

# **Logistics Transformation: The Paradigm Shift**

**A Monograph**

**by**

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## **Abstract**

LOGISTICS TRANSFORMATION: THE PARADIGM SHIFT by MAJ Derrick A. Corbett, U.S. Army, 45 pages.

The shift in U.S. defense strategy and the transformation of the Army must be matched by a similar transformation in logistics. The Service-centric, hierarchical logistical organizations that relied upon requisitions and historical consumption rates was ill-suited to supply or support strategically deploying forces in simultaneous actions across the breadth and depth of the battlespace. The new way of warfare requires a logistics system with the same characteristics as the tactical forces: speed, maneuver- in-depth, adaptability, agility, flexibility and battlespace situational awareness. It must be responsive in a timely manner to the needs of far-flung forces and do so without creating new “Iron Mountains” or establishing a large footprint that may be vulnerable to attack and will certainly be expensive. What the Army is doing for itself must eventually evolve into a fully joint logistics system.

This monograph evaluates Army Logistics Transformation vis-à-vis Army Transformation. History serves as the stage setter to establish a framework that supports and establishes the importance and significance of logistics transformation. At issue is the changing nature of logistics structures and concepts of support that were developed for a Cold War Army and that continue to evolve to meet support requirements within an asymmetric warfare environment.

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# INTRODUCTION

Battlefield logistics is a challenge known since the beginning of warfare. Defined by Martin Van Creveld in *Supplying War*, logistics is the “practical art of moving armies and keeping them supplied.”<sup>1</sup> From foraging and plundering in biblical times, to providing fuel for modern attack helicopters, the warfighter requires certain items for sustainment and survival. As the world’s sole superpower, the United States military establishment is capable of action and force projection that lesser countries can neither afford nor produce. With a budget of over \$441 billion for fiscal year 2006, and congressionally approved supplemental funds for the conduct of ongoing combat operations in Iraq and Afghanistan, only 14 nations in the world had a larger Gross Domestic Product (GDP) than what the United States spent on defense alone.<sup>2</sup> While the U.S. defense budget is astronomical in comparison to countries, it is only four percent of the nation’s GDP. Maintaining this capability is essential to the National Security and National Military Strategies of the United States. The security situation for the next 15 to 20 years is somewhat uncertain, but U.S. military planners are preparing for these challenges with doctrine based on the contemporary and joint operating environments. The United States may not see a true peer competitor, but this fact alone does not ensure the national safety or interests. In this “operational environment,” military forces will face a variety of threats and enemy capabilities. By examining doctrine, organization, training, materiel, leadership, personnel, and facilities (DOTMLPF) the U.S. Army can better determine how to face these threats and plan to defeat/deter potential adversaries.<sup>3</sup>

Logistics in the contemporary operating environment (COE) will also be important. As military forces become more capable and empowered through technology, they will likely still

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<sup>1</sup> Martin Van Creveld. *Supplying War, Logistics from Wallenstein to Patton*. (Cambridge: Cambridge University Press, 1977). 1.

<sup>2</sup> Global Economy; GDP for 2000 and 2003. Accessed on October 26, 2006. Internet on-line. Available from [http://www.geohive.com/global/geo.php?xml=ec\\_gdp1&xsl=ec\\_gdp1](http://www.geohive.com/global/geo.php?xml=ec_gdp1&xsl=ec_gdp1).

<sup>3</sup> Department of the Army, *Unit of Action White Paper*. Fort Leavenworth, KS. 2003

consume ammunition, fuel, water, and food (for the foreseeable future). Ensuring the combat soldier has what he or she needs is the responsibility of the logistics infrastructure. Managing this infrastructure becomes exponentially more difficult the longer the distances become. Expeditionary capabilities are a major element of the overall Army transformation. The ability to deploy quickly and operate far from national boundaries is an important element of this strategy. The capability to deploy and sustain these potentially lighter and expeditionary forces will be critical.<sup>4</sup>

The United States Army is engaged in the boldest and most comprehensive transformation since before World War II, when it moved from the square to the triangular division structure. The Army is recasting itself into an expeditionary force capable of projecting significant land power rapidly and over long distances and of addressing more fully the expanding mission needs of the geographic combatant commands (GCC).<sup>5</sup> To do this, the Army must get lighter as a fighting force while at the same time becoming more mobile, digital, survivable and lethal. It must learn to exploit information, to operate as part of a joint force and to create new organizations and operating concepts. It is easy to understate the magnitude of this transformation. Over half a century ago the Armed Forces of the United States settled into positions occupied at the end of World War II and the Korean War.<sup>6</sup> As the Cold War progressed, these positions became fixed and military planning focused on fighting large conventional wars with overwhelming, massed, forward stationed forces, sized for force-on-force attrition battles in coordinated, preplanned, sequential operations. Reinforcements were pre-designated and rehearsals for their deployment, reception, staging and onward movement practiced. As advanced

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<sup>4</sup> MAJ Scott Noon. *Evaluating Combat Service Support Transformation for the Contemporary Operating Environment* (Monograph; Fort Leavenworth, KS: School of Advanced Military Studies, KS), 15.

<sup>5</sup> Dr Daniel Gorure. *From Factory to Foxhole the Transformation of Army Logistics*, 3 (Arlington, VA: Lexington Institute, May 2004), 6.

<sup>6</sup> *Ibid.*

technologies were introduced, U.S. and allied ground forces became more tactically mobile, but less strategically mobile.<sup>7</sup>

The Army's Cold War logistical system naturally reflected the way that the U.S. military planned and organized to fight future conflicts. The hierarchical logistics system of World War II remained fundamentally intact with each Service contracting for weapons systems, commodities and transportation from the industrial base to stateside depots then forwarding items on to overseas depots.<sup>8</sup> The overseas depots were filled with anticipated levels of weapons, ammunition, food and prepositioned sets of unit equipment until there were "Iron Mountains" of military equipment and supplies scattered throughout Europe and Northeast Asia which could be moved forward as necessary to meet contingencies and combat operations. A large and robust industrial base was maintained, which could be energized on relatively short notice to produce increasing amounts of supplies.<sup>9</sup> The end of the Cold War fundamentally changed the international security environment and the kinds of security threats that U.S. armed forces would be required to address. Gone were the massed armies of the Warsaw Pact facing U.S. and allied forces across well-established borders. The Capstone Concept for Joint Operations and the Quadrennial Defense Review directed a shift from the overwhelming massed force-on-force, attrition-based operations to an overmatching capabilities based joint force conducting effects-based operations (EBO).<sup>10</sup> No longer would the U.S. fight from forward stationed forces, but with forward deployed forces, some arriving directly from the United States. U.S. forces would not fight linear battles, but instead would conduct simultaneous – vice sequential – operations maneuvering in depth against an adversary's strategic rear and even his homeland, in effects-based operations aimed at crippling the aggressor's ability to operate so that the conflict is ended on U.S. terms in a very short time. In this new environment, the Army faced challenges posed by

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<sup>7</sup> Ibid.

<sup>8</sup> Ibid.

<sup>9</sup> Ibid.

<sup>10</sup> Ibid.



asymmetric threats from rogue state forces and shadowy terrorist groups possibly armed with weapons of mass destruction (WMD) in regions of the world far from established U.S. and allied bases. Meeting these new threats with has been a major challenge for U.S. forces in general and the Army in particular. These new threats required a new way of warfare based on rapid, joint expeditionary power projection from distant bases, swift and decisive air, ground and sea operations throughout the nonlinear battle space and timely transition from combat to stability and peacekeeping operations.<sup>11</sup> To support the new way of warfare, the Army began to transform the way it was organized and operated. The goal was to create an Army that was lighter, more agile and yet more lethal and survivable on the battlefield.

The end of the Cold War saw the logistics system scaled back and a repositioning of the “Iron Mountains” of supplies and equipment from Europe to new potential hotspots. The defense industrial base shrank as demand declined. Nevertheless, much of the industrial age logistics system remained fundamentally intact. Operation Desert Storm was fought with industrial age logistics. It took six months to stage the forces and supplies needed for the operation. It took another thirteen months to withdraw the “Iron Mountains” of unneeded supplies pushed forward in the preparation phase. This came at a cost – in time – that may no longer be necessary or acceptable.<sup>12</sup>

In the intervening decade, the Army, recognizing the need for change, undertook a wide range of initiatives to improve its logistics system and make it more compatible with the changes in forces, operating concepts and missions. Planners recognized that transformational changes to force structure and weapon systems, such as the extensive application of precision delivery weapons technologies, could substantially lower the demand on logistics because they require

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<sup>11</sup> Ibid, 4.

<sup>12</sup> Ibid.

fewer weapons to kill a target. Conversely, a leaner, more efficient, networked supply chain could enable the even more rapid and agile maneuver of forces in theater.

Currently, the defense logistics system or supply chain is a massive and complex collection of activities and organizations that stretches from laboratories and factories around the world to the foxhole, airstrip and combat vessel. The Under Secretary of Defense for Acquisition, Technology and Logistics and the Joint Staff J-4 exercise civilian and military oversight respectively of this system. The actual supply chain includes research and development facilities, factories and production sites, procurement and processing organizations, repair and maintenance facilities, transportation activities, and field distribution units.<sup>13</sup> The Services have primary responsibility under Title 10 to develop and procure weapons systems and provide supplies, although defense agencies such as the Missile Defense Agency or the Corps of Engineers also can play a significant role in selected areas. Each of the military Services has its own logistics and supply organizations-- such as the Army Materiel Command (AMC) and Air Force Materiel Command (AFMC). The Department of Defense (DoD) has the Defense Logistics Agency (DLA). These organizations have responsibilities in the areas of technology, acquisition support and logistics. Logistics support commands and agencies such as AMC can have the responsibility for supporting not only their parent Service but, also the other Services, thus giving them joint responsibilities. In addition to AMC and DLA and their Service peers, the supply chain also includes the U.S. Transportation Command (TRANSCOM), which is responsible for distribution management, and the theater support commands that must move supplies through their theaters to the warfighters.

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<sup>13</sup> Ibid, 5.

The shift in U.S. defense strategy and the transformation of the Army must be matched by a similar transformation in logistics.<sup>14</sup> The Service-centric, hierarchical logistical organizations that relied upon requisitions and historical consumption rates was ill-suited to supply or support strategically deploying forces in simultaneous actions across the breadth and depth of the operating environment. The new way of warfare requires a logistics system with the same characteristics as the tactical forces: speed, maneuver-in-depth, adaptability, agility, flexibility and situational awareness. It must be responsive in a timely manner to the needs of far-flung forces and do so without creating new “Iron Mountains” or establishing a large footprint that may be vulnerable to attack and will certainly be expensive. What the Army is doing for itself must eventually evolve into a fully joint logistics system.

The U.S. Army has been actively pursuing a process of change since the conclusion of Operations DESERT SHIELD and DESERT STORM and the end of the Cold War. This change process, initially described by the phrase “Revolution in Military Affairs” (RMA) is known today by the term “transformation.”<sup>15</sup> In the past decade, numerous papers, countless articles, and even entire books have been dedicated to the of the Army’s efforts to transform itself into a new type of force. The quantity of briefings, slides, and presentational products on transformation is even greater. The range of topics addressed in these writings and briefings has spanned almost every military subject area and is truly staggering.<sup>16</sup>

It is readily apparent, however, that the amount of actual transformational change that has occurred in the Army as a whole is much more limited in size and scope than the number of words that have been penned and slides that have been briefed. While indeed there have been some significant transformational breakthroughs as a result of experimentation and study of how

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<sup>14</sup> Maccagnan, Victor, LTC. 2005. *Logistics Transformation-Restarting a Stalled Process*. Thesis. United States Army War College, Carlisle Barracks, PA, 1

<sup>15</sup> Ibid.

<sup>16</sup> Ibid.

the U.S. Army will wage war in the future, by and large the pervasive sweeping promise of radical and revolutionary change has yet to take effect across the force. The issue of transformation is further complicated by the fact that the United States is currently a nation at war, prosecuting a fight against terrorism on a global basis. The Army has fully transitioned to a wartime footing. It is more committed on all levels and at all echelons than it has been since Vietnam. Accordingly, the Army's charter has changed. Army Chief of Staff General Peter J. Schoomaker clearly outlined the Army's focus in a January 2004 document entitled *The Way Ahead*.

. . . the most salient aspect of the current security environment is that we are a Nation and an Army at war—a war unlike any we have experienced in our history . . . This war is being conducted across the globe and across the full range of military operations against rogue states and terrorists who cannot be deterred, but nevertheless must be prevented from striking against the United States, our allies, and our interests . . . Our Army will retain the best of its current capabilities and attributes while developing others that increase relevance and readiness to respond to the current and projected strategic operational environments.<sup>17</sup>

This situation affects the process of transformation in dramatic ways. The question of transformation now becomes one of priority, balance, necessity, and speed. The priority is clear; winning the war obviously comes first. The balance may seem less clear but is defined when the necessity of transformation is examined. To win this war and future wars, it is necessary to continue to transform the Army. Balancing the fight with continued transformation is simply required. The last factor then becomes speed. Because we need transformed forces to win today and tomorrow, we must generate speed and step up the pace to transform the Army now.

The dual realities of the limited amount of transformational change that has taken place, coupled with the relatively slow speed of the change that has occurred, are problematic. These realities are nowhere more evident than in the world of logistics and combat service support. The

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<sup>17</sup> Peter J. Schoomaker, *The Way Ahead: Our Army at War...Relevant and Ready* (Washington, DC: headquarters, Department of the Army, 2004),.1

transformation of logistics, or the Revolution in Military Logistics as it was initially called, has simply not happened to the degree necessitated by today's strategic, operational, and tactical environment. Every Chief of Staff of the Army (CSA), every Chairman of the Joint Chiefs of Staff (CJCS), and Secretaries of Defense in the last 15 years have stated unequivocally that a true transformation of the U.S. Army cannot occur without significantly changing the way we conduct logistics. The premise is that logistics is clearly the one area that absolutely must be transformed if the Army's vision of the future force is to be realized. It follows that if logistics transformation does not occur in relative proportion to the rest of the force, the rest of the force will not be able to transform successfully.

The primary purpose of this paper is to analyze logistics transformation to determine if the United States Army is properly preparing (logistically) for the uncertainty of the COE. This paper begins with a definition of logistics and sets a course to evaluate logistics in general historical terms, followed by a limited discussion of the COE. The reader's understanding of the COE is essential, as this is the basis for discussion throughout the remainder of the paper. The second chapter of the paper identifies the evolution of logistics transformation. Chapter three specifies the reality of today's observations and continues with a general logistics analysis of Operations Enduring Freedom and Iraqi Freedom, highlighting key logistical lessons learned and specific theater issues will further refine how the CSS force needs to transform. The framework used for the evaluation of CSS Transformation is a partial DOTMLPF (doctrine, organization, training, materiel, leader development, personnel, and facilities) analysis that focuses on Army Force Generation (ARFORGEN), training, and CSS lethality. The focus of chapter five is on changes that should or should not occur and the transformation risks that are specific to the logistics community.

## **The Focus and Method**

This monograph evaluates Army Logistics Transformation vis-à-vis Army Transformation. History serves as the stage setter to establish a framework that supports and establishes the importance and significance of logistics transformation. At issue is the changing nature of logistics structures and concepts of support that were developed for a Cold War Army and that continue to evolve to meet support requirements within an asymmetric warfare environment. Within this context, major questions include: Specifically, what is logistics? What lessons can the U.S. military learn from operations in Iraq and Afghanistan for future doctrine? What procedures can the combatant commander at the operational level use to minimize the logistics footprint at the tactical level? What procedures, equipment, and training can U.S. military forces use to counter enemy threats to tactical distribution? The answers to these questions are likely to require changes in doctrine, training, techniques, procedures and equipment to improve tactical distribution in asymmetric warfare and to ensure force momentum for maneuver forces.

## CHAPTER 1: Defining Logistics

One problem in transforming the logistics system is the lack of agreement on the definition of logistics and the boundaries of the logistics process. What does logistics entail? Is logistics the same as supply chain management? Or is it more encompassing to include research, development and acquisition? Only when the terms are clearly understood, can the scope of a logistics transformation be defined.

In the 18th Century, the French invented “a third military science which they called *Logistique*, or Logistics...the business of moving, supplying and quartering soldiers. It stems from the French *loger*, which means ‘to quarter’, that is, ‘to find lodging.’”<sup>18</sup> The military historian Stanley Falk stated that “logistics is essentially moving, supplying, and maintaining military forces. It is basic to the ability of armies, fleets, and air forces to operate — indeed to exist. It involves men and materiel, transportation, quarters, depots, communications, evacuation and hospitalization, personnel replacement, service, and administration.”<sup>19</sup> The meaning of logistics today has been expanded and modernized, resulting in a definitional disconnect both within the DoD and with the private sector. Joint Publication (JP) 1-02, the DoD Dictionary of Military and Associated Terms, defines logistics as:

... the science of planning and carrying out the movement and maintenance of forces. In its most comprehensive sense, those aspects of military operations which deal with: design and development, acquisition, storage, movement, distribution, maintenance, evacuation, and disposition of materiel; movement, evacuation, and hospitalization of personnel; acquisition or construction, maintenance, operation, and disposition of facilities; and acquisition or furnishing of services.<sup>20</sup>

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<sup>18</sup> From *Word Origins and Their Romantic Stories* by Wilfred Funk, Litt.D., available at <http://www.hqda.army.mil/logweb/logistics.html>.

<sup>19</sup> Alan Gropman, ed., *The Big L: American Logistics in World War II*, National Defense University Press: Washington DC, 1997, xiii.

<sup>20</sup> Joint Publication 1-02, *Department of Defense Dictionary of Military and Associated Terms*, available at <http://www.hqda.army.mil/logweb/logistics.html>.

J.P. 4.0, the Doctrine for Logistics Support of Joint Operations, articulates a different understanding of logistics:

The science of logistics concerns the integration of strategic, operational, and tactical sustainment efforts within the theater, while scheduling the mobilization and deployment of units, personnel, equipment, and supplies in support of the employment concept of a geographic Combatant Commander. The relative combat power that military forces can bring to bear against an enemy is constrained by a nation's capability to plan for, gain access to, and deliver forces and materiel to the required points of application across the range of military operations...<sup>21</sup>

Yet, Joint Vision 2010, later Joint Vision 2020, provides an understanding of the nature of logistics with a new operational concept, 'Focused Logistics,' which is defined as the:

... ability to provide the joint force 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 will be made possible through a real-time, web-based information system providing total asset visibility as part of a common relevant operational picture, effectively linking the operator and logistician across Services and support agencies. Through transformational innovations to organizations and processes, focused logistics will provide the joint warfighter with support for all functions.<sup>22</sup>

Finally, the private sector uses 'supply chain' and the 'logistics network' synonymously and hence defines supply chain management (SCM) as:

... a set of approaches used to efficiently integrate suppliers, manufacturers, warehouses, and stores so that merchandise is produced and distributed at the right quantities, to the right locations, and at the right time in order to minimize system wide costs while satisfying service-level requirements.<sup>23</sup>

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<sup>21</sup> Joint Publication 4.0, *Doctrine for Logistic Support of Joint Operations*, (06 April 2000), available at <http://www.hqda.army.mil/logweb/logistics.html>.

<sup>22</sup> Joint Chiefs of Staff, *Joint Vision 2020*, US Government Printing Office: Washington DC, June 2000, pg. 30.

<sup>23</sup> David Simchi-Levi, Philip Kaminsky, & Edith Simchi-Levi. *Managing the Supply Chain: The Definitive Guide for the Business Professional*, McGraw-Hill Companies: New York, 2004, pg. 2.



## What Defines Logistics Transformation?

The concept of transformation is not new to the United States Army. The Army is in a constant state of change. Advances in technology, especially automation, fuel a new Revolution in Military Affairs (RMA). Best described by Murray and Knox in the book *The Dynamics of Military Revolution*:

Military organizations embark upon a RMA by devising new ways of destroying their opponents. To do so, they must come to grips with fundamental changes in the social, political, and military landscapes; in some cases they must anticipate those changes. Revolutions in military affairs require the assembly of a complex mix of tactical, organizational, doctrinal, and technological innovations in order to implement a new conceptual approach to warfare or to a specialized sub-branch of warfare.<sup>24</sup>

The current RMA is based upon a number of things. Some components to this RMA include: Net-Centric Warfare, the operational environment, weapons technology, and the requirement for joint and enhanced expeditionary operations. The CSS objectives for the Future Force and a transformed logistics capability are not entirely new concepts. GEN Carter B. Magruder, former Army G-4 and Eighth Army Commander wrote the following in 1970 based on his experience in World War II, Korea, and Vietnam:

Since smaller logistic troop requirements allow more combat troops in the field, continuous efforts must be made to reduce logistic troop requirements for a theater of operations. Important among the many methods that should be considered are: simplification of distribution by broader use of containers with standard content; improved reliability and durability of equipment; reduction of fuel consumption; use of local labor; use of transportation to support

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<sup>24</sup> Knox, McGregor and Murray Williamson. 2001. *The Dynamics of Military Revolution 1300-2050*. Cambridge University Press. Cambridge, UK. 12

short evacuation policies, to return unserviceable equipment to the U.S. for repair and to reduce ground lines of communications; reduction of the maintenance load by making more components “throw-away” instead of “repairable”; and organization and training of allied logistic troops.<sup>25</sup>

Some observers may be tempted to argue that the Army executes logistics today in exactly the same manner as it has since World War II when warfare first became fully mechanized. Some may say that to transform the current logistics structure presupposes that the previous one was inadequate. Validating this assumption is difficult. Many subjective views exist that both support and defend the old structure. However, the Army wanted to transform into a new expeditionary Army capable of rapidly deploying self-sufficient modular units to meet future security requirements. This assertion is somewhat oversimplified and not entirely accurate in terms of the sophistication and development of current day combat service support operations. At the same time, however, it is true that the basic principles and a good bit of the doctrinal underpinnings of logistics support are much the same as they were 60 years ago. What is clearly indisputable is that since 1991, the official beginning of the Army’s transformational journey, very little has changed in the way that the U.S. Army executes combat service support.

Logistics is the lifeblood of any Army. Changing how we fight influences changes in how we support. The Chief of Staff of the Army (CSA) has stated that the transformation objective is to field a force that is strategically responsive and dominant at every point on the spectrum of operations. American military power must draw on new technologies and strategies in the 21st century. We must build forces based on revolutionary advances in the technology of war that will allow us to keep the peace by redefining war on our terms - a future force that is defined less by size and more by mobility and swiftness. That force will be easier to deploy and

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<sup>25</sup> Magruder, Carter GEN. 1991. *Recurring Logistic Problems As I have Observed Them*. Center of Military History, United States Army. Washington, DC. 122.

sustain and will rely heavily on U.S. advantages in stealth, precision weaponry and information technologies.

This transformation challenges the Army to balance near-term readiness and force modernization in an environment of increased missions and fewer resources. The logistics pipeline must be shrunk, the load lightened, and the closing time cut. At the joint level, change started with Joint Vision 2010 and Focused Logistics; at the Army level, change started with the Revolution in Military Logistics (RML). The RML is not only central to preparing for future military operations; it is the fulcrum of the Army's effort to balance readiness and modernization.<sup>26</sup> Army transformation is about changing the way we fight. It is the process of converting the Army's focus and structure from a Cold War construct to a full spectrum combat force that is strategically responsive and dominant at every point on the spectrum of conflict. It is more than technology; it is doctrine, training, leadership, organizations, materiel readiness, installations, and soldiers.<sup>27</sup> These changes are vital for a RML.

The first wave of RML focuses on exploiting improvements in automation, communications, business practices, and reshaping command and control relationships to provide better unity of command and a reduced logistics footprint.

In the Army G-4's Logistics White Paper this requirement is referred to as "Connectivity" and foresees logisticians being an integral part of the battle staff in any joint operation, plugged into a satellite-based communications system able to transmit and receive data from the battle area to the industrial base. The Army must be able to see the warfighter's requirements across the spectrum of operations, understand the requirements and respond with precision, speed and agility. The key to being able to operate successfully on the modern high-speed battlefield is information acquisition and sharing. This is as true for the logisticians as for

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<sup>26</sup> LTC Victor Maccagnan, *Logistics Transformation-Restarting a Stalled Process*. Thesis. United States Army War College, Carlisle Barracks, PA, 10

<sup>27</sup> Ibid.

the warfighters. The logistician needs constant access to the situational awareness available to the intelligence and operational staffs at all levels. Additionally, the logistician needs to have continuous electronic communications with other logistical staffs, suppliers and supporters. It will need to be a dedicated logistical network that provides a common operating picture to logisticians at all levels.<sup>28</sup>

RML is also developing distribution technologies that facilitate rapid throughput and follow-on sustainment as the Army builds its Future Force. This reflects the fluid and dynamic battlefield and anticipates the maneuver-in-depth that will be employed by the transformed tactical forces. A new distribution system will require integrating new organizations, new processes, some adapted from business, and the continuous information connectivity extending from the units through each Service to the industrial base.

Among the new processes under consideration is designing systems and platforms with modular components to simplify replacement and sustainment. Modular systems would permit simplification of the current maintenance system. Instead of multiple levels of maintenance, a modular system would permit reduction to two levels of maintenance. Characterized as “replace forward and repair rear,” field units would remove and replace modular components if possible or release the platform for evacuation and repair by a unit in the rear. The use of configured loads for specific consumers and for specific operations, when combined with an intelligent load-handling system for rapid loading and unloading of aircraft and ships, would reduce materiel handling time and speed up delivery of the configured loads to the designated units. Direct delivery of configured loads to the designated units will allow the tactical units to integrate logistics supply and resupply into their concept of operations and increase the tempo of tactical operations.

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<sup>28</sup> Dr Daniel Gorure. Lexington Institute, *From Factory to Foxhole the Transformation of Army Logistics*, (Arlington, VA: Lexington Institute, May 2004), 5



## CHAPTER 2: Transforming the Force

"If you don't like change, you're going to like irrelevance a lot less."  
-attributed to GEN Eric K. Shinseki

Logistics is what Secretary of War Elihu Root warned about in 1904, "Our trouble will never be in raising soldiers. Our trouble will always be in the limit of possibility in transporting, clothing, arming, feeding, and caring for our soldiers..."<sup>29</sup> The limits of possibility were continually extended in the 20th Century as industrial-age production and distribution methods were applied to military logistics.

Brute force, 'Iron Mountains,' excessive footprint, and multiple orders were characteristics of the industrial-age supply chain. World War II, the Korean War, and the initial stages of the Vietnam Conflict saw logistics managed as a one-way 'push' of materiel to the theater. There was virtually no feedback from the theater to inform the logistics system. In Vietnam, the planning factors were derived by dividing the tons of 'stuff' shipped into theater by the theater troop strength; thus, all the new planning factors were in units of pounds per man per day.<sup>30</sup> This standard was used for items such as rations and ammunition. The planning factor used in Vietnam continued through the first Gulf War. In another age, 'Iron Mountains' could be created because the military doctrine of the time expected that there would always be adequate time for a buildup of forces and supplies. The 'push everything forward,' brute force approach that resulted in huge stockpiles was essential because there was an absence of adequate sustainment planning models and a lack of knowledge about what materiel was flowing into theater, along with the view of logistics as a secondary concern in military planning. These flaws were clearly highlighted in a 1978 worldwide deployment exercise. After the exercise, analysts realized that there was no one accountable for the synchronization of distribution or a stakeholder

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<sup>29</sup> Charles R. Shrader, *U.S. Military Logistics, 1607-1991, A Research Guide*, Greenwood Press: New York, 1992, pg. 9.

<sup>30</sup> David Schrady, "Combatant Logistics Command and Control for the Joint Force Commander," *Naval War College Review*, Washington: Summer 1999, vol. 52, iss.3; pg. 49-75.

in the process. This lack of control in the 'end-to-end' spectrum clarified that had there been a real conflict, the lack of coordination would have resulted in 400,000 troop casualties. Additionally, thousands of tons of supplies and up to 500,000 trained combat troops would have arrived late.<sup>31</sup> With this deployment exercise in mind, USTRANSCOM was created in 1987 to begin synchronization of the distribution process.

The technological developments and procurements of the 1970s and 1980s came to full force during the first Gulf War; in many respects, it was the first transformed war. Network-centric warfare was beginning to take shape and the true value and strength of technological developments, e.g. precision-guided munitions, was brought to the forefront. However, logistics "was not accounted for in command and control systems. Software support programs for operation and tactical logistics were not developed, nor did logistics claim any part of the communication bandwidth becoming available. The logistics software support programs that were written pertained to inventory and maintenance accounting, which was administrative in nature rather than operational or tactical."<sup>32</sup>

In the fall of 1999, then Chief of Staff of the Army (CSA) Eric Shinseki boldly pushed the US Army into a comprehensive transformation effort. Although some important work had been done to previously to "turn concepts into capabilities", notably Force XXI and the Army After Next initiatives, the entire Army was not impacted nor was there a feeling of having a stake in its efforts.<sup>33</sup> With the advent of a publicly advertised campaign to change the Army, Shinseki articulated a vision and committed all elements of the Army to a program of change. The overall goal was to shape the Army "...to meet the requirements of the next century... Soldiers on point

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<sup>31</sup> Roger W. Kallock and Lisa R. Williams, "DoD's Supply Chain Mandate: From Factory to Foxhole" *Supply Chain Management Review*, May 1, 2004, pg. 46.

<sup>32</sup> David Schrady, "Combatant Logistics Command and Control for the Joint Force Commander," *Naval War College Review*, Washington: Summer 1999, vol. 52, iss.3; pg. 49-75.

<sup>33</sup> Congress, House, Testimony of LTG Paul Kern, Sub-committee Airland Forces, Committee on Armed Services, *Army Modernization*, First Session, 106th Congress, 03 March 1999; Internet; <http://armed-services.senate.gov/statemnt/1999/990303pk.pdf> (accessed 01 March 2006).

for the Nation transforming this, the most respected Army in the world, into a strategically responsive force that is dominant across the full spectrum of operations.”<sup>34</sup> Later that year, he made the case for transformation by describing to members of Congress the attributes that the Army strives for: “...more responsive, deployable, agile, versatile, lethal, survivable, and sustainable.”<sup>35</sup>

## **The Army Transformation Campaign Plan**

Every organizational part of the Army had a mission to articulate in the Army Transformation Campaign Plan (TCP) what objectives, goals, and milestones must be achieved to make the Army vision a reality; roughly, on what day was somebody doing something to make the transformation vision a reality. This amazingly large electronic spreadsheet, which operated like an Excel document with embedded links, comments, and color coding, required all organizations to make the best estimate of what needed to be done, when, by whom, and link to supporting organizations. The plan was not so much aiming for perfection as it was an open calendar into 2030 and beyond. It required each “line” owner to understand the overall objectives involved in and central to creating an initial force, an interim force, and an objective force. In addition they had to describe (or best estimate, if outside the budget) what their organization’s supporting goals and milestones should be, when a critical action or decision might occur, and wherever possible link them to other organization’s goals and/or milestones. The TCP was expected to change as organizations attained better granularity on programs and conceptual goals, and as new capabilities emerged. However, to get quality, updated input across the Army was challenging. To ensure organizations understood the importance of this input, TCP changes and

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<sup>34</sup> Ibid.

<sup>35</sup> Congress, House, Testimony of GEN Eric Shinseki, House Armed Services Committee, *Status of Forces*, first session, 106th Congress, 21 October 1999. Also at <http://www.house.gov/hasc/testimony/106thcongress/99-10-21shinseki.htm> .



new input were reviewed by the VCSA, initially twice weekly, with general officers (representing each line of operation in the TCP) in attendance. It was made known that the CSA personally reviewed a bi-weekly updated plan, and met with the Chief, Army Transformation Office and the VCSA often. The plan highlighted critical activity with green/amber/red coding for goals, objectives, and milestones and was updated frequently; changes were also highlighted, and eventually, and most importantly, programs within the POM cycle were tied to resourcing.<sup>36</sup>

### **Logistics Aspects of the TCP**

“Without a transformation in logistics, there will be no transformation in the Army”—attributed to GEN Shinseki, September 2002

These days, any reader of military transformation can easily see that military transformation concepts are nested.<sup>37</sup> To put logistics transformation in context, concepts are nested in the overall Army transformation plan. It is important to note that current work on establishing a single seamless logistics system that can work in a joint, interagency, and multinational partner environment is not new. Much of the change the Army logistics community has sought under the transformation banner, such as modularity, distribution based logistics, and improved asset visibility has been in the works for several years prior to the 2000 effort to formalize change (for several references see TRADOC PAM 525-70 series).<sup>38</sup> The difference is the catalyst for implementing change and the TCP provided a better way to get visibility and support for programs that contribute directly to transformation.

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<sup>36</sup> COL Katherine M. Cook , *Transforming the Force and Logistics Transformation*. Thesis. United States Army War College 2005, Carlisle Barracks, PA, 2-3

<sup>37</sup> DOD Office of Force Transformation website, <http://www.oft.osd.mil/> last accessed 31 March 2006. Reader can explore Service transformation plans and associated documents and links.

<sup>38</sup> U.S. Army Training and Doctrine Command (TRADOC) Pamphlet (TRADOC PAM) 525-77, *Battlefield Distribution*, (Ft Monroe:22 February 1998); also at Internet,<http://www.tradoc.army.mil/tpubs/pams/p525-77.htm> ;TRADOC PAM 525-53, *Operational Concept, Combat Service Support* (Ft Monroe: 1 April 1997), also at Internet, <http://www.tradoc.army.mil/tpubs/pams/p525-76.htm> ; TRADOC PAM 525-68, *Concept for Modularity* (Ft Monroe: 10 January 1995); Internet, <http://www.tradoc.army.mil/tpubs/pams/p525-68.htm>

The overarching logistics transformation goals were specific and significant; make the force more deployable, agile and reduce the operational footprint. However, it was and is, difficult to translate with metrics how badly needed technological improvements in logistics processes will reduce the logistics “burden” and by what date reductions will be achieved. The benefit was to show relevance of these enablers to provide an overall capability in the plan, and in doing this, give logistics initiatives new visibility and importance. The Army needed to improve strategic responsiveness by emplacing a “combat capable brigade anywhere in the world in 96 hours” after wheels up, a division on the ground in 120 hours, and five divisions within 30 days.<sup>39</sup> The Army Strategic Mobility Program (ASMP) was already concentrating on structural and strategic lift improvements, so the dictum to find ways to get the force to deploy faster provided additional momentum. It brought new life to the discussions of high speed sea lift and other enablers, and support for additional funding of the USAF’s C17s and the US Navy’s roll-on/roll-off and other ship programs. Another goal was to adopt best business practices to improve support to the force, which was targeted primarily at improvements at the wholesale logistics level.<sup>40</sup> The Revolution in Military Logistics effort begun under former CSA GEN Dennis Reimer gave the logistics community a bit of a head start on improving sustainment. Leveraging the network to create a seamless logistics system with right-sized stockage levels was envisioned as the way ahead to make logistics support to the force more agile, although it was easier to articulate than to effect.<sup>41</sup> There were several programs utilizing the Internet to attain asset visibility, but these were not linked and decisions on who could view the data kept much of the utility hidden. The most challenging goal was the directive to significantly reduce the operational

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<sup>39</sup> U.S. General Accounting Office, *Military Transformation: Army has a Comprehensive Plan for Managing Its Transformation but faces Major Challenges* (Washington, D.C.: U.S. General Accounting Office, November 2001).

<sup>40</sup> Eric Shinseki, remarks to U.S. Army Logistics Summit 2000, “Logistics in the Army’s Transformation”, *Army Logistician Magazine*, Volume 32, Issue 4, July/August 2000; at Internet, <http://www.almc.army.mil/alog/issues/JulAug00/Page1.htm> accessed 11 MAR 06.

<sup>41</sup> Mark J. O’Konski, “Revolution in Military Logistics: An Overview”, *Army Logistician*, Volume 31, Issue 1, January/February 1999

footprint; the example of Desert Shield's "Iron Mountain" was often brought up as precisely what logisticians needed to change. Pressure to say when the logistics footprint would be reduced by a certain percentage—by what year—was constant. The challenge was that the biggest contributor to reducing the battlespace footprint did not significantly change; the size of the force structure remained the same. Existing or emerging technology enablers would aid in increasing the agility of the supply system, but did not appear to yield significant footprint reductions. Accelerating support to the foxhole could not be translated into cutting support units in the event of a major conflict. The idea to reduce the battlespace footprint centered on reducing logistics assets in the area of operations, but seemed to miss the point on capability. If fewer CSS assets were deployed, how much risk was the force going to assume? Logistics seemed less of an enabler and more of a drag on the force. "Tooth to tail" discussions in the ongoing Quadrennial Defense Review effort tried to latch on to "how much" all the existing and near-future logistics programs would yield in support costs and support unit reductions in the transformation effort.<sup>42</sup> The best estimate, as the force structure had no looming reductions, was that the advent of the Future Combat System with commonality in platform size, repair parts, improvements in fuel efficiency, more effective weapons systems with smaller caliber ammunition with greater lethality, and embedding new technology such as prognostic and diagnostic tools, was expected to lead to a smaller logistics footprint, so estimates were tied to the arrival of the Future Combat System.<sup>43</sup> This did not mean that the search for better logistics efficiency stopped; the push by the logistics community leadership continued towards better, faster, smarter, smaller, cheaper logistics support to the force.

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<sup>42</sup> Katherine M. Cook, *Transforming the Force and Logistics Transformation*. Thesis. United States Army War College 2005, Carlisle Barracks, PA, 6

<sup>43</sup> Interview, Eric Shinseki, with Public Broadcasting System program *Frontline*, available from <http://www.pbs.org/wgbh/pages/frontline/shows/future/interviews/shinseki.html> ; Internet; accessed 11 MAR 06.

## CHAPTER 3: The Reality Today

The true status of Army logistics transformation can only be determined by performance in the field. No other backdrop is as relevant, important, or appropriate. Other venues are simply academic; no matter what attempts are made to replicate the real thing, warfare and combat cannot be simulated. Both Operation Enduring Freedom (OEF) and Operation Iraqi Freedom (OIF) serve as excellent yardsticks against which logistics transformation can be measured. These operations are helpful especially in assessing the state of logistics transformation because they represent a level and scale of warfare that is likely to mark U.S. military operations in both the present and future strategic environment. OEF is an illuminating case study on transformational logistics for several reasons. In the first place, it was conducted in an extremely harsh and austere environment that was exceedingly difficult to reach. This factor, more than any other, stretched logistics planning and execution to its limits and provided a significant test of how much transformation of logistics had occurred. Specifically, OEF provided a venue to examine the transformational goal of reducing the logistics footprint and executing the concept of “CSS reach.” In an operation such as this where access was difficult, existing infrastructure was relatively nonexistent, and geographic and environmental conditions were as daunting as they could possibly be, this concept was one of necessity rather than just choice. In addition, OEF highlighted some issues with regard to combat service support force structure, modularity, deployability, capability, and force balance that must not be overlooked. A key observation in The U.S. Army’s Initial Impressions Report of Operations Enduring Freedom and Noble Eagle published in August 2003 was that projecting and sustaining a force in a region such as Afghanistan placed a great burden on logisticians to conduct successful sustainment operations. This is no great surprise to anyone. However, the report concludes that, “a better system needs to be devised to direct and coordinate the resources and forces necessary for this new kind of

war.”<sup>44</sup> This comment does not speak very favorably of our progress in transforming our logistics force or concepts. The report identifies several problematic issues. Key among them was the demonstrated paucity of reliable long distance communications equipment to enable the force.<sup>45</sup> This observation, relevant to all Army forces participating in OEF and especially within the area of operations in Afghanistan, meant that the Army logistics systems at the unit level could not communicate in a timely or efficient manner to execute the most basic of logistics tasks; that of requesting repair parts and resupply by an electronic means. This is a glaring problem made more troublesome because it is not a new or surprising one. Transformation of logistics clearly has not solved this issue.

The Army’s official initial report on OEF concludes that, while Army logistics forces demonstrated a level of proficiency in sustainment operations, central to that success was a considerable level of innovation and agility. This is commendatory, of course, but it does not equate to transformed forces, capability, concepts, or thinking. Quite frankly, it is evidence of what has frequently been the norm; brute force logistics applied to make the operational situation work. There is a certain amount of ease and finesse that should come about with the transformed force. Routine things should be executed routinely. The scope and nature of warfare and where and how it is conducted in a changed strategic environment is the reality to which we must adapt and transform. Being able to meet the sustainment challenges in a routine and effective manner in this new environment for this new type of warfare is imperative in gauging our success. Brute force logistics, while always required to a certain degree, should be the exception, not the rule. Transformation of logistics had little to do with the success of OEF and transformed logistics forces or processes did not play a significant role in these operations.<sup>46</sup>

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<sup>44</sup> Victor Maccagnan, *Logistics Transformation-Restarting a Stalled Process*. Thesis, (Carlisle Barracks, PA: United States Army War College, 2005), 8.

<sup>45</sup> Ibid

<sup>46</sup> Ibid.

## How OIF demonstrates the need for Distribution-Based Logistics

The very nature of the military campaign to overthrow Saddam Hussein's regime in Iraq posed a special challenge for logistics. Several factors were relatively unique to OIF, such as the decision to flow units and equipment into theater with deployment orders, instead of using the tried and true Timed Phased Force Deployment Data List (TPFDD); the current force composition with 45 percent of the all Army combat service support units located in the reserves; the unprecedented pace and reach of the ground war; and the pre-war trend in military logistics towards inventory reduction and just in time delivery systems.<sup>47</sup> All of these OIF-unique factors contributed significantly to logistics challenges.

The General Accounting Office (GAO) revealed the severity of logistics failures in OIF in their *Preliminary Observations on the Effectiveness of Logistics Activities during Operation Iraqi Freedom*. William M. Solis, Director, Defense Capabilities and Management, in his cover letter for the November 2003 report, concludes that "although major combat operations during the initial phases of OIF were successful, our preliminary work indicated that there were substantial logistics support problems in the OIF theater."<sup>48</sup> As evidence for his statement, he provides eight examples of logistical problems that occurred in the course of the operation. Significantly, each of the eight problems he cited represented not only failures in the overall logistics system, but specifically failures in distribution:

A backlog of hundreds of pallets and containers of materiel at various distribution points due to transportation constraints and inadequate asset visibility; a discrepancy of \$1.2 billion between the amount of materiel shipped to Army activities in the theater of operations and the amount of materiel that those activities acknowledged they received; a potential cost to DOD of millions of dollars for late fees on leased containers or replacement of DOD-owned

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<sup>47</sup> Global Security, *US Army Reserve*, Available from <http://www.globalsecurity.org/military/agency/army/usar.htm>, Internet, Last accessed on 5 January 2007.

<sup>48</sup> General Accounting Office, *Defense Logistics: Preliminary Observations on the Effectiveness of Logistics Activities during Operation Iraqi Freedom* (Washington, DC: Government Printing Office, 2003).

containers due to distribution backlogs or losses; the cannibalization of vehicles and potential reduction of equipment readiness due to the unavailability of parts that either were not in DOD's inventory or could not be located because of inadequate asset visibility; the duplication of many requisitions and circumvention of the supply system as a result of inadequate asset visibility; and the accumulation at the theater distribution center in Kuwait of hundreds of pallets, containers, and boxes of excess supplies and equipment that were shipped from units redeploying from Iraq without required content descriptions and shipping documentation. For example, at the time we visited the center, we observed a wide array of materiel, spread over many acres, that included a mix of broken and usable parts that had not been sorted into the appropriate supply class, unidentified items in containers that had not been opened and inventoried, and items that appeared to be deteriorating due to the harsh desert conditions.<sup>49</sup>

As indicated by the GAO report, the Army logistics system proved problematic in V Corps' rapid push to Baghdad. The Operation Iraqi Freedom Study Group (OIF-SG), in their assessment of sustainment operations in OIF, concluded that "most logistics functions and classes of supply during the campaign functioned just barely above subsistence level."<sup>50</sup> The logistics community simply had not anticipated the challenges to distribution that could be generated by moving a corps-sized element from Kuwait to Baghdad in such a short period of time.

U.S. Joint Forces Command's (USJFCOM) Joint Lessons Learned: "Operation Iraqi Freedom Major Combat Operations" supports the OIF-SG's conclusions about OIF logistics performance. The joint lessons learned refer to logistics automation systems as "disparate" and "stove-piped."<sup>51</sup> The term 'stove-piped' is often used as a critical description of the lack of interaction between individual branches within the Army logistics community and is the antithesis of the 'end-to-end' approach required for DBL.

One of the main reasons automation systems are stove-piped is that Army units tasked to perform distribution are also stove-piped. The software is designed to meet the specific needs of

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<sup>49</sup> Ibid., 2-3.

<sup>50</sup> Gregory Fontenot, E. J. Degen, and David Tohn, *On Point, The United States Army in Operation Iraqi Freedom Through 01 May 2003* (Fort Leavenworth, KS: Combat Studies Institute Press, 2004), 408.

<sup>51</sup> U.S. Joint Forces Command, *US Joint Forces Command's Joint Lessons Learned: Operation Iraqi Freedom Major Combat Operations* (Norfolk, VA: GPO, 2003), 95-96.

the user. If an organization has a stove-piped focus, then so will the software designed for its use. Thus the Army has the Unit Level Logistics System (ULLS) to requisition supply, the Standard Army Retail Supply System (SARSS) for overall materiel management, The Transportation Coordinator's-Automated Information for Movement System II (TC-AIMS II) to manage transportation, and still other systems to manage other aspects of the logistics system. The fact that the Standard Army Management Information Systems (STAMIS) are stove-piped indicates that the organizational structure of units performing distribution is likewise stove-piped and not organized to provide an end-to-end focus.

## **Army Logistics Transformation and Logistics Experience in OIF**

In light of the changing transformation priorities for the force, how has recent experience at war changed logistics transformation goals? In 2002, the goals for logistics transformation were to enhance strategic responsiveness, reduce logistics costs, and reduce logistics in the battlespace footprint.<sup>52</sup> Experience in OEF and particularly in OIF amended logistics transformation to “enhance our current capabilities while transforming Army logistics for tomorrow”, keeping aligned with the Army approach to transforming the force as it continues to provide the best capabilities for the force currently in conflict areas.<sup>53</sup> Simply put, “Our number one priority is making sure Soldiers get what they need in order to fight and win.”<sup>54</sup> As Army transformation efforts have focused on integrating enhanced capabilities into the force now, there appears to be a shift away from discussing reductions in logistics footprint, costs, and strategic lift improvements and focusing more on what can be improved today to execute support for a Joint and Combined force.

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<sup>52</sup> Army Modernization Plan 02, [http://www.army.mil/features/MODPlan/2002/wA4\\_FLv03a.pdf](http://www.army.mil/features/MODPlan/2002/wA4_FLv03a.pdf), p.A-55.

<sup>53</sup> <http://www.hqda.army.mil/logweb/UpdatedCombinedpapers.pdf>, Army G4 White Paper, Army Logistics: Delivering Materiel Readiness to the Army, revised April 2005, p.1 (accessed 12 MAR 06).

<sup>54</sup> Ibid.



In March 2004, LTG Claude Christensen, Army G4 testified before the House Armed Service Committee (HASC) on the logistics challenges and changes that must come about in light of our experience in OIF.

“To sustain combat power, we must have the ability to “see” requirements on demand through a logistics information network. We must develop a responsive distribution system enabled by in-transit and total asset visibility and managed by a single owner who has positive end-to-end control in the theater. The Army needs a robust, modular force-reception capability – a dedicated and trained organization able to quickly open a theater and support flexible, continuous sustainment throughout the joint operations area. Lastly, we need an integrated supply chain with a single proponent who can leverage all resources in a joint, interagency and multinational theater....If we do not connect Army logisticians, improve the capability of the distribution system, modernize force reception, and provide integrated supply management, we will study these same lessons after the next major conflict.”<sup>55</sup>

“Connecting Army Logisticians” recognizes the importance of building an automated logistics requisition, visibility and communication system to reach a larger logistics transformation goal of establishing a distribution-based supply system on a non-linear, noncontiguous battlefield.<sup>56</sup> During OIF, even the best trained units could not electronically transmit requisitions successfully due to extended distances and inadequate communication capability, and there was little capability to gain materiel asset visibility.<sup>57</sup> To remedy this, four tasks were identified: #1-Connect Critical Logistics Nodes, #2-Implement Movement Tracking System (MTS), #3-Field the Battle Command Sustainment Support System (BCS3), #4-Upgrade the Standard Army Retail Supply System (SARRS) with Native Radio Frequency Identification (RFID) Capabilities. Resolving these issues will provide the capability to:

- Calculate requirements accurately

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<sup>55</sup> Congress, House, Testimony of LTG Claude V. Christianson, Deputy Chief of Staff, G-4, United States Army, before the HASC, Subcommittee on Readiness, Logistics Readiness of the United States, 30 March 2004, available from <http://www.house.gov/hasc/openingstatementsandpressreleases/108thcongress/04-03-30christianson.html>; Internet (accessed 03 March 2006).

<sup>56</sup> Army G4 White Paper, *Army Logistics: Delivering Materiel Readiness to the Army*, revised April 2005

<sup>57</sup> Ibid.

- Tell suppliers what Soldiers want or need
- Know that suppliers received the requisitions
- See progress in the fulfillment of the requisition
- See the location of supplies in the pipeline
- Communicate with suppliers/customers to prioritize shipments or to take other actions <sup>58</sup>

The solution for the first task, Connecting Critical Logistics Nodes, is to field the capability to access satellite communications to pass/receive data. During combat activity, units could not electronically send requisitions. The Combat Service Support Very Small Aperture Terminal (CSS VSAT) satellite communications system works in conjunction with the wireless Combat Service Support Automated Information System Interface (CAISI) to provide fast, uncomplicated connectivity to the Internet at virtually any time and place.<sup>59</sup> This allows users to pass requisitions, get updated information on the status of requisitions and gain visibility on sources of supply. This capability is operating in deployed units now. The second task, “Implement MTS” highlights a visibility capability that operated with some success during combat operations in OIF. It was sparsely and hurriedly fielded and had some communications restrictions as it is a non-secure system, but it was the single best logistics communications tool that the Forward Support Battalions (now Brigade Support Battalions, or BSBs) and a few other logistics units had during the war.<sup>60</sup> MTS “provides crucial visibility on materiel and distribution in theater...” and is “...a vital link in ensuring the Army consistently delivers in-transit visibility, controls logistics assets, and performs vital distribution management functions worldwide.”<sup>61</sup>

The distribution goal is to provide “...one MTS in every five tactical distribution vehicles, one in every two military police vehicles, one in every two movement control team vehicles, one in every combat service support company level command and control vehicle, and one in every ground ambulance. This fielding ensures every distribution convoy leader, all critical

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<sup>58</sup> Army Logistics White Paper, *Army Logistics: Delivering Materiel Readiness to the Army*, revised April 2005, p.2.

<sup>59</sup> Ibid, p.3.

<sup>60</sup> Cook, Katherine M., COL, *Transforming the Force and Logistics Transformation*, Thesis. United States Army War College 2005, Carlisle Barracks, PA, 12

<sup>61</sup> White paper, p.4.

mission platforms, and any platform that controls vehicle movement on the battlefield is equipped to connect to command and control elements from anywhere on the battlefield.”<sup>62</sup> This also vastly improves logistics units’ communications capability. Although this will not completely resolve the situation of the scarcity of radios or any other approved communications in CSS units from the Brigade Support Battalion (BSB) to echelons above Corps (EAC), it will be a dramatic and welcome improvement, particularly for support assets above the Brigade Combat Team (BCT). Lack of communications capability on deployments have put CSS Soldiers in high risk situations, so individually they often seek off-the-shelf commercial communications remedies for deployments (examples: CB radios during Desert Shield/Desert Storm, and hand-held short distance radios for OIF). This can cause frequency problems with other communications. The unit alternative is hand-and-arm signals. At times, CSS leaders have had no other way to control convoy assets without radios other than dismounting and resorting to hand and arm signals, not the preference during combat operations.<sup>63</sup> Battle Command Sustainment Support System (BCS3) provides the user the ability to view the battlefield with logistics information superimposed on it. However, this is not a secure system and may not be as comprehensive in portraying situational unit positioning as Force XXI Battle Command, Brigade-and-Below (FBCB2). This is a critical capability that needs swift development and fielding throughout CSS units. During OIF, no logistics units had visibility of the battlefield other than the terrain they could observe. FBCB2 capability to see units on the battlefield was not fielded to any logistics units other than key senior logisticians, who were normally not located with the preponderance of support assets for the BCTs.<sup>64</sup> The 3ID Forward Support Battalions (FSBs) largely operated in the blind, usually receiving couriered orders on when and approximately where to re-locate hours before executing movement. Locations of supported units and supporting logistics units had to be

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<sup>62</sup> Ibid, p. 6.

<sup>63</sup> Cook, Katherine M., COL, *Transforming the Force and Logistics Transformation*. Thesis. United States Army War College 2005, Carlisle Barracks, PA, 20

<sup>64</sup> Ibid.

ascertained by exercising all means of communications and friendly human intelligence, and “best guess”.<sup>65</sup> BCS3 also provides in-transit visibility. It is a logistics information-bundling capability, joining information from ...over 900 disparate Army logistics and in-transit visibility systems and other fragmented data sources. BCS3 is “the Army’s portion of the Joint Logistics Common Operational Picture (LCOP) and provides the initial capability of Global Combat Support System (GCSS), the joint program for logistics automation and decision support”.<sup>66</sup> It is viewed as an essential decision support capability to the logistician, and underwrites the ability to achieve “distribution-based logistics: velocity over mass; centralized management with decentralized execution, multi-nodal/multi-modal execution; maximum throughput; minimum essential stockpiling; seamless two-way flow of resources; in-transit visibility of materiel; and near real-time Combat Service Support (CSS) situational understanding”.<sup>67</sup>

Upgrading SARSS with radio frequency identification (RFID) provides logisticians the tools to read and write RFID tags for item receipt and release. RFID helps provide an answer to the ageless Army question of “where’s my stuff” and potentially gives visibility to logisticians at all levels to account for where items are during transit to its intended destination. This capability existed before current operations, but had limited distribution prior to OIF. This will greatly assist in achieving better clarity on materiel location and help minimize unit re-ordering. One recent discovery of modular design implementation is that re-tooling support units for better automation capability is essential in order to “see, account for and control the thousands of equipment changes to build and fight the Modular Army”.<sup>68</sup> Upgrades of the Standard Army Management Information Systems (STAMIS) would help the Army to “accurately determine funding requirements and priorities, predict and allocate resources to set the force, account for and track

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<sup>65</sup> Ibid.

<sup>66</sup> Ibid

<sup>67</sup> Ibid.

<sup>68</sup> Information Paper, *Logistics STAMIS Impact on Modular Concept of Support*; [http://www.hqda.army.mil/logweb/cl\\_whitepaper\\_update.pdf](http://www.hqda.army.mil/logweb/cl_whitepaper_update.pdf), at US Army G4 Web site, undated,

readiness, assure accountability of sensitive items, [and] implement ARFORGEN strategy”.<sup>69</sup>

The Army’s goal to Modernize Theater Distribution strives to provide three logistics capabilities: “Provide total situational awareness, provide modernized delivery platforms, and provide an integrated distribution process”, with the ultimate objective to get swift, responsive distribution-based materiel support to the right location.<sup>70</sup> MTS, RFID, and BCS3 all contribute to provide enhanced materiel and overall logistics situational awareness. The key challenge is getting these assets fielded in adequate numbers throughout the force. This has been worked to some degree for OIF/OEF operations, however, if the Army executes another action like OEF or OEF in the next few years, the capability may not be resident across Active Component/Reserve Component (AC/RC) logistics units due to the cost of resource competition with fielding other important enablers across the force. The Army’s wheeled vehicle recapitalization and modernization program aims to provide the force with vehicles updated with the latest technology as well as incorporating some new equipment. Balancing the regeneration of the current truck fleet consists of M915 series trucks (first fielded 1978), Family of Medium Tactical Vehicles (FMTV-first fielded in 1996), HMMWV family of vehicles (first fielded in 1985), Heavy Equipment Transports (HET-first fielded in 1993), Heavy Expanded Mobility Tactical Truck (HEMTT-first fielded in 1982), Palletized Loading System (PLS-first fielded in 1993), and work on other associated trailers. Although recap of the truck fleet has been a recognized requirement for years, experience in recent operations with a sharp increase in wear and tear on the fleet and force protection lessons from engagements with threat elements (particularly Improvised Explosive Devices, or IEDs) has highlighted the need for additional vehicle armoring and other force protection measures. An ancillary effect of improved force protection on the vehicles is the degraded haul capability of the vehicles, unplanned wear and tear on vehicle hinges, frames and

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<sup>69</sup> Ibid, overview paragraph.

<sup>70</sup> G4 White paper, p. 6.

chassis, and highlighted the need to improve force protection, which has also translated into additional costs.

Another area that has plagued US ground forces for years is the ability to receive the force in the area of operations and establish sustainment support. Past experience has had operational units open and operate ports of embarkation, most recently in OIF, and execute support functions until adequate CSS power is on the ground to take over. This mission is a distraction and drain on elements that should be oriented on establishing operations in theater. To Improve Force Reception, a Theater Support Command (TSC) with sustainment brigades that have theater opening capability is the proposed fix; ultimately, the TSC is envisioned to be the controller of all ground personnel reception and logistics assets flowing into theater, with total visibility of logistics from all sources to the units.<sup>71</sup> Sustainment brigades are designed in view of the modular design that is being applied at the BCT level. Such a brigade can “...move rapidly into an area of responsibility and immediately receive joint and coalition forces deploying into that area. It can provide life support, port clearance, force protection, communications, and initial distribution for forces arriving into theater.”<sup>72</sup> This is an important change to the present logistics array of units, as it establishes in-theater logistics unity of effort in the TSC with in-theater CSS assets.<sup>73</sup> As modularity is applied to the TSC’s Sustainment Brigade designs, the reconfiguration of Army Prepositioned Stocks (Afloat) into Army Regional Flotillas (ARF) dovetails with this change. “At the core of each of the flotillas are two large medium-speed roll-on/roll-off (LMSR) ships. One of these ships contains a Heavy Brigade Combat Team set of equipment. This ship will deliver the capability of one armored and one mechanized infantry battalion, a package of brigade combat support and combat service support capabilities, and 15 days of supplies. The second of these ships will contain equipment for units echeloned above brigade. A third vessel in

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<sup>71</sup> Ibid, pp.10-11.

<sup>72</sup> Ibid.

<sup>73</sup> Ibid, p.11.

the flotilla, a roll-on/roll-off ship with a shallow draft, will provide the capability to support humanitarian assistance and disaster relief operations. Finally, each flotilla will include a fourth ship with sustainment stocks and a fifth vessel will be loaded with ammunition. The current requirement calls for these last two ships to carry sufficient supplies for 2.5 legacy divisions for 30 days, but the Army is reviewing the mix of commodities to best support its forces under modularization.”<sup>74</sup> Clearly, the effect of modularizing logistics units above the BCT level to better task organize for opening and establishing a theater coupled with the ARF’s improved logistics responsiveness and flexibility, and enables regional commanders to more rapidly establish a combat power presence wherever needed. It may reduce the battlespace footprint as well, but this remains to be validated.

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<sup>74</sup> Congress, House, Testimony of LTG Claude V. Christianson, Deputy Chief of Staff, G-4, United States Army, before the HASC, Subcommittee on Readiness, Logistics Readiness of the United States, 30 March 2004.

## CHAPTER 4: ARFORGEN and the CSS Community

All active component Army units can expect to complete a readiness cycle in three years, or six years for reserve components. An associated issue with ARFORGEN is the effort to establish a Soldier/unit habitual assignment pattern that will allow Soldiers and their families an improved degree of certainty concerning what post they will reside at or near during their Army career. This will allow Soldiers and military families more stability, to perhaps establish better roots in a community and make better plans on schooling, neighborhoods, community participation and investment decisions such as buying a house.

It is unclear how ARFORGEN will work for the CSS community. CSS Soldiers and the Army have benefited from Soldier assignments within the range of logistics units operating from the last tactical mile with the BCT to working at levels above Divisions. As we create more multifunctional support elements and move away from functional support, it behooves CSS leaders to encourage and train CSS Soldiers to gain more multi-functional support experience whenever possible. CSS Soldiers serving at different levels of support gain a better understanding of how the Army and its support system operates and can improve, and creates better leaders. There may be challenging stationing decisions for CSS units as the Army decides how these units and CSS Soldiers fit in the ARFORGEN stationing plan.<sup>75</sup> An implication for the Army's dependence on the Reserve Component is that roughly two thirds of CSS is in the Reserve Component, while two thirds of the combat arms are in the active component. If the present ratio for a deployed Division-level unit is equal to an echelon above division (EAD) unit, and with active force units currently expecting a three year cycle and reserve elements expecting six years, active duty CSS units appear to be facing much shorter deployment cycles. A Congressional Budget Office (CBO) examination of Army restructuring published in May 2005 noted that under CBO's assumptions about the level of support that a modular force might require, up to 70

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<sup>75</sup> Cook, Katherine M., COL, *Transforming the Force and Logistics Transformation*



percent of the personnel needed to support the Army's active combat forces would come from the reserve component, as opposed to 60 percent for the current force....In general (without considering the other possible effects of Modularity), that increase in dependence would represent an additional 18,000 to 19,000 Reserve Component personnel who would have to be mobilized and deployed for a major combat operation.<sup>76</sup>

### **Improving CSS Lethality**

GEN Schoomaker, the current CSA, directed in 2003 that all units in the Army qualify with their assigned weapons twice a year and conduct additional familiarization and marksmanship training to include a collective unit training annual live fire event. Previously, CSS units only qualified with their weapons once a year and they did not have a Department of the Army requirement to conduct an annual live fire event. Are units getting the appropriate increases in training ammunition? Are logistics units receiving the proper material and warfighting equipment that they need to "survive to sustain," like radios, night observation devices, small arms, crew served weapons, armored vehicles, etc.? While the Army has learned a great deal since the beginning of OIF (March 2003) and implemented a great number of programs to assist the logistician, are these reactions and programs sustainable or appropriate for other threats in the COE? The level of funding priority given to CSS organizations and equipment will answer many of the stated questions; however, logisticians can enable their own progress through well-defined doctrine, organizational structure, sound leadership decisions, and the preparation and conduct of useful individual and collective training.

Resourcing logistics transformation, or innovation, is a continual struggle. It is difficult to contemplate adding more requirements to a long list of improvements requiring fiscal support.

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<sup>76</sup> Congressional Budget Office, *Options for Restructuring the Army*, May 2005. Appendix B: The Army's Plan for Modularity: Implications for the Army's Dependence on the Reserve Component

However, it appears the Army has harvested generally the same lessons from OIF/OEF that were learned in Desert Shield/Storm; improve visibility, speed, distribution, and reduce logistics in the battlespace wherever possible. What has not been recognized is the deficit in CSS lethality capability in a changed battlespace. Modularity has brought an expectation and reality that units will provide their own force protection, whether in convoy/movement or in a stationary footprint. There is a need to provide CSS units the capability to identify, intercept and kill immediate, small element threats to dissuade further action. As of this writing, some CSS units, primarily the support elements in the BCT, have been given added weapons capability and more armoring. This is not the same as adding a lethal capability to the CSS force structure. All CSS units need a designed, integral capability added to each formation that is manned and equipped to provide aggressive force protection in addition to its manning and equipping for its support mission. These should be CSS MOS Soldiers, but have a designated convoy protection section added to each CSS formation, not add on an additional mission to CSS elements. This is necessary to provide the actual capability of enhanced unit lethality; Soldiers will not think it is another additional mission they must do in addition to carrying out their individual force protection and occupational specialty. Soldiers across the Army have the warrior ethos, but in CSS formations they should be given the capability for applying defensive force. CSS formations should have the capability to pursue or interdict attacks to mitigate further aggressive threat attempts. This convoy protection capability should be developed by applying doctrine, organization, training, leader development, materiel, personnel and facilities (DOTLMPF). Currently, changes are being made with only part of the DOTLMPF being thought through. This is particularly evident in our reserve CSS formations, but is glaring at any level above the BCT. There is also a prevalent mindset that the changes being made to the CSS formations are for the problems occurring in the current operational environment. Operations in Iraq have made clear that CSS units need and must develop the capability to handle threats and protect the force. Although attacks on convoys, rather than perimeters, were the usual threat, in any wartime environment CSS units need the lethal

capability to deter attacks and interdict and defeat them when required. During OIF, unless units were augmented with military police, air defense, or other heavily armed elements, there was little in CSS formations to accomplish these tasks. Presently, there is no doctrinal assurance or expectation that CSS units will have a convoy protection capability or that, failing the receipt of those improvements, units will be augmented with other force protection. Convoy protection augmentation that is available for OIF rotations may not be available if there is a quick call to war.

The Army's most vulnerable part of the force on the battlefield is its CSS formations. This is not due to any lack in our Soldiers' attitudes or individual fighting capabilities. It is a deficit in applying lethality in a more aggressive form, and as a concept and capability, to the CSS formation. Applying lethality as a concept to those CSS elements most likely to deploy first in a conflict, not just the support elements in the BCT, is essential. The ARFORGEN initiative may help define what CSS units are most likely to deploy first: It may also expose the lack of depth in some of the CSS units and missions. Assessing what the force protection mission expectation is of CSS units on a fast moving battlefield with bypassed threat elements should be established and in turn, create the lethality capability for the CSS formations through improvements in training, education, and equipping. These three inter-related areas are crucial aspects of improving support to the force; each affects the capability of a CSS unit to attain agility on the battlefield, execute its mission and maintain combat power for itself and the supported units, and not just survive, but have the enemy think twice about attacking.

Even in light of previous discussion on the expense of recapitalization and modernizing the force structure and wheeled equipment, it is essential that reserve and active CSS elements are provided with more equipment, or at least fielded a high percentage of communications, weapons, and force protection capability, beyond those items that are fielded to provide better support to the force. CSS units have been chronically under-resourced across the board for years. As GEN

Richard Cody, Army Vice Chief of Staff told the House Armed Services Committee in February 2005,

“As the Cold War ended, the Army anticipated its need to transform to meet the emerging threats of the 21st Century. Before 9-11, the Army was already on a course to realize its transformation, but at a very deliberate pace and in a much more constrained resource environment. At the time, the Army was forced to assume risk to the current force in order to execute our transformation. One example of where we assumed risk was in force protection and offensive requirements for our combat support and combat service support units. In the past, our doctrine called for these units to operate in “rear areas” where threats were historically minimal. This doctrine led to a resource strategy in some cases where combat support or combat service support units would have less modern equipment in fewer quantities so that the combat formations could have full amounts of the latest technology.”<sup>77</sup>

CSS isn't “sexy” like combat arms; there are no transformation enabler images to rival the Stryker or the Future Combat Vehicle. War stories of heroic logisticians rarely stand out like Audie Murphy, and there are no CSS symbolic images like an M1A1 or the Apache that stir national pride and exude combat power. Images of fuel tankers, maintenance contact trucks or even ambulances still conjure up misleading images of “rear area”. In fact, the misnomer “tooth to tail” is actually still heard from some senior Army and Department of Defense leaders. Loss of logistics capability is not like losing a chameleon-like tail; it is the loss of a critical enabler and capability, the loss of essential combat power for the force. This is particularly true as the desire to pare down logistics units in the operating environment requires the force in the operating environment to assume more risk. For a short time, the tragic experience of the 507<sup>th</sup> Maintenance Company in OIF brought CSS equipping deficits and CSS lethality capability requirements in a full spectrum battlefield to light. The Army must build that confidence in soldiers in any area of expertise by reexamining the application of lethality as a capability at every level, from Soldier to unit. FMI 4-90.1, Heavy Brigade Combat Team Logistics, describes today's battlefield:

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<sup>77</sup> Congress, House, Testimony of GEN Richard Cody, Armed Services Committee , *U.S. Army Readiness*, 109th Congress, 1st Session; <http://www.army.mil/leaders/leaders/vcsa/testimony/20050202.html>; Internet (accessed 24 February 2006).

In today's contemporary operating environment (COE), support can no longer be viewed as a free, continuous, and secure function. In many types of operations, support is at risk as much as maneuver, with maneuver units having an effective duration that will expire if support is not re-established....Hence, there is a definite necessity to resource basic Soldier skills training to ensure that the logistician Soldiers and leaders are competent in combat skills of convoy defense, patrolling and perimeter defense, and the use of the most up-to-date enabling technology to integrate the force protection and technical sustainment functions into overall tactical-level sustainment operations within logistical units.<sup>78</sup>

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<sup>78</sup> Department of the Army. 2005. FMI 4-90.1, *Heavy Brigade Combat Team Logistics* Washington, DC: U.S. Army. Chapter 1.

## **CHAPTER 5: What Is Unlikely To Ever Change**

The laws of physics still apply to transformation. Focused Logistics cannot overcome certain truths and realities that may characterize operations. Truths such as extended lines of communications that create a minimum time-distance equation to transit, adverse weather, and bad or untrafficable terrain will always affect effectiveness. Requirements for the force, such as food, water, fuel, and ammunition, will never be driven by the relative capability to provide support, but by need. Predictive rates of failure or predictive rates of consumption will always remain predictive. Demand supported items associated with maintenance repair parts will always require a system that can be reactive, yet timely. The design of the transformed Army may be self-sustaining for a period, but operational commanders at all levels will always reserve the right to change requirements or priorities. Disorder, uncertainty, fluidity, and friction will continue to characterize current and future battlefields. Violence and danger, moral and physical forces, and the human dimension will remain as part of the enduring nature of war. Finally, we must never forget that the enemy will always get a vote.

### **What Should Never Change**

Certain elements of logistics theory and practice should never change regardless of what transformational systems exist to facilitate sustainment, what support concept is put in place, or what mission is being supported. The basic skills of soldiering and principles of troop leading are everlasting. Technical and tactical skills associated with mission performance such as contact drills, convoy procedures, fire control, site occupation, and priority of work must not be ignored. These are all basic blocking and tackling tasks that must be mastered, and that no amount or type of transformation can change or displace. The logistics tenets or characteristics found in FM 4-0, *Combat Service Support*, are also constants that should be applied to planning and execution of all logistics operations. Referred to as “guides to analytical thinking and prudent planning,” they

reflect the fundamentals of effective combat service support. Similarly, logistics planning and support concepts must always be integrated and synchronized with maneuver planning and with the plans of the higher logistics headquarters or higher echelon. Perhaps the most valuable contribution to warfare that the logistician brings to the combat commander is the assessment of logistics feasibility of the planned operation. In addition to informing the commander when he has achieved a sufficient level of logistics attainability to commence operations in accordance with the plan, the logistician must also identify the logistics risk that may lead to culmination or failure. Finally, the logistician must always be prepared to support operations that are only marginally logistically feasible; striving to ensure sustainability through all the collective talent and ability of the logistics soldiers and leaders, support systems, and architecture available.

### **CSS Transformation Risks**

There are risks for transforming the CSS structure that must be addressed. Likewise, once they are known, mitigating them will be extremely important in order to sustain and replenish the force throughout the full spectrum of operations.

The risk taken to build the Future Force required a shift in the Army's transformation strategy due to the operational risk to the Current Force. The shift to a balanced approach sought to mitigate the operational risk to our forces. What the most recent responses to operational requirements taught the military was that transforming our forces could disrupt our ability to respond to events around the world. Furthermore, a measured and organized approach should be taken to enable our country to better meet the future employment of our military forces. When one looks at the CSS transformation, the question arises about whether the Army Campaign Plan truly balances the resource commitments so they can sustain the wide range of missions that might occur.

Another risk, linked to the one above, is immediately realized by the CSS community. The risk of having sufficiently resourced units to perform the missions required of them is real and present in today's Army. The current redesign seeks to change the AC/RC mix of forces. The purpose of adjusting the mix was "so that Active Component forces can execute the first 30 days of any deployment. From an expeditionary approach, this makes sense. However, in the CSS realm of reality, BCTs could deploy, but their need for sustainment would not necessarily be met with just the Brigade Support Battalions (BSBs) which are organic to their organizations. According to the most recent modular concept, the Sustainment Brigade configures for, distributes to, and retrogrades from maneuver BCTs and other combat support brigades assigned or attached to the division or corps. It conducts replenishment operations for designated BCTs, in accordance with the operational plan. Normal replenishment of the force cannot occur without a sustainment brigade. Complicating the ability to replenish the BCTs is the lack of organic replenishment units within the current sustainment brigade structure. One may ask how this could have occurred. In the haste to transform the Army's Divisions into the new BCTs, many Divisions reorganized their units and removed the replenishment capabilities that originally existed within the Main Support Battalions (MSB). The need for rapidly deployable units took precedence over the build of any other unit conversion. The next logical echelon to provide the replenishment capability, if the MSB could not, was from the Corps Support Battalion (CSB), an organic element of the Corps Support Group (CSG). The CSBs have undergone restructuring, redesign and reorganization that have not been synchronized with the BCTs. Alarming, the CSB's conversion to Combat Service Support Battalions (CSSB) continues to lag significantly behind the other unit conversions. Compounding this problem is the number of units that populate the Active Component mix. For the CSS redesign, the mix drops significantly to just 32%. With 57% of the BCT maneuver brigades present in the Active Component compared to just 43% (13 of 30) of the sustainment brigades, there is a degree of risk that exists for meeting the mission requirements.



CSS planners have consistently addressed the risk of not conducting a balanced approach and having sufficient AC CSS units available to meet the immediate requirements of our Army during the first 30 days. At the present time, those concerns have been addressed to the Army's leadership. These acknowledged risks will remain until decisions are made to take a new transformational approach.

## CONCLUSION

The Army has learned some valuable insight since the inception of Army transformation as a force modernization effort in 1999 on what needs to change in our force to keep us relevant and ready. As identified in the Army G4 white paper, some very valuable desired attributes and tools have been identified to continue to enhance the CSS capability in getting the right stuff to the right place at the right time.

Transformation is about improving the capability to execute military operations across the spectrum of conflict. Although there are competing demands for resourcing improvement, the CSS community has important requirements that should be resourced to enable better capability throughout the force. The Army needs to attain the goals articulated in the current four CSS transformation focus areas, Connecting the Army Logistician, Modernizing Theater Distribution, Improve Force Reception, and Integrate the Supply Chain. These are vital changes that must be made and these improvements will have strategic as well as operational and tactical impacts. Although there is progress within each of these areas, competition for adequate funding will determine when and if these goals come to fruition. Historically, anecdotal evidence indicates that logistics improvements have not been viewed as having the cachet to draw adequate funding unless the capability resides in a powerful Congressional district or until disaster occurs to highlight the requirement. Identifiable improvements in weaponry appear to get the funding over seemingly dry, more bureaucratic improvements.

The Army must rapidly decide on CSS force structure design . The CSS final modular support structures have not been cast, although it has been over two years since the first modular BCT was established. How ARFORGEN will work with CSS unit design—or if ARFORGEN will work with the demands of our current CSS operational tempo--remains to be seen. CSS units are required to deploy on the same rotational turnover schedule as the BCTs, but most of Army CSS is in the Reserves and, by the ARFORGEN design, has a different rotational timeline. Many

reserve units are not manned or equipped for employment, although this area is being worked. Presently, the CSS community has Soldiers that are able to acquire an understanding of the Army's logistics system on the battlefield as they grow as leaders by accumulating experience at all levels of support, from within the BCT to theater support levels. CSS formations require more than additional weapons and force protection equipment: Lethality must be a CSS capability resident in the unit force structure and trained to standard across the Active and Reserve force in order to provide an agile, capable and lethal delivery of support regardless of the nature of the operational environment. Improvements on CSS unit lethality capability should be applied through examination and application of the DOTLMPF and have a resident lethal capability established in each unit, like the military police augmentation some CSS units had during OIF. Support elements have serious deficits in this area and require major holistic improvements in associated CSS education, equipping, and training. CSS units executing battlefield supply distribution in a non-linear, non-contiguous 360° operating environment are vulnerable, lucrative targets. With the geographical dispersion of forces, CSS units must have the capability to defend, but also be visibly and materially capable to deter enemy attacks. CSS Soldiers want to be empowered to successfully execute missions and have the capability to apply some lethal effect on the enemy when threatened. As mentioned previously, historically the Army was able to take risk in CSS force structure in a linear, echeloned structure; But the conflict paradigm has changed. Today's battlefield environment requires 360° force protection capability whether stationary or on the move. This is particularly critical in the Army National Guard and Reserve CSS elements, as these Soldiers get far less exposure to quality, standardized training due to geographic dispersion and limited time to focus on training, but are essential to supporting the force in any expeditionary operation.

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