the field. Integrated information systems provide total asset visibility throughout this process, tracking resources throughout their delivery cycle with the capability to redirect them as the situation dictates.³²

The foundation to responsiveness, time-definite delivery and reachback is continual leveraging of information technology. ACS can only reach its full potential through continual

exploitation of advances in technology, communications, and information systems integration. An example of leveraging technology is the Joint Vision 2020 requirement of Total Asset Visibility (TAV). The U.S. Army was identified as the executive agency in 1994 and has developed the capability that is currently being tested in the European theater. Once finalized, TAV will provide improved planning and support integration by providing support personnel the ability to locate an asset, requisition the asset, and track it from source to destination.³³ It will also provide support personnel at all levels a near real-time picture of asset availability throughout the supply system. TAV consists of two subordinate elements: asset visibility and in-transit visibility. Asset visibility will focus on resources in the inventory or static in the supply system. In-transit visibility will focus on resources in motion through the supply pipeline. Ultimately the distribution managers must have visibility of all military assets as well as all common user items in order to match theater requirements to capabilities.³⁴

ACS is a force enabler that sustains military capability for rapid response across the spectrum of military operations. ACS's measure of performance is the generation of Aerospace Power. But to determine ACS effectiveness in relationship to responsiveness, effective beddown and sustainment, time-definite delivery and reachback, appropriate metrics must be established. Metrics ensure Air Force priorities are met, there is a visible return on investment, and supporting elements are capable of providing "the right asset to the right place at the right time" to generate aerospace power.

Two metrics that were adopted as measures for success by the JV2020 authors are customer wait time (CWT) and time definite delivery (TDD). CWT is defined as a measurement of the total elapsed time between the issuance of a customer order and satisfaction of that order. TDD is defined as the concept that, within a specified degree of probability, the logistics system is capable of delivering required materiel to the customer within a given period of time.³⁵ The Air Force authored the technical solution for CWT measurement, and the CWT tool development was initiated January 2001. Demonstration and acceptance of the CWT tool was accomplished in March 2001 with the Air Force establishing CWT reporting and analysis effective September 2001. The Air Force has been successful in gathering CWT data back to November 2000 and has delayed establishing TDD standards until 2001 results have been completely analyzed. A precursory look of fiscal year 2001 identified a mean of 14.75 days CWT for all retail transactions from maintenance and that 75 percent of all customer orders were being satisfied in 5 to 6 days CWT.³⁶ The time of 5 to 6 days to deliver a critical aircraft part to fix a grounded aircraft is considered unacceptable in CONUS, but is understandable for

overseas locations. The Air Force Director of Logistics had already initiated a logistics review to identify deficiencies.

REENGINEERED PROCESSES

CHIEF OF STAFF LOGISTICS REVIEW (CLR)

The Air Force operational needs have changed with the EAF, yet the processes to support it have remained structured within the old operational concepts. The AF initially attempted to adapt old processes and place them into a new operational concept. Since this did not work, in December 1999 the Air Force underwent a Chief of Staff of the Air Force wing-level study of all logistics functions.³⁷ The CLR goal is to rethink base level logistics processes and emphasize policy, procedures, training, discipline, and enforcement to improve EAF readiness.³⁸ Other major factors drove the need for the CLR. Those factors included transforming the traditional wing concept into an objective wing, replacing detailed regulations and manuals with less specific instructions and policy directives, and downsizing the force by 30-35 percent while simultaneously increasing the operations tempo by over 300 percent in areas such as Northern and Southern Watch, the Balkans and numerous humanitarian operations.³⁹ While the EAF concept has provided predictability to the high operations tempo, the shortage of the Air Force's critical middle tier NCOs continues to place a burden on the Air Force's core logistics workforce that supports ongoing deployments.⁴⁰

During this CLR the Air Staff gathered inputs from all the major commands (MAJCOM) on problems throughout the logistics force. Common themes that emerged were as follows: maintenance leaders require better maintenance management training; regulations are vague and require rewrite; maintenance training skills and procedures are not standard for enlisted maintenance personnel; policy enforcement and maintenance discipline are lacking; and there exists an imbalance between sortie production and fleet management.⁴¹ Additionally, required emphasis must be placed on measuring and improving aircraft spares pipeline performance, both inbound and outbound, in the aspects of readiness, responsiveness, speed, predictability and reliability.⁴² Lastly, recommendations were made to standardize wing logistics planning functions within the Logistics Group (LG), because the Air Force has two organizational alignment options for logistics planners; one under the Wing Plans and the other under the LG in the Logistics Support Squadron.⁴³

The Air Staff developed a briefing for MAJCOM commanders and their staffs identifying four main logistics processes highlighted by the CLR. These processes were: sortie production

and fleet health; supply and transportation squadron merger; technical training and officer development; and contingency planning initiative. After refinements of the briefing were made at the request of the MAJCOM commanders, the CLR was presented at the October 2000 Fall CORONA. Approval was given to test the three base level initiatives and since technical training and officer development was a force initiative Air Force action teams each headed by a colonel have been established to address the eight areas within the technical training and officer development initiative.⁴⁴

The first CLR initiative tested was to balance sortie production and fleet health by making sortie production the focus of the Operations Group (OG) and fleet health the focus of the LG. To facilitate this initiative, the Maintenance Operations Center (MOC); Plans, Scheduling, and Documentation (PS&D); Maintenance Analysis; Maintenance Supply Liaison (MSL); and Engine Management (EEM) functions would be realigned under the LG and Phase Maintenance would be placed in the Maintenance Squadron, also under the LG.⁴⁵ The objectives of the test were to focus Combat Air Forces and Tactical Airlift Wing OG responsibilities on sortie production and to focus Combat Air Forces and Tactical Airlift Wing LG responsibilities on fleet health.

The second CLR initiative tested was to merge the Supply and Transportation squadrons into a Logistics Readiness Squadron.⁴⁶ This mating will breed a single organization responsible for materiel management. The objectives were to improve support to Air Force operations by using information technology, customer-focused stockage policy, and time-definite transportation to meet customer supply needs as quickly as possible on a reliable basis. The final CLR initiative approved for testing was to standardize the alignment of Logistics Plans under the LG. Logistics Plans would be tested in either the newly formed Logistics Readiness Squadron or the Logistics Support Squadron.⁴⁷ The objectives were to enhance planning, support, and execution processes by placing logistics planning functions under the LG.

The expected results of these tests are as follows: CLR maintenance leaders will receive up to date maintenance management training; task specific developed regulations will guide personnel; maintenance training skills and procedures will be standardized for enlisted maintenance personnel; policy enforcement and maintenance discipline will be established; and there will be a balance between sortie production and fleet management.⁴⁸ Process synergy will improve asset pipeline performance, both inbound and outbound, in the aspects of readiness, responsiveness, speed, predictability and reliability.⁴⁹ A standardized wing logistics planning function within the LG will provide wing senior leadership with a "one stop shop" for deployment planning, processing, and mobility support.⁵⁰ Because of current ongoing operations in

Southwest Asia, final implementation of the CLR initiatives has been delayed until June 2002, but selected test bases have been instructed to continue the CLR initiatives test.

SUPPLY REGIONALIZATION

The CLR was a follow on to an ongoing logistics reengineering initiative already in works to improve deployed supply support. During Operation Desert Storm necessity became the mother of invention. The USAF Air Combat Command (ACC) at Langley Air Force Base (AFB), Virginia developed the USAF Contingency Supply System Activity (AFCSSA). This was a centralized supply activity that remained in the states, but supported deployed supply troops in the desert. For the deployed personnel, it was like having the Standard Base Supply System (SBSS) on site. Previous attempts before Desert Storm of packing mobile computer systems and deploying those to austere locations throughout the world had been a dismal failure. The scaled down computer systems did not requisition to the source of supply, which required duplicate manual processing to get the order from the customer to the vendor, and delayed the delivery of required aircraft spares sometimes by days. AFCSSA not only provided robust automated supply support, but also performed the back-shop supply functions. As an additional benefit, it allowed the Air Force to operate a supply system from long distances and reduce the number of people that had to be on site in deployed locations.⁵¹

After Desert Storm the question arose of why the AFCSSA could not operate in peace as it had in war? The response to this question spurred the creation of the first regional supply squadron (RSS). The RSS is a supply squadron that centralizes the back-shop supply functions for its supported units. The back shop functions include computer support, stock control, mission support management, equipment management, procedures and analysis, and wartime assessments. The supported units are the peacetime and contingency bases within the major commands. The United States Air Forces in Europe (USAFE), Pacific Air Forces (PACAF), and Air Mobility Command (AMC) have all created regional squadrons for their commands following the pattern set by ACC. Currently the Air Education and Training Command (AETC) and USAF Space Command (SPACECOM) are developing their respective RSS.⁵² The RSS provides both peacetime as well as wartime support to the Air Force Forces (AFFOR) commander. The Air Force has realized significant benefits already and there will be more to come, as it realizes the full potential of centralized retail supply management. As of this date, the RSS format has reduced manpower by 570 positions, a \$25 million a year reduction in manpower costs. It also means a smaller footprint at the contingency site and has improved wartime support by reducing

the time it takes to order and receive critical spare parts. The four RSS's collect a myriad of performance measures to ensure no decline to support caused by centralized management.⁵³

ADVANCES IN TRANSPORTATION TECHNOLOGIES

STRATEGIC DISTRIBUTION MANAGEMENT INITIATIVE (SDMI)

Implementation of the RSS to support the EAF has reduced the time it takes to order critical spare parts both in CONUS and overseas, but it is only part of the Customer Wait Time (CWT) and Time Definite Delivery (TDD) equation. Equally important is the time it takes to deliver the spare parts. In partnership with Defense Logistics Agency (DLA), Air Mobility Command (AMC), the air component of United States Transportation Command (USTRANSCOM), has undertaken an effort to improve the end-to-end distribution process with a goal of reducing CWT and improving TDD through the Strategic Distribution Management Initiative (SDMI). SDMI is charged with enterprise level redesign, streamlining, and optimization of Department of Defense (DOD) global distribution system through best business practices in supply chain management. The SDMI will provide senior DOD leaders with logistics process improvement recommendations, which balance customer service, cost, readiness, and sustainability. SDMI will analyze current distribution requirements, processes, and systems associated with integrated distribution (supply chain) management. SDMI will optimize support to the warfighter by analyzing government acquisition, storage, distribution, and transportation practices and linking those practices with tenants for joint theater distribution. DOD can not improve distribution by looking at just transportation. It is not a transportation issue, and it is not a supply issue, but it is a transportation and supply issue.⁵⁴

Even though DOD operates the world's largest supply chain, spending over \$80 billion annually on logistics, there is no one organization tasked with measuring overall effectiveness of DOD's global distribution/transportation/supply chain management system. Therefore, the DOD's supplier (DLA) and transporter (USTRANSCOM) have partnered to enhance DOD's distribution performance. SDMI will initially focus on three major areas: stock positioning, air distribution and surface distribution.⁵⁵

Understanding that defense business will change more in the next ten years than it has in the last 25 years, will require the logistician to concentrate on velocity. Velocity is defined as how quickly business will change in response to customer demand, how quickly business will be transacted, and how information access will alter customer expectations. The DOD customer will expect high quality business processes from DOD service providers. For the DOD logistics

community this means that to be successful, they must identify and implement state-of-the-industry logistics processes coupled with reliable digital tools, and reinvent the way they work.⁵⁶

Leading commercial firms have learned and applied the principle of integrated supply chain management. The inclusion of sourcing, positioning and distribution of stocks is critical to the success of modern day logistics. For DOD to be successful, they have chosen a set of reporting tools to form a baseline analysis. The analysis will measure materiel in terms of quantities, response, volumes, weights and costs. Reporting the outcomes will be in terms of averages and variability over time and across suppliers and all customers. The core set of metrics for common measurement of performance of DOD supply chain management will again be CWT and TDD.⁵⁷

Analysis has shown a need to increase the on-hand stocks at DLA primary Distribution Sites. This may be the single biggest change that will decrease CWT. Having stocks in the right place located at or near a primary depot where they can be quickly entered into the distribution system and then into a scheduled and synchronized transportation system are key to the end-state distribution strategy and guaranteeing TDD.⁵⁸

Under the AMC Director of Operations, the air committee portion of SDMI is rapidly improving air cargo delivery as part of the synchronized transportation system. They have teamed with United States European Command (USEUCOM) and are running the SDMI Air Distribution Test. Army Logistics Operations Center pallets built at Susquehanna are express trucked to Dover AFB, processed and shipped on the next day express military airlift mission to Ramstein AB, Germany. From Ramstein they are then shipped down to Tuzla, Bosnia or Tazar, Hungary. Through the DLA, TRANSCOM and EUCOM partnership, DOD is fixing the segments of the supply chain. Since the 1 July 2000 start date, CWT has decreased from an average of 15 days down to an average of nine days, a significant improvement. DOD has found in some cases they can beat the delivery times of World Wide Express (WWX) service. SDMI shipments to Tuzla average around 4.4 days CWT while WWX takes 5 days; a 12 percent improvement. WWX service to Tuzla costs about \$6 a pound where SDMI service costs approximately \$2.40 a pound; a 60 percent savings.⁵⁹

REVOLUTIONARY IMPROVEMENTS IN INFORMATION SYSTEMS

GLOBAL COMMAND AND CONTROL SYSTEM (GCCS)

Lessening CWT and guaranteeing TDD are only part of the decision matrix. The largest required change in logistics involves information technology that links the Commanders in Chiefs with the management of logistics operations. Integration of information systems across

DOD will provide for the synthesis and synergy of logistics functions and processes across services. The changes in information technology will enhance the ability to monitor the location and condition of material at whatever level required for the given items and situation. Information technology will result in tailored delivery of the right supplies, at the right location, at the right time, and in the right condition.

DOD's solution to integration of information systems is the GCCS. GCCS is the central command and control system for achieving decision superiority in Joint Vision 2020 by providing the top-level infrastructure for automated support to command and control operations world wide. GCCS combines stand-alone programs into a suite of modular applications that operates within the Defense Information Infrastructure Common Operating Environment. These applications include: logistics, medical, personnel, Theater Special Operations Support, mobilization, deployment, Status of Readiness and Training and Transportation Asset Management.⁶⁰

GCCS is an integrated, reliable and secure command and control system providing seamless awareness linking intelligence, status of forces and planning information. It supports interoperability by linking the National Command Authority down to the Joint Task Force and Component Commanders and Service-unique systems at lower levels of command. The GCCS provides combatant commanders one predominant source for generating, receiving, sharing and using information securely. With GCCS joint force commanders synchronize the actions of air, land, space, and special operations forces. It has the flexibility to be used in a range of operations: from actual combat to humanitarian assistance.⁶¹ GCCS was officially declared the system of record on 30 August 1996 by the Joint Staff, J-3. In 1998, the out-of-date commercial operating systems and data base support systems of GCCS were replaced with GCCS version 3.0 and design of version 4.0 is underway.⁶²

GLOBAL COMBAT SUPPORT SYSTEM AIR FORCE (GCSS-AF)

As part of the overall GCCS structure, the Air Force has created GCSS-AF. GCSS is a program that focuses on meeting the system integration efforts desired by the military commanders. This program is exclusively for the Air Force combat support domain. The system will provide the warfighter and supporting elements with timely, accurate, and trusted ACS information, with the appropriate level of security, needed for the Expeditionary Aerospace Force to execute the Air Force mission throughout the full spectrum of military operations. GCSS-AF will support users at all Air Force active duty, Reserve, and Guard sites worldwide.⁶³

GCSS-AF is tasked to provide Air Force decision makers critical, concise, timely, accurate, economical and relevant information on a wide range of functional areas. The decision support systems will be immediately available for wing commanders, operational commanders, and Joint Commanders before, during and after the conflict or contingency. GCSS-AF is an evolutionary, incremental development covering 13 functional areas such as maintenance, supply, transportation, fuels and logistics plans. There are 640 automated information systems that have been identified for potential integration into the GCSS architecture framework. GCSS-AF is in the field under current testing. The lead contractor Lockheed Martin delivered the architecture framework and many systems are in the process of migrating to GCSS-AF, with integration of the Mission Application being the first. In addition, financial documentation is being developed to support the economic analysis and life cycle cost estimate. Completion dates are scheduled for November 2001, but was extended due to current on going operations.⁶⁴

ASSESSMENT

To this point this paper has examined in generally favorable terms how the innovation in organizational structures, reengineered processes, advances in transportation technologies and revolutionary improvements in information systems has enabled the Air Force to provide more efficient and effective logistics support to the EAF. I will now provide an analysis of whether each one of these four innovations can be improved, is right on target or identify potential challenges to their successful implementation. This assessment is based not only on the current research that I have done, but on my five years experience as a Wing-level Chief of Supply in developing or implementing these concepts.

AGILE COMBAT SUPPORT

As identified in the paper, excellent work has been done in the area of responsiveness, time definite delivery, beddown, reachback, and information technology. My experience at base level operations shows how this concept has greatly focused the effort of the base level, staff and depot support personnel to synergistically develop solutions to provide more responsive support at lower cost. I believe that it is working well; however, more can be done in the area of integration management and measurement in the form of metrics.

One area of ACS that can be improved is in more aggressively identifying an overarching concept so everyone in the Air Force is aware of all the initiatives and how success is determined. Although initially envisioned in 1997 as one of six Core competencies, and the overarching umbrella under which all levels of combat support fall, 2002 finds the ACS Concept

Manual still in draft leaving the Air Force without clear direction, goals, or required metrics to fully evaluate ACS effectiveness. My recommendation is to provide ACS with the same visibility as has been given the CLR and provide continual updates to the MAJCOMs and Wing Commanders as has been the case with the CLR.

REENGINEERED PROCESSES

Chief of Staff Logistics Review (CLR)

The work done by the CLR so far has been admirable, but there are potential challenges. The real motivation behind the CLR was only in part to bring logistics in line to meet the operational requirements for the EAF. I agree this was a factor, but hidden beneath the surface, the AF has come to the realization that the objective wing structure created in 1992, has had a detrimental effect on the health of the Air Force fleet. Under the objective wing, the LG was made responsible for training, assigning, and career development of all maintenance personnel, when in fact, half of all maintenance personnel are assigned to the OG. This has further compounded health of the fleet problems. This has lead to serious confrontations when the OG and LG have not had an amenable working relationship and has had a detrimental affect on the maintenance personnel assigned to the OG. Thus, the first initiative to balance sortie production between the OG and the LG, only delays the inevitable. Health of the fleet will only improve when one individual is given ownership over the entire process; that person is the LG.

The second initiative to combine the Supply and Transportation squadrons to form a Logistics Readiness Squadron (LRS) chartered to improve material management is nothing new. This initiative has been the center of discussion for over 10 years. Air Staffs intent that synergy will take place, thereby improving time definite delivery and improving customer supply requirements, is only minimally true. Current operations find only one area that is common between the two squadrons during normal daily operations; outbound shipments of assets off the base. What was once considered a traditional Air Force supply squadron is a thing of the past and has been in a continual state of transformation since 1995. Transformation started with implementation of the RSS, followed closely by the introduction of the government purchase credit card where the customer ordered and had direct delivery via commercial carrier a litany of products. This provided the opportunity to reduce warehousing and personnel requirements of supply operations in some cases by 50%. In addition, implementation of direct shipment of aircraft parts by commercial carriers to the flightline aircraft parts stores and return shipment of nonrepairable parts from the aircraft maintenance units directly to the maintenance

depots via those same commercial carriers further decreased the manpower required. Thus, the only feasible plan where synergy can be evidenced is when the Air Force marries the second initiative and that portion of the third initiative that merges Supply and Transportation, and standardizes the alignment of Logistics Plans in the Logistics Readiness Squadron.

The Air Force currently testing two alternatives is only delaying the inevitable. When the Air Force incorporates Logistics Plans into the LRS, it provides wing senior leadership with a single entity responsible for wing deployment operations. In short, the Air Force has placed Logistics Plans under the LG as intended by the CLR and subsequently has placed the entire process under one owner, the LRS commander.

Supply Regionalization (RSS)

Supply regionalization has experienced major successes as identified in the reduction of 570 manpower slots, a \$25 million savings and the streamlining of parts requisition whether stateside, overseas or during contingency deployments. Current structures for RSS show all major commands have a dedicated RSS with AETC and SPACECOM in the process of developing their respective RSS. I recommend that the ongoing improvement in information technologies in the areas of TAV provides the Air Force the opportunity to centralize all supply activities into three RSS: CONUS, PACAF and USAFE. Current manning levels are adequate for both PACAF and USAFE, but combining four CONUS RSS into one provides the impetus to streamline operations into a weapons systems format instead of a command centered format. The format would be focused on cells; an F-15 cell, an F-16 cell, a B-1 cell and so on until all weapons systems have a dedicated team chartered with cradle to grave responsibilities for that specific weapons system. The by product of regionalizing into three regions could mean a further reduction in manpower and additional monetary savings. One additional comment, the CONUS RSS can not be located on any base that has a current RSS. This situation would lead to claims that one command would be receiving preferential treatment over another.

ADVANCES IN TRANSPORTATION TECHNOLOGIES

Strategic Distribution Management Initiative (SDMI)

USSTRANSCOM's intent of SDMI is on target, but the use of military air (milair) shipment for overseas priorities is not new. Also, the partnering between DLA and USTRANSCOM is not new. In May 1994 an express delivery program was initiated by USTRANSCOM and DLA. The report titled Reinvention Lab Report Express Delivery initiated Time-Definite Air Sustainment

(TiDAS). TiDAS used commercial express carriers' CONUS infrastructure to move war-stopper cargo to theater of combat where it interfaced with the supported CINC's Battlefield Distribution System. TiDAS goals were to reduce transportation transit times; improve transportation reliability; improve transportation data accuracy; reduce transportation costs; and reduce transportation processing times. The problem with TiDAS was it did not anticipate the size and length of some of the warstopper cargo. Some of the warstopper cargo such as an aircraft's leading edge flap required two and sometimes three mated pallet positions. The commercial carrier was not equipped to transport cargo of this length, so milair was the only means to transport cargo this length overseas. My recommendation is to marry SDMI and Air Express into one overarching program with the focal point being USTRANSCOM. Thus whether it is commercial carrier or milair you have one program with one objective; provide warstopper cargo to the warfighter in the most expedient manner.

REVOLUTIONARY IMPROVEMENTS IN INFORMATION SYSTEMS

Global Command and Control System (GCCS)

GCCS is right on target, but it is imperative that the Department of Defense continue to take advantage of the continual emergence of new information technologies to improve the linkage of the National Command Authority down to the Joint Task Force, Component Commanders, and service unique systems at lower levels of command. DoD can only achieve decision superiority in JV2020 by streamlining the acquisition process whereby users can nominate mature demonstrations of commercial hardware and software for rapid integration into GCCS that complements technical capabilities.

Global Combat Support System Air Force (GCSS-AF)

It is my opinion that GCSS-AF is on track, but could fall victim to the same pitfalls that its parent GCCS could suffer. It is essential that emerging technologies in hardware and software development be incorporated into GCSS-AF. In addition, there is a requirement for a life of systems plan for continually upgrading hardware capabilities with state of the art hardware. This can not be done from a service unique perspective, but in conjunction with the parent GCCS.

LOGISTICS TRANSFORMATION TIMELINE STATUS

The Air Force has focused its energy in meeting JV2020 requirements. The following is the most current status.

▪ **FY 01, IMPLEMENT SYSTEMS TO ASSESS CUSTOMER CONFIDENCE FROM END TO END OF THE LOGISTICS CHAIN USING CUSTOMER WAIT TIME METRIC.** DOD Instruction 4140.61, para. 5.2.2 dated 14 December 2000 required the Director, Defense Logistics Agency to use the CWT measurement to assess the performance of the DOD supply chain.⁶⁵

The Air Force authored the technical solution and CWT tool development was initiated January 2001. Demonstration and acceptance of CWT was accomplished in March 2001 with the Air Force establishing CWT reporting and analysis effective September 2001. The Air Force has been able to gather CWT data back to November 2000. Analysis of fiscal year 2001 identified a mean of 14.75 days CWT for all retail transactions from maintenance with 75 percent of all customer orders being satisfied between 5 and 6 days CWT.⁶⁶ The Air Force is currently on schedule, but current world events could lengthen implementation.

▪ **FY 02, IMPLEMENT TIME DEFINITE DELIVERY CAPABILITIES USING A SIMPLIFIED PRIORITY SYSTEM DRIVEN BY THE CUSTOMER'S REQUIRED DELIVERY DATE.** DOD Instruction 4140.61, para 5.2.3 dated 14 December 2000 required the Director, Defense Logistics Agency to use the time definite delivery standards as a basis for process improvements.⁶⁷ The Air Force has yet to establish TDD standards. They are analyzing CWT rates and will use the 2001 results to establish TDD standards.⁶⁸

▪ **FY 04, IMPLEMENT FIXED AND DEPLOYABLE AUTOMATED IDENTIFICATION TECHNOLOGIES AND INFORMATION SYSTEMS THAT PROVIDE ACCURATE, ACTIONABLE TOTAL ASSET VISIBILITY.** The U.S. Army was established as executive agent in 1994. The Army is currently testing TAV in the European theater.⁶⁹ The Air Forces requirement is to provide asset visibility through GCCS and GCSS. This will be accomplished through GCSS-AF portal which is in the financial documentation stage.

▪ **FY 04 FOR EARLY DEPLOYING FORCES AND FY 06 FOR THE REMAINING FORCES, IMPLEMENT A WEB-BASED, SHARED DATA ENVIRONMENT TO ENSURE THE JOINT WARFIGHTERS' ABILITY TO MAKE TIMELY AND CONFIDENT LOGISTICS DECISIONS.** GCCS was officially declared the system of record on 30 August 1996 by the Joint Staff, J-3, updated in 1998 with version 3.0 and version 4.0 design is underway. As part of the overall GCCS structure, the Air Force created GCSS-AF. The first integration of a Mission Application with GCSS-AF is ongoing with financial documentation being developed to support the economic analysis and a life cycle cost estimate. Completion dates are scheduled for November 2001.⁷⁰

CONCLUSION

This paper concludes that the Air Force returned to its expeditionary roots as an Expeditionary Aerospace Force, the centerpiece for ongoing transformation. The Expeditionary Aerospace Force is configured to provide national leaders the unmatched ability to take early, rapid, and decisive action in combat, peacekeeping, or humanitarian operations. To meet the demands of the Expeditionary Aerospace Force required a fundamental redesign of the combat support system that will deliver supportability to a primarily CONUS based Expeditionary Aerospace Force.

The paper examined the redesigned combat support system, Agile Combat Support, which was designated as one of the six Air Force Core Competencies and serves as the umbrella for all other combat support transformations. Agile Combat Support, linked logistics to the EAF through the Chief of Staff's Logistics Review. The purpose of this review was to improve Expeditionary Aerospace Force combat readiness and identified four logistics processes that required reengineering or overhauling: technical training and officer development; material management, contingency planning; and sortie production and fleet health. Three of the four are being tested at seven bases with technical training and officer development being overhauled at staff-level. Building on an a recognized success of Desert Shield/Storm the Air Force reengineered supply under a Regional Supply Squadron concept. The RSS eliminated duplication of effort in ordering critical aircraft spare parts and has reduced the customer wait time support for the Expeditionary Aerospace Force. Realizing that ordering the critical spare is only part of the customer wait time solution, Air Mobility Command the air component of United States Transportation Command and the Defense Logistics Agency partnered to develop a Strategic Distribution Management Initiative. The Strategic Distribution Management Initiative provides around the clock airlift for critical asset requirements lessening the time from order until delivery. The Air Force's logistics transformation and United States Transportation Command's Strategic Distribution Management initiative is linked by Global Command and Control System and Global Combat Support System-Air Force. Global Command and Control System and Global Combat Support System-Air Force provide the Unified Commander the ability to synthesize and analyze logistics support information.

The paper provided recommendations to further enhance combat support and focus the effort related improving the health of the fleet and supply regionalization. It also provided recommendations related to information management systems and summarized the status of logistics transformation efforts. In summary, this paper concludes that: the Air Force's implementation of the EAF; transformation of base support functions into ACS; CLR initiatives

focusing logistics on the EAF; simultaneous with TRANSCOM's distribution initiatives lessening customer wait time; and lastly all the afore mentioned informationally linked with GCCS and GCSS-AF; will provide the CINC with seamless aerospace combat capabilities

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