LOGISTICS TRANSFORMATION— RESTARTING A STALLED PROCESS

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PREFACE

The U.S. Army War College provides an excellent environment for selected military officers and government civilians to reflect and use their career experience to explore a wide range of strategic issues. To assure that the research developed by Army War College students is available to Army and Department of Defense leaders, the Strategic Studies Institute publishes selected papers in its Carlisle Papers in Security Strategy Series.

Lieutenant Colonel Victor Maccagnan, of the AWC class of 2004 and the author of this paper, contends that Army logistics transformation has not happened to the extent needed in strategic, operational, and tactical environments. He discusses what must be changed and how to reenergize logistics transformation to get results now.

The Strategic Studies Institute is pleased to offer this Carlisle Paper as a contribution to the debate on Army Transformation.

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ABSTRACT

The Army has been pursuing a process of transformational change for over a decade. It is readily apparent that the amount of actual transformation in the Army as a whole has been extremely limited in size and scope. The promise of radical and revolutionary change has yet to take effect across the force. This reality is nowhere more evident than it is in logistics. Logistics transformation has simply not happened to the degree necessitated by today's strategic, operational, and tactical environment. It follows that, if logistics transformation has not occurred or is stalled, the rest of the force will not be able to transform successfully. This paper will address the following:

- Why there must be a logistics transformation.
- Why transformation has not yet been realized for logistics concepts, doctrine, processes, systems, organizational structures, and architecture; what has gone wrong, and how to prevent it from occurring again.
- What must be changed to achieve a successful transformation of logistics, the priority of change, and who must change it.
- What to do logistically to become a campaign quality Army with a joint and expeditionary mindset.
- How to reenergize logistics transformation to get results and benefits now.

LOGISTICS TRANSFORMATION— RESTARTING A STALLED PROCESS

THE CURRENT STATE OF TRANSFORMATIONAL CHANGE

Transformation in the First Decade.

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." In the past decade, numerous papers, countless articles, and even entire books have been dedicated to the analysis 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 and goes beyond any calculable number. The range of topics addressed in these writings and briefings has spanned almost every military subject area and is truly staggering.

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 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. Furthermore, the pace of the limited transformational change that has occurred has been slow and ponderous; a fact that has at times placed the Department of Defense (DoD) and the U.S. Army at odds in both public and private forums.[1]

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.[2]

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.[3] 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.

A Report Card on Logistics Transformation.

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 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 both 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.[4] It follows that if logistics transformation has not occurred or is stalled, the rest of the force will not be able to transform successfully.

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. 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.

Evidence to support this conclusion is seen daily in motor pools at Army posts worldwide, witnessed in training exercises and Combined Training Center rotations, and confirmed in the official and unofficial discussions of combat arms, combat support, and combat service support leaders in units at all levels across the force. Most recently, the Army's lack of transformational change in logistics has been on active display in the field; in the mountains of Afghanistan and the deserts of Iraq. Verification in the form of initial observations from Operations NOBLE EAGLE, ENDURING FREEDOM (OEF), and IRAQI FREEDOM (OIF) all draw similar conclusions concerning the shortcomings of logistics and the inability to deliver what has been planned and promised.[5] The Army is supporting the execution of combat and stability operations today with untransformed, or at best semitransformed, logistics forces, systems, and processes.

More troubling is the realization that the depth of involvement in current operations and preparations for follow-on and future operations in the Global War on Terror may very likely perpetuate the status quo; a nontransformed logistics force that is locked to the current methods of legacy logistics operations and unable to generate the energy or actions required to transform. The risk that this poses to the continued success of the war on terror in the near term is significant. The risk that this poses to the continued relevance and readiness of the Army in the next 20 years is immeasurable.[6]

Recovering the Stall.

The failure to realize transformational effects in Army logistics does not mean that logistics operations are not happening or that soldiers are not receiving support. This is far from the case. Many talented, courageous, and dedicated combat service support soldiers and civilians in countless logistics units work tirelessly to ensure that the entire Army is successfully sustained on a constant basis. What it does mean is that full transformation of the Army will not occur until we find a way to jump-start a stalled logistics transformation process, achieve the proper balance with current operational requirements, and generate speed of execution to get measurable results in the very near-term that contribute to our priority of winning the war on terror and any future wars that the nation must prosecute. The failure to realize transformational effects in Army logistics also does not mean that the Army's logisticians and leadership should be faulted en masse for the lack of change. Blame is not the point, nor is it the goal of this paper; answering the following questions is:

- Why must there be a transformation in logistics at all?
- Why has the promise of transformation not yet been realized for combat service support concepts, doctrine, processes, systems, organizational structures, and architecture; what has gone wrong and how do we prevent it from occurring again?
- What must be changed to achieve a successful transformation of logistics, what

is our priority of change, and who must change it?

- What must we do logistically to meet the goal of becoming a campaign quality Army with a joint and expeditionary mindset?
- How do we reenergize logistics transformation, and most importantly, how do we do it to get results and benefits now?

WHY THE NECESSITY TO TRANSFORM ARMY LOGISTICS

Arguments Against Change.

Most people, both in the general public and among military professionals, would agree that the Army clearly is not failing to win the nation's battles and wars. Reflecting on the arguably impressive successes of the Army in the recent past, this issue of a lack of transformational change in logistics may seem trivial. It is easy to infer from these successes that the Army must have it about right, so why all the fuss. Proponents of this thinking may tend to believe that if transformational change is slow or has not occurred at all, it may be because it does not need to happen.

Other arguments against transformational change are more complex and indeed more subtle. They have to do with a degree of institutional reluctance to change that is based on several factors. Among these are a comfort level with what soldiers have now in terms of organization, doctrine, and equipment, and the fact that they understand how to make it work with a relative degree of success in most circumstances. In place of wholesale change to what works, many will substitute improvements at the margins. There is also a very large degree of skepticism and mistrust that goes along with things new and unproven. Our military history as an Army is littered with both anecdotal and actual examples of "great" ideas, rapidly force-fed to the field, that did not work as well as advertised or did not work at all. Finally, there is a very real and sincere concern about the risk that we take as an Army if we get it wrong because ultimately we pay for our mistakes and missteps with soldiers' lives during wartime operations.[7]

Debunking the first argument is relatively easy when a close examination of the Army's past and present campaigns is made with an eye towards objectively measuring logistics success against stated principles, fundamentals, and tenets of combat service support. Analyzing overall logistics performance in this manner may result in the conclusion that we were either more lucky than good in our planning, preparation, and execution of support or that we substituted brute force and improvised on-the-fly solutions to our support challenges that masked inefficiencies and ineffectiveness. The key place to look is in initial observations, after action reviews, and lessons learned that are generated routinely concurrent with and subsequent to missions and operations. The truth of our performance and the quality of our force is usually easily discernable from this type of analysis.

The second series of arguments are more difficult to counter. Former Chief of Staff of the Army retired General Gordon R. Sullivan, the senior leader who launched the Army's transformation efforts, likens these arguments to traps that are hard to see and even harder to extricate oneself from. Sullivan warns against not recognizing the need for change because you are doing things too well, playing conservatively so as not to lose rather than playing to win, and mitigating risk by simply improving an old paradigm.[8] All of these excuses or justifications against change can and must be overcome by dispassionately focusing on the environment and the circumstances that frame current and future reality.

To Better Serve Our Nation.

The Army's leadership has correctly recognized that the strategic environment and current operational requirements mean that the Army must be ready now to address a whole different set of variables than previously anticipated. General Schoomaker writes,

> . . . the Army must be prepared for operations of a type, tempo, pace, and duration different from those we have structured our forces and systems to achieve. Some assumptions made and processes developed for a Cold War Army or an Army with

> a "window of opportunity" to transform itself, while valid at the time, are no longer relevant to the current security environment.[9]

Care is required so as not to misconstrue the meaning or the mandate of these words. The Chief of Staff of the Army is absolutely decreeing that transformation continue. The invalid assumptions apply to the relevance of the previous and current force to today's security environment and the time thought to be available to transform it. General Schoomaker is very direct in his guidance when he says, "We [the Army] must immediately begin the process of reexamining and challenging our most basic institutional assumptions, organizational structures, paradigms, policies, and procedures to better serve our Nation."[10]

Transformational change of the U.S. Army is inevitable; moreover, it is required. It is inevitable because the nature of the world today demands a different force to meet and defeat the new types, kinds, and quantities of enemies that threaten our strategic national interests and endanger our national survival. It is required, not only because DoD and the senior leadership of the Army have ordered it so, but because without this change, the Army runs the very real risk of becoming irrelevant and unready to fulfill its constitutional requirements to fight and win the nation's wars.

WHY HAS LOGISTICS TRANSFORMATION STALLED?

The Developmental Path of Logistics Transformation—1991 to 2004.

To understand fully why and how logistics transformation has stalled, it is necessary to take a closer look at its developmental path to date. The transformation of logistics had a difficult birthing process. When General Sullivan set the course for transformation in the early 1990s, it actually took the Army's logisticians until the summer of 1998 to generate significant Army-wide discussion and a specific focus on a pending revolution in military logistics; a full 7 years from transformation's initial inception.[11]

The Army had not codified the overall transformation effort of the force until March 1994 when it released a message labeling the Army of the future as Force XXI and announcing the establishment of an experimental force (EXFOR) to further develop and experiment with transformational concepts.[12] The Army's Training and Doctrine Command (TRADOC) was designated as the overall lead for managing transformation with the Combined Arms Service Support Command (CASCOM) as its executive agent for logistics transformation.

Army Vision 2010 was published 3 years later in 1997. This was directly linked to the CJCS vision statement, *Joint Vision 2010*, published in July 1996 that outlined the Chairman's thoughts on how the U.S. military needed to prepare to meet, what were at that point, unspecified and unclear challenges and adversaries in 2010. *Joint Vision 2010* and *Army Vision 2010* introduced a new operational concept, "Focused Logistics." Focused Logistics was named as one of the key tenets required for the military to achieve a level of full spectrum dominance over any and all adversaries. *Army Vision 2010* defined Focused Logistics as "the fusion of information, logistics, and transportation technologies to provide rapid crisis response, to track and shift assets even while en route, and to deliver tailored logistics packages and sustainment directly at the strategic, operational, and tactical level of operations." At that time the Army listed eight concepts, five enablers, and four technologies that it would pursue in the development of Focused Logistics.[13]

In March 1997, the Army's logistics community, through CASCOM, participated in the Force XXI Advanced Warfighting Experiment at the National Training Center. This exercise, preparations for which had been ongoing for almost 2 years, was the first major integrated experimentation involving new doctrine, concepts, and technologies designed to leverage information age technologies. Logistics concepts, however, were not rigorously tested, and the entire event was given very little publicity in the Army's logistic community. It is evident from reading the insight reports of the experiment that most of the focus was on maneuver-oriented information superiority.[14] It is also likely that none of the designated logistics concepts in *Army Vision 2010* were matured to the point that they could

actually be tested in the field, much less fielded to the force as a mechanism to achieve the promise of Focused Logistics.

Later that same year the Joint Staff Logistics Directorate (J4) published a logistics volume as an adjunct to *Joint Vision 2010* entitled *Focused Logistics, the Joint Logistics Roadmap to Joint Vision 2010*. This document was described as an action plan for the identification and integration of joint logistics issues and initiatives.[15] A key part of this plan was the identification of six tenets or areas of focus designated as the framework for the logistics template required to support joint warfighting. These tenets included: Joint Theater Logistics Command and Control, Joint Deployment and Rapid Distribution, Information Fusion, Multinational Logistics, Joint Health Services Support, and Agile Infrastructure. The stated goal was to ensure a systematic, relational approach to developing new capabilities that enhanced these areas.[16] The roadmap qualities of this document, however, arguably were limited in terms of actually being useful for navigating the route to Focused Logistics. Concepts such as technological innovation and leveraging key enablers to achieve information superiority were referred to loosely as something desired, but clearly this document served as more of a general direction of effort than a series of steps to be followed to achieve the endstate described.

In 1998, the Army's EXFOR, the 4th Infantry Division, was reorganized to the structure that it retains today; commonly known as the Force XXI Division model. Much work was done in redesigning the logistics elements of the Division's Infantry, Armor, and Engineer Battalions, and the organizational structure of the Forward Support Battalions, the Main Support Battalion, and the Division Support Command headquarters. Concurrent with the final redesign of the Division was CASCOM's development and introduction of new logistics doctrine and the expansion of the initial Focused Logistics combat service support concepts from the original 8 to 22. In conjunction with this, CASCOM identified a total of 18 materiel enabling and experimental systems comprising both new vehicles and equipment and new technologies. Finally, CASCOM developed a series of tactics, techniques, and procedures designed specifically to support the digitally enabled transformed force over a dispersed battlefield.

In March 1999, these concepts, procedures, and enabling systems were tested and evaluated in the field during a logistics focused National Training Center rotation. Significant observations, insights, and conclusions from this training rotation and corresponding data collection effort included a general validation of the divisional logistics force structure with some relatively minor force redesign requirements and extensive soldier level feedback on the utility of the enabling and experimental logistics systems. The rotation also showed that the future logistics doctrine and procedures being developed needed some refinement in the areas of direct support relationships, movement control, and security.[17]

The Army's vision on Focused Logistics was refined as a product of the doctrine and concept development, the training, and the experimentation conducted in 1998 and 1999. This period produced the most significant progress in terms of theoretical work and practical application of logistics transformation up to that point. The Army Deputy Chief of Staff for Logistics (Army G4), the CASCOM Commander, and the Commander of Army Materiel Command (AMC) collaborated on an article for *Army Logistician* magazine in 1999 that clearly laid out the way ahead for logistics transformational change. For the first time, the Army's three senior logisticians addressed the logistics community in a unified voice in a force-wide manner. Companion articles in the same issue of the magazine were written by the CSA and the Commander of the Defense Logistics Agency (DLA).

These articles identified the Army's focus areas for the next 10 years of transformation; designated as the first wave of the stated revolution in military logistics. The Army's logistics transformation plan would focus on exploiting improvements in automation, communications and business practices, reshaping command and control relationships to provide better unity of command, and purchasing distribution technologies

that facilitated rapid throughput and follow-on sustainment. The second wave of logistics transformation, from 2010 and beyond, would focus on maximizing emerging technologies that could be utilized to lighten support requirements, to enable them to be projected faster, and to reduce the overall demand for logistics as a whole.[18] The Army also named its tenets needed to frame the efforts in the achievement of Focused Logistics: a seamless logistics system, distribution based logistics, total asset visibility, agile infrastructure, rapid force projection, and maintaining an adequate logistics footprint.[19]

It is important to note that the Army did not completely mirror the Joint concept of Focused Logistics as defined by the six Joint tenets of transformational framework; neglecting to include Joint Theater Logistics Command and Control, Multinational Logistics, and Joint Health Services Support. This dichotomy is significant because it reveals that the alignment of priorities at the Army level and the Joint level were not in synch. The result was that the unity of effort, as well as perhaps the priority of resources and level of visibility, in making Focused Logistics a reality was not shared across service and joint staffs.

Then the CSA (retired General Eric K. Shinseki) dramatically changed the direction and the context of transformation in the first quarter of fiscal year 2000. The new direction steered away from a transformational redesign of the heavy force embodied in the EXFOR and Force XXI. The Army's new focus would be on the development of an interim force that had the qualities of both heavy and light formations and on a force to follow the interim one that had a yet to be defined organizational construct. The Interim Brigade Combat Team, renamed as the Stryker Brigade, was this first force. The follow-on force was termed the Objective Force.[20] The new context was measured in speed and weight; the force had to deploy more rapidly and it had to have a much decreased logistics footprint. Almost concurrent with this shift in Army transformation, the CJCS published an update to *Joint Vision 2010* entitled *Joint Vision 2020*. Initially, the basic concepts of the Army's vision of Focused Logistics, the focus areas in the first and second waves and the six tenets of logistics transformation, did not officially change with this new guidance. However, their application to this new direction and construct did differ from how they were previously applied.

A significant adjustment was made by the Army to the basic premise of logistics transformation with regard to these interim and objective forces. Logistics transformed was now seen as logistics marked by a sharply reduced footprint forward; the intent of which was to make deployment more rapid by requiring fewer units to be projected into an area of operation. This smaller logistics footprint was to be enabled by a concept called "reach back" logistics or "Combat Service Support or CSS reach."[21] It has been posited that this term, while new to the logistics transformation lexicon, was actually not a new concept; but rather a synthesis of several existing and emerging logistics transformation initiatives such as split-based operations, velocity management, information superiority, and distribution management.[22] Nonetheless, it took the Army logistics community nearly 3 years to develop a published definition of the term "CSS reach" and to redefine Army logistics transformation for the field.[23] Additionally, as time passed, the terms of reference for Focused Logistics as described in 1999 faded and were subsumed by the a more joint oriented vision as described in *Joint Vision 2020*.

From 2000 to 2002, work at CASCOM shifted away from the EXFOR and FORCE XXI, now in its final stages of fielding and preparation for its capstone exercise, and towards development of combat service support strategies and concepts for the Stryker Brigades. This change of direction caused CASCOM to go back to drawing board; as maneuver doctrine and organizational structure were reworked from the ground up. Transformation of combat service support focused on a redesign of the existing Forward Support Battalion as a Brigade Support Battalion to include companies organized along the lines of the Force XXI model Forward Support Company. In addition, figuring out how to actually leverage "CSS reach" was another key focus area. These logistics organizations and these new concepts were tested in the field at

the National Training Center in 2002 and were, for the most part, found wanting. Significant challenges were noted in providing sustainment for the brigade. Comments, not unlike those made previously in 1999 when the first generation of transformed logistics was tested in the Force XXI experiments, centered on shortcomings in timely delivery of supplies, logistics connectivity, asset visibility, and information fusion.[24]

In August 2002, the Joint Staff J4 published a revised *Focused Logistics Campaign Plan*; an update of the previous Joint campaign plan designed to correspond with *Joint Vision 2020*. The plan redefines Focused Logistics as, ". . . doing logistics right . . . getting the right personnel, equipment, supplies, and support in the right place, at the right time and in the right quantities across the full spectrum of military operations."[25] This document also introduced two new initiatives, entitled "Logistics Transformation" and "Future Logistics Enterprise," designed to establish a more robust foundation for achieving Focused Logistics. The first initiative was aimed at improving real-time logistics situational awareness by optimizing business practices, developing a data system that provides interoperable and actionable logistics information, and enhancing responsiveness of support operations to the warfighter.[26] The second initiative was described as a ". . . mid-term vision (2005-10) to accelerate logistics improvement, enhance support to the warfighter, and align logistics processes with the operational demands of the 21st century." [27] This initiative specified the direction that Joint logistics would explore in the future; focusing on improvements in maintenance, life cycle management of new systems, distribution management, and synchronization of deployment and sustainment.[28]

The Army did not publish a corresponding document. However, some of the concepts contained in the updated Joint campaign plan were concepts previously described in CASCOM work. These included: Customer Wait Time (CWT), a metric first described by the Army in 1999 to assess the effectiveness of the supply chain by measuring the time between ordering and receipt in the hands of the customer unit; Time Definite Delivery (TDD), a concept dating from 1998 whose goal is to assure that requests filled within a specific time frame for a specified region are actually delivered within that stated period; Total Asset Visibility (TAV), a systemic approach to give users visibility of materiel requisitions and the corresponding commodities enroute back to them at any point; and the development of a Web-Based Shared-Data Environment to enable real time logistics situational awareness.[29]

The Army's latest vision of logistics transformation is contained in the *U.S. Army Transformation Roadmap*, published in January 2004. This document is useful in the sense that it does describe how the Army sees Focused Logistics contributing in the context of current Joint Operating Concepts. Nevertheless, this newest round of logistics transformation writings still displays some of the previous characteristics of concept and doctrine development we have seen over the years. It is still broad in scope and again describes what we want but not necessarily how we get there. The most recent published Joint view remains the *Focused Logistics Campaign Plan* from 2002. It is difficult to trace any linkages between these two documents. Again, it is safe to assume that the authors of the *Army Transformation Roadmap* read the joint work, but the nesting expected between documents entitled "roadmap" and "campaign plan" is just not there. They are stand alone documents that are not clearly synchronized.

The latest DoD vision of logistics transformation, dated April 2003, is described in the *Transformation Planning Guidance*. It too is broad in scope, but it has recently been further refined by the DoD Office of Force Transformation in a new initiative entitled "Sense and Respond Logistics." This initiative describes a new view and direction for logistics transformation efforts. Described as, ". . . a system interwoven with network-centric operations and based upon highly adaptive, self-synchronizing, dynamically reconfigurable demand and support networks that anticipate and stimulate actions to enhance capability or mitigate support shortfalls . . .", it borrows heavily from the latest in successful

commercial business thinking and logistics management models.[30]

This is where logistics transformation has been and where it stands now; in terms of efforts, experimentation, development of doctrine, concepts, and organizations, and the Army, Joint, and DoD visions of what transformation means. This chronology, while impressive in its length, is, in fact, an indictment of itself. It clearly illustrates the level of ineffectiveness the Army has had in achieving any lasting or all-encompassing success in changing the way combat service support is conducted. There has been much effort put forth by many well-respected and visionary leaders. However, that vision of change, the means to empower it, and, most importantly, the collective buy in, ownership, and commitment from logisticians and operators across the force to make it a reality that has not taken root. After more than a decade of transforming, it is necessary to ask what the product is so far, where has the value added been, how much is left to do, and when will that be. The job is well-started, but not completed.

The Reality Today—Recent Observations that Matter.

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 OEF and 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 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."[31] 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.[32] 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.

Other observations from OEF noted a lack of modularity in logistics force structure which restricted the ability to flow a right-sized force tailored to the support mission. Logistics units had to be deployed in their entirety or massive internal reorganizations had to be conducted during the

deployment phase of operations to get the right capabilities at the right place at the right time.[33] Modularity is a key quality of the transformed force. It is critical to enable "CSS reach" operations, limit the logistics footprint forward, and to reduce unnecessary requirements for limited strategic lift. Modularity in logistics force structure, a key tenet of Focused Logistics, has not yet occurred.

A related issue was the challenge of resourcing several particular types of logistics units that were both high in demand and low in density.[34] This problem speaks directly to a necessary reshaping of the logistics force structure from its Cold War legacy where host nation and allied assets could be relied on to provide certain service and support functions. Complicating this challenge further is that the majority of the Army's echelon above Division and echelon above Corps logistics force structure, and many of these are high demand, low density units, are in the reserve component. The reserve mobilization and call-up question, which is bounded by both political and time constraints, effectively prevents a rapid deployment of a right sized and mission tailored logistics force.

The deployment process itself was reinvented for OEF; specifically the method and mechanisms used to determine, source, prioritize, and flow forces into theater. This precipitated a large degree of stress on both logistics units and planners as combat service support forces were piecemealed into theater as a result of new requirements being generated by ongoing and upcoming operations as opposed to an overall plan. A CENTCOM C-5 plans officer indicated in an Army War College study on the subject that the plan did not necessarily mandate a preordained and ordered flow of decided upon forces. He stated that, "New tasks from CENTCOM . . . would create unplanned requirements. Requests for forces by capability were then generated by the staff for submission through joint channels to the Army."[35] This concept of adaptive planning and requesting forces as requirements unfold is likely to become the new paradigm for how the United States deploys military forces to execute a strategy of preemption in the current strategic environment.

While deployment is not by definition logistics, it is logistically intensive and enabled by logistics processes and components such as transportation. Thus, it is commonplace for the mechanics of deployment planning and execution to ride on the backs of logisticians; especially at the corps, division, and brigade levels. Similarly, the reception, staging, onward movement, and integration (RSOI) process upon debarkation frequently falls to logisticians to plan, resource, and execute. A new model for deployment that still requires a time-phased flow of forces without the utilization of the traditional deployment processes, the deliberate preparation and execution of time phased force deployment data and list (TPFDD and TPFDL), is an entirely new challenge for logisticians. The requirement to employ while deploying, another operational transformation concept, requires a relook at how logisticians support RSOI as well. It is clear from the arguably chaotic turmoil that marked deployment operations and the initial RSOI and sustainment operations during OEF that Army logistics forces have yet to transform to the degree that they can handle either of these new changes comfortably and efficiently.

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.[36] 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 that we must adapt and transform to. 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.

OIF is perhaps even more telling on the state of Army logistics transformation than OEF. There is a distinct comparison that can be made between logistics operations in OIF and those of Operations DESERT SHIELD and DESERT STORM nearly 13 years prior. Secondly, the scope and scale of the Army logistics effort during OIF vastly exceeded that of OEF; at one point supporting nearly five full Army divisions and an armored cavalry regiment, one Marine division, associated corps and Marine Expeditionary Force level headquarters and several brigades worth of corps troop units, and a large number of echelon above corps or theater level units. Third, the U.S. military, and the Army in particular, had a preexisting forward presence in the region, with nearly unlimited access to world class seaport and airport facilities and an extremely favorable relationship with a willing host nation government that possessed outstanding infrastructure, services, and resources. Finally, there was a very long period of time available, on the order of 12 or more months, to conduct operational and logistics campaign planning and preparation of the theater.[37]

Observations regarding logistics during OIF have been mixed. Amid the heady rush of success regarding the rapid advance to Baghdad, the disintegration of the Republication Guard and the Iraqi Army, and the avoidance of a long protracted urban fight to topple the Hussein regime, initially almost nothing but laudatory comments were made concerning logistics. On March 31, 2003, Lieutenant General John Abizaid, then Deputy Commanding General of Central Command (CENTCOM), stated, "I'm certain that when the history of this campaign is written people will look at this move that land forces have made in this amount of time as being not only a great military accomplishment, but an incredible logistics accomplishment."[38] Noted military historians such as Victor Hansen also echoed the triumph of the logistics effort in support of OIF saying that, as a campaign, it was "historically unprecedented" and that its "logistics will be studied for decades."[39] In addition, an initial series of positive articles over the summer and fall of 2003 in both service and joint publications told of only success in logistics.[40]

It is dangerous to assume that this praise equates to high marks for logistics transformation. Success in logistics is indeed measured in battles won or at least in battles not lost due to resupply or sustainment failures. Success in the transformation of logistics, however, must be measured in how effectively resupply and sustainment are planned and executed. While there were herculean efforts exerted to provide the necessary sustainment to make OIF successful, the definition and tenets of transformation and Focused Logistics again were not realized in any significant fashion.

There is another story to OIF logistics that has slowly crept to the surface and is not quite so flattering; a story that tells of problems related to sustainment planning and execution on a serious scale. It is described in several key "initial observation" studies conducted by the Army and the units involved. It is also addressed by the U.S. Government Accounting Office (USGAO) and in several recently published books on OIF. It is alluded to in, and is the likely genesis of, a White Paper newly published by the Army G4 staff; the bottom line being that we were not as logistically successful as some may have initially thought or publicly stated.

A telling portend of the logistics challenges faced during OIF was seen when severe food and water shortages in forward combat units were reported on national television within 10 days after decisive ground operations commenced. These reports were quickly dismissed as an insignificant aberration; the Commander of CENTCOM himself, General Tommy Franks, stating that,

> We have sufficient—and have had sufficient—stocks all across the battlefield of food, water, fuel, ammunition. But that doesn't necessarily mean that . . . Sergeant Franks or Private Franks out there in the west-most squad, because he was involved in some serious combat, may not have gotten his fair share on a given day.[41]

In *Operation Iraqi Freedom, What Went Right, What Went Wrong, And Why*, author Walter Boyne writes, "Despite all the statements to the contrary, the V Corps and the MEF outran their supply

lines, and this not only hampered their forward movement but also exposed them to the possibility of dangerous counterattack."[42]

Armies have been outdistancing their supply lines since there have been armies. That is not new. What is troubling is that this situation occurred to a force that has been working for so many years at transforming its logistics structures, procedures, and policies to support the kind of rapid, decisive operations that were planned and executed in Iraq; transforming to prevent just such an occurrence in the continuity of support. More troubling is the fact that this situation was repeated several more times, although absent the media scrutiny, as lines of communication stretched north of Baghdad. During a 14-day period between April 30 and May 14, 2003, the 4th Infantry Division failed to receive, on seven separate occasions, either its allotted shipment of food or bottled water until the day it was to be consumed. This effectively caused the division to consume all of its stocks and go without its planned resupply for a 24-hour period in each case.[43] Boyne indicates that food and water were not the only commodity in short supply, referencing "myriad stories of units pleading for more ammunition—always ammunition first—and for other supplies . . ."[44]

Most experienced logisticians will agree that planning for food and water resupply is not terribly difficult; it is simply a math problem based on the size of the force and number of trucks needed to move these supplies, coupled with a time-distance calculation involving the length of the line of communication that must be traveled. Computing this requirement and resourcing the assets to ensure its delivery is the basis for the transformational concept of Time Definite Delivery (TDD). This concept proved untenable and unreliable during OIF with what is the simplest of all supply commodities; one based on a known population and consumption rate.

The Army OIF Study Group, a composite team led by the Center for Army Lessons Learned (CALL), conducted a "Quick Look" examination of all aspects of OIF throughout the campaign. In their initial report, actually released in the fall of 2003 as only briefing slides, the CALL Study Group listed logistics as one of only four areas that fell short of expectations or needs and indicated that it is an area that should be redressed through new initiatives.[45] The report is damning in both its findings and its stated context. The base finding was that, "Logistics distribution and management systems, weakened by late deployment of support units, failed to adequately support the requirements of OIF forces." It continues that the, "Decade-long effort to digitize logistics, adapt 'business practices' and promote efficiency over effectiveness [is] insufficient for [the] contemporary operating environment."[46] A follow-on expansion of this initial study is currently in draft format and has not yet been released officially. Preliminary reports indicate that it contains further criticism of what occurred logistically during OIF.

In a recent lessons learned conference sponsored by the Army Infantry School, the two mechanized Divisions that conducted operations in Iraq through May 2003, the 3rd and 4th Infantry Divisions, and the 101st Airborne Division all echoed the same challenges with logistics. All noted that the corps and theater systems designed to deliver sustainment to their own divisional logistics hubs were hopelessly inadequate.[47] The problem is described by other sources as well. Anthony Cordesman, a military analyst and Senior Fellow at the Center for Strategic and International Studies, writes in *The Iraq War—Strategy, Tactics, and Military Lessons* that the Army simply did not have enough trucks to support and sustain the long distance supply chain.[48] Cordesman's analysis is accurate but only in part. The problem was much more complex, and the failures ran much deeper. The entire distribution system for OIF was never adequately established or validated in the theater of operations. The basic components comprising a theater distribution system were not there; trucks being just one obvious part. Other integral components were also absent.

No viable plan existed in the theater for logistics data connectivity and the ordering of repair parts once units moved out of staging areas in Kuwait. For example, the 4th Infantry Division was forced to leave the bulk of their materiel management center and ordering capability in Kuwait for weeks after the rest of the division deployed north into Iraq as it was the only way to order parts. Even in Kuwait,

however, no robust electronic network existed for the Army's Standard Army Retail Supply System (SARSS) to interface with. All of the subordinate echelons at Brigade level had to verbally call parts requisitions in over a fragile phone network, text messages over a satellite based system designed to track movement, or courier hand-written requisitions back on helicopters or trucks.[49] Other units simply did not even attempt to order repair parts; resorting to wholesale cannibalization and abandonment of vehicles after they were stripped of all useful parts. Units were forced to survive on the limited repair parts they brought with them in their organic maintenance units or sections. The CALL team report states, ". . . no one had anything good to say about parts delivery, from the privates at the front to the generals."[50]

The concept of TAV also did not work as designed. There was initially a great deal of positive publicity concerning the use of Radio Frequency (RF) Tags and the achievement of TAV by agencies such as the U.S. Transportation Command (USTRANSCOM) and DLA.[51] Every container and every vehicle was to have an RF Tag affixed so that it could be tracked and, in the case of a container, its contents annotated; a marked improvement over DESERT SHIELD and DESERT STORM where stories of items lost forever in a sea of stacked containers took on legendary proportions. Unfortunately, the system only worked at the strategic level with items only able to be tracked on ships or planes enroute to the theater from the United States or Europe. Once items arrived in Kuwait, there was nearly zero visibility on these same items. The USGAO reported extensively on this; citing inadequate access to TAV systems within the theater and absence of RF Tag interrogators projected forward as supply lines extended into Iraq, interoperability challenges at different echelons, as well as communications shortfalls and training deficiencies.[52]

The management of the theater distribution system during OIF was also called into question. The USGAO in particular noted severe problems at the Theater Distribution Center established near Arifjan, Kuwait; identifying ". . . a backlog of hundreds of pallets and containers of materiel at various distribution points . . ." The report describes the scene as follows: ". . . a wide array of materiel, spread over many acres, that included a mix of broken and useable parts that had not been sorted into appropriate supply class, unidentified items in containers that had not been opened and inventoried, and items that appeared to be deteriorating due to harsh desert conditions." Lack of transportation resources was certainly partially to blame for this situation, but a key observation concerning command and control at this level was that the absence of an effective prioritization process for supplies and cargo that were awaiting delivery meant that the scarce transportation assets that were available were not used effectively.[53]

Other issues noted concerning logistics during OIF included: the inability of industry and the wholesale supply system to have the requisite high demand spares, items such as batteries, vehicle tires, and track for armored vehicles, readily available to support combat operations; inadequate parts on hand to support prepositioned stocks of equipment; and failure of contracted commercial logistics systems to adequately deliver supplies and repair parts to the theater.[54] One final failure of logistics transformation exhibited during OIF was the Combat Service Support Command and Control System (CSSCS); the system designed and fielded over the last 10 years to provide situational awareness and a common operating picture of units' overall logistics posture and status. CSSCS was simply not used because it could not perform its functions in a reliable, efficient, and useable manner in a wartime environment. A basic spreadsheet-based system utilizing secure email was developed and used in its place with more effective results.[55]

OIF logistics, like OEF logistics, was all about improvisation and adaptation by many talented logisticians. Again, the overall success of the mission speaks volumes about their determination and skill. At the same time, it reflects extremely poorly on the state of logistics transformation. The message from both OEF and OIF is clear; logistics transformation has stalled. This stall has placed the very future of transformation of the Army at risk.

The Promise Not Yet Realized—Factors that Caused the Stall.

A close examination of the last 10-12 years will show that there have been numerous restarts and goal changes in the description of what logistics transformation is. Part of this may be attributed to leadership changes and differing viewpoints. Most of it, however, has been caused by an ability to describe what we want but an inability to define the concrete steps we need to take to get us there. It is far easier to talk about change and the desired endstate than it is to develop and assemble all the pieces required to achieve it. Many of the enabling ideas about logistics transformation have stayed in just that state; as concepts described by bullets on a slide or paragraphs in a glossy pamphlet.

The fact is that across the U.S. Army, very little has occurred aside from experimentation; and even that has truly only been limited to two distinct periods of time with only two different units. While this may at first seem to be a necessary and logical part of the process, it has not served logistics transformation well. A period of experimentation critical to enabling change is acceptable, but it is rendered relatively ineffectual if the findings and resulting value of these experiments are not put expediently in place to transform the remainder of the force. None of the so-called roadmaps to logistics change have been followed to conclusion. Any milestones and timelines that have been established as part of these roadmaps have not been aggressively adhered to.

All of this is complicated because for a long time, the DoD view, the Joint view, and the Army view of logistics transformation were not synchronized. Between 1996 and 2003, the DoD's view on logistics transformation was only communicated through small passages buried deep in Annual Defense Reports; not until the publication of *Transformation Planning Guidance* in 2003 did the Department issue a complete document dedicated to the definition, scope, and strategy for transformational change of the armed forces.[56] The Army's vision and the Joint vision of Focused Logistics have only recently begun to mirror one another, and it is still debatable whether they are fully complementary or work at cross purposes with some joint concepts.

The distance between the staffs in the past has not helped move transformation along in terms of the cooperation and service interdependence necessary to make Focused Logistics a reality. The Army has a reputation for talking jointly but not executing jointly. The Joint community, in particular the Joint logistics community, habitually has leaned very heavily on the Army for much of its doctrinal thought; a scan of Joint logistics publications and the Army ones that predate them will verify this fact. Similarly, the Army has been in front of both the DoD and the Joint community in terms of actual experimentation and development of change. The problem with this is that a major part of Army logistics transformation singularly dependson change that must occur in both the Joint and DoD communities.

Finally, a mindset has been established in the Army and the Joint world that this entire process will take a great deal of time; perhaps another decade or more if the mid-term vision stretches to 2010 as the latest published word on logistics transformation states. The reasons for this are varied; they include funding and resourcing constraints, competing priorities, inability to get key and critical enabling mechanisms such as assured communications into logistics units, competition for electronic bandwidth to move logistics data, selected technologies and systems that have not yet been developed, and the realization that some of the systems, concepts, and doctrine that were developed did not provide the anticipated result.

Most significant, however, is that Army logisticians as a body have not embraced transformation in such a way as to make it happen in the here and now. An old adage among logisticians is that they perform their wartime mission every day. Consumed with the challenges of supporting training and operations on a daily basis, most logisticians outside of CASCOM, the 4th Infantry Division, and the Stryker Brigades have not been included in transformation at all. When you consider that only 6 of the Army's 50 divisional logistics battalions and only 4 of the Army's echelon above division support

battalions have had any sort of an active role in transformation, it is not difficult to understand why the process, the products, the concepts, and the doctrine are not well-distributed across the force.[57]

Preventing a Reoccurrence and Preserving Change Momentum.

Recovery of this stall in logistics transformation must start with an acknowledgement that there is a problem; that collectively the military has not achieved much, if any, transformational change in logistics. This is likely to be an unpopular statement with some as both individual and organizational pride and reputation are at stake in many cases. There will be people and agencies who will not readily admit to this truth. They must be persuaded to this reality; the experiences in OEF and OIF serving as a lever to convince them.

Next, there has to be a pervasive understanding of the process of logistics transformation and what exactly must be changed. This must be something understood by the entire Army logistics community from top to bottom. This does not mean only the Army Staff, the various logistics school houses in TRADOC, and CASCOM. The entire community includes the senior and mid-level commanders and leaders at every echelon of every logistics organization in both the Active and Reserve components; in the divisions and the Stryker Brigade Combat Teams, in echelon above division formations, in echelon above corps formations, and in the AMC. In addition, understanding of this process must go beyond the Joint Staff J4 section, selected individuals in the Office of the Secretary of Defense and DoD, and DLA. It must be understood by logisticians in the Air Force, Navy, Marine Corps, and by the staffs of both regional and functional combatant commands; with a special focus on USTRANSCOM. This is no small list and no small task.

Finally, there has to be an overarching synchronized logistics transformation plan with a strategy and a common intent that all participants can agree to. There cannot be an Army plan, a Joint Staff Plan, a DLA or AMC plan, sister service plans, and a DoD Office of Force Transformation plan that are not nested. It is acceptable for there to be differences in the scope, focus, and approach at each level, but there must be a common purpose, shared terminology, well-matched concepts, and a common vision of endstate. There should also be established milestones and checkpoints to measure progress towards a series of stratified goals at the tactical, operational, and strategic levels of the logistics spectrum. The plan needs to be in tune to the realities of a changing environment, aggressive in distinguishing between success and failure of experimentation, dispassionate towards cutting off the funnel of time, energy, and resources to follow failed strategies, and adaptive towards taking what works and disseminating it widely and rapidly. Lastly, the plan must be a roadmap in more than just name only. It must actually get us somewhere. It cannot be just theory without practice and substance, framed by enablers not yet conceived, bounded only by the fantastic and not the realistic, and not simply a self-perpetuating end in and of itself but a means to an end. This plan has not been written yet.

Preventing a reoccurrence of the stall should be relatively easy if we accomplish the three prerequisites of acknowledgement of where we are now, pervasive understanding of what we are doing and have yet to do, and a viable transformational plan that has a strategy to move us ahead. Preserving the momentum of logistics transformation is ensured by frequent azimuth checks to sustain progress and consistent movement towards established milestones and goals.

ACHIEVING A SUCCESSFUL TRANSFORMATION

Understanding the Process of Logistics Transformation.

The baseline for achieving a successful transformation in Army logistics begins by understanding that the change process is both evolutionary and revolutionary in nature. Evolutionary change is characterized by constancy,

gradualism, and an ordered approach. It tends to be more subtle and smaller. It does not, however, need to operate only at the margins; it can still be sweeping. It may be that a greater measure of command and control exists over the shape and direction of the change effort. Planning for it and managing it should be easier. Revolutionary change sounds more dramatic because it generally is. It is by nature and definition, broad and extensive. It redefines systems and processes in a much shorter period of time. It also tends to be more chaotic.[58]

The real question here is not what kind of change we want or desire but what kind of change we are faced with and forced to work with. Most of the change that has presented itself in the logistics world in the last 10 years has been evolutionary. It is likely that much of the change in the future will be evolutionary as well. This is not an inherently bad thing. It may not sound as spectacular in a briefing, the "Evolution in Military Logistics" vice the "Revolution in Military Logistics," but that is not the point. The point is change. Debating or worrying about the nature or character of it frequently distracts us from harnessing it. Looking for the revolutionary, or waiting for it, tends to make us miss the evolutionary.

Revolutionary change for logistics will come when and if we develop a replacement for fossil fuels that provides perpetual power with reduced need for resupply, armaments that use energy with an indefinite and onboard recharge capability, super-reliable and self-repairing machinery and electronics, a replacement for foodstuffs in a pill or tablet format that satisfies both nutrition and soldier hunger for traditional food, and a way to recycle and reuse bodily waste water and perspiration to decrease the requirement for water. In short, we will see a revolutionary change in logistics when we can either dramatically reduce or eliminate the demand or shrink the size of what must be distributed.

Communicating this understanding to the field is the first challenge we face. The subject of logistics transformation must be forced out to all levels, acknowledged, and then discussed. The discussion is crucial as it will engender consideration, understanding, and ultimately acceptance of the realities of the process. The Army must reach a very broad but also a very select audience; present and future logistics battalion and brigade level commanders, mid-level and senior logistics noncommissioned officers (NCOs), present and future logistics platoon leaders and company commanders, and present and future support operations officers and executive officers. A three-fold strategy to do this will work best.

The strategy must include contact and briefings, followed by discussion, at all logistics pre-command courses, at logistics officer basic courses, at the Combined Logistics Captains Career Course, at logistics basic and advanced NCO courses, and at the Support Operations Officer Course. Logistics officers and NCOs attending the Command and General Staff College and the Sergeants Major Academy should also get the same briefings. These briefings and discussion on logistics transformation must be treated as the centerpiece around which the rest of the curriculum is based. Other material presented at these schools must reinforce and support the idea of logistics transformation. The goal here is to change the mindset and establish it as the basis for all doctrinal thought and application. CASCOM and the Army Logistics Management College (ALMC) should take the lead on developing the products to be used for this. ALMC should go on the road to instruct the seminars for students at the Command and General Staff College and the Sergeants Major Academy. ALMC or CASCOM should also make similar presentations to logisticians attending the senior service colleges, sister service schools at the combined staff college level, and at the Joint Forces Staff College.

Most soldiers in the Army have experienced the chain-teaching method of disseminating information or guidance. Units receive canned briefings, with accompanying notes or script, from higher level headquarters and are required to deliver the product to members of the unit and then report back on completion and compliance. While chain-teaching is not always greeted enthusiastically, it has indeed proven effective in getting the word out. This is the approach that must be taken to reach key logistics leaders who are

not currently in school. A chain-teaching briefing on logistics transformation should be sent to all battalion and brigade level logistics headquarters, as well as to AMC, with the requirement that it be delivered to the same group of leaders noted above in all subordinate elements. Simply emailing the information across the force or posting it to a website is not sufficient and will not be effective. There is very little impetus or emphasis that can be put on reading and dissemination and no opportunity for discussion, dialogue, and interaction.

Finally, the Army logistics leadership community currently sitting in command billets at the battalion level and higher in the operational and institutional Army, in both the active and reserve components, should meet at least annually as a corporate body to discuss logistics transformation. This meeting should be a forum for exchange of ideas and, most importantly, a status report on where the Army is with logistics transformation and where it is going in the next 12 months. A plethora of reasons will always be offered as to why this cannot occur; it will be perceived as too hard or too expensive or too distracting. These are irresponsible protests. The issue is too important and the failures to date have been too severe not to do this. Meetings that are held now are too narrow in their audience focus; senior Army staff, the school houses, CASCOM and TRADOC, and the swarm of contractors and Program Managers are the only ones who ever meet. Logistics transformation is logistics commanders' business. It has not been executed in that fashion up to this point. There is little wonder why logistics transformation is not happening across the Army. The key leaders who are responsible for change are not involved.

Beyond communicating an understanding of the process, the Army must come to grips with what must be changed to achieve a successful transformation of logistics. The following outline of where we ought to focus, what must actually be changed, what the priority of change ought to be, and who should be the lead in effecting it is offered for consideration.

WHAT MUST CHANGE

Doctrine and Concepts—Speak With One Voice.

The first area on which that the Army logistics community must focus is the written word as it relates to doctrine and concepts. We must ensure that what has been most recently published by the Army, the Joint Staff, and DoD is synchronized, valid, and commonly accepted as the way ahead. Two specific issues must be immediately addressed: first, an update to the doctrinal publications that logisticians in the field Army read and use; and second, an assessment of another looming disconnect in the published azimuth and synchronization of where we are going with the concept of the transformed logistics.

A notable issue with both Army and Joint doctrine is that the two manuals that are actually supposed to articulate the application of logistics doctrine significantly lag behind transformational concepts. Army *Field Manual* (*FM*) *4-0*, "Combat Service Support," dated August 2003 and *Joint Publication* (*JP*) *4-0*, "Doctrine for Logistics Support of Joint Operations," dated April 2000, are not very useful to a transforming force. *FM 4-0* fails to address the concept of Focused Logistics at all; giving it no mention anywhere in the manual. Its only acknowledgement that the Army is undergoing a logistics transformation is in a dozen paragraphs under the heading of "Directions in CSS Development" in the last portion of the introductory chapter of the manual; some 60 sections into the text. The reader is apprised only that the Army's logistics transformation charter has a three-fold goal: to enhance strategic responsiveness to meet deployment timelines; to reduce the logistics footprint in the area of operations; and to reduce logistics costs without reducing warfighting capability and readiness.[59] The rest of the manual is devoted to legacy concepts and doctrinal thought. *JP 4-0* is even more dated. It contains no reference and no direct relevance to transformation whatsoever.

Both of these documents are the product of the traditional doctrine publication model. Both likely were started 3-5 years prior to their publication

date. It may be that they were written by a section in CASCOM or J4 that was not involved directly with transformation and therefore did not use transformation as a central theme in organizing the manual. This needs to be fixed; even if it is just a restructuring of the current *FM* and *JP* to align the existing content to a more updated context. Again, we are not able to communicate broadly with the field Army on doctrinal matters in a manner that is relevant to our focus on changing it. If the manuals only survive for 2 years, as opposed to 10, then so be it. Electronic publications can easily have a shorter shelf-life and not incur the sunk costs of bound and printed hard copy paper. The point is that these manuals and their like are the reference that is found in motorpools, headquarters, offices, and schoolhouses across the Army. They are being used to educate and train the force. They must be current and relevant to be of any significant value in achieving transformation.

The second issue is with a DoD initiative regarding a new concept called "Sense and Respond Logistics." This idea, not currently captured in any published Joint or Army work, yet again may redefine logistics transformation focus. The sense and respond concept is focused on achieving a network-centric environment where information technology provides superior and relatively seamless connectivity of data, information, and awareness. The concept seeks to develop an adaptive logistics system that enables units to draw support from a number of supply nodes that are distributed dynamically across the battlefield as operations dictate. Robust and flexible transportation networks, enabled by situational awareness of requirements, demand, and location of forces, mitigate risk and uncertainty. This concept mirrors and borrows liberally from recently successful civilian industrial logistics models.[60]

It might be argued that this is already a foregone conclusion since all indicators from DoD are that this is the direction they are leading the force. It is also evident from the material available on the DoD Office of Force Transformation website that this initiative has "legs" within the Pentagon. Articles have been written, briefings have been given, and studies have been released. What is not certain is the collective logistics community vote and acceptance on the feasibility of this particular concept as it applies to support of current and future warfare. Conclusions have already been drawn by some with regard to this concept and OIF. The DoD-contracted authors of a report entitled, *The Sense and Respond Logistics Capability and Operation Iraqi Freedom,* state that, "We do not believe . . . that the more detailed and in-depth analyses that emerge over the next several months will alter significantly the observations, assessments, and conclusions of this study."[61] The study, of course, prescribes the "sense and respond" concept as the way of the future for a more agile and adaptive logistics system and offers it as the solution to the failure of transformational logistics in OIF.

The danger here is clear. There has been a history of the Army, the Joint Staff, and DoD going off in separate directions with regard to doctrine and concepts. This is evidence that this may be occurring again. This would be another restart and refocus without the benefit of debate and discussion as to value, the particulars of execution and the way ahead, and, most importantly, how well a commercial solution fits with military realities. The result may be more of what we have experienced in the past where there has been no concrete plan, no nesting of concepts, no unity of effort, and, most importantly, no buy-in from the force. It may very well be that sense and respond logistics is where we need to go with logistics transformation, but the Army and the Joint force cannot afford to embrace it without examining it in detail. To do so may generate nothing more than another theoretical restart of the transformational process with no substantive change that is illuminated in the harsh glare of current combat operations or the next conflict.

Doctrine and Concepts—Embrace an Evolutionary Approach.

The Army must fight the urge to link doctrine and concepts to only revolutionary change. We cannot afford to wait for a revolutionary event to enable a revolutionary change. This will

cause us to miss the opportunity provided by an evolutionary approach that yields transformational benefits now. We must temper our concepts and doctrine with a healthy dose of what is feasible, acceptable, and suitable both today and in the future. There are indications that the Army is embracing this idea. Just prior to the release of the *Army Transformation Roadmap*, the Army G4 produced a White Paper entitled "*Delivering Materiel Readiness to the Army.*" This paper addresses the need to remedy "known shortfalls in our current structure that require immediate action, and directly support our Army's *transition* [italics added] to an expeditionary force. . . ."[62] The word transition vice transformation is a key one. Transition implies changes now with the resources at hand. The paper identifies focus areas that are to be held preeminent over the next 2 years. This time span is also important, not only because it sets a mark for measuring results, but also because it effectively precludes waiting for a revolutionary action or process to occur to stimulate change. The paper is written with the observations and insights of OIF and OEF in the forefront of the Army's frame of reference. While not openly declaring the logistics effort supporting these operations a debacle, it does identify four of the key areas that fell far short of expectations; namely logistics communications and data connectivity; an effective theater distribution system; an effective force reception process, plan, and capability; and an integrated supply chain with visibility and information sharing.

Doctrine and Concepts—Look Back to Find the Way Ahead.

The Army logistics community must take a measured and focused look back across the history of logistics transformation in the last 10 years to examine closely the work that has already been completed. There is a great deal of value in some of the basic insights gained with Force XXI and with the Interim Force experiments. At the same time, the observations and insights from OIF and OEF must be considered as the current benchmark for a reality check. If a concept or doctrine does not or cannot be made to work in the present context of logistics operations, it must be weighed carefully to determine if it can be of relevant value in the short term or in the long term. This is crucial to developing a viable roadmap for change and a vision that is executable.

Doctrine and Concepts—VALIDATE the Distribution-Based Logistics Method.

The underpinning theory of logistics transformation and Focused Logistics is based on ensuring that the right commodity is delivered to the right place, in the right quantity and configuration, and at the right time with the minimal logistics footprint forward in the area of operations. Whether termed inventory in motion, just-in-time logistics, distribution-based logistics, precision logistics, or sense and respond logistics, the concept seeks to leverage select technologies, primarily digital communications and network systems, to reduce the necessity to stockpile resources to meet demands. The goal is to keep large quantities of supplies and the forces needed to manage them away from the area of operations and still be able to get it rapidly to the requesting unit when required. There is no question that this concept will work in theory and that it offers great advantages. It has worked in practice as well; although primarily in civilian sector commercial industry or in extremely small-scale military contingencies. The real debate should be about why it has failed to work in operations like OEF and OIF, what risk do we incur when it fails to work and how do we mitigate it, and is it valid in its ability to meet the needs of the military in its current form or must we develop a new or hybrid concept.

One of the key reasons for the failure of distribution-based logistics to work in operations as massive as OIF is the incredible complexity of the system. Distribution-based logistics requires a system or a process that enables a unit to order supplies, materiel and movement managers to achieve a required level of TAV to direct and redirect supplies, supply units to receive and configure supplies, and the proper type and

quantity of transportation assets to project them to the intended recipient. Failure in any one of the component areas of distribution-based logistics will cause problems. Failure in multiple areas, or in the case of OIF in nearly all areas, can be disastrous. This complexity is manageable, but only if the system is established and is viable.

What was revealed in both OEF and OIF was that we failed to establish the system. In one case we had only weeks to do it, but in the other we had months. A real concern is that we may be headed towards future conflict in a strategic environment where having time is more the exception than the rule. If that is the case, then a serious look must be taken at how we establish a distribution-based logistics system to respond immediately to even more fluid, disorderly, and uncertain situations than we have been presented with so far. Within this constraint, we must also assess risk and develop mitigation if the system fails to work. The near-term risk, of course, is that we temporarily run short of food, water, ammunition, or fuel. A longer-term risk is that we are unable to reorder repair parts for our vehicles, and our combat power bleeds away. Mitigation may mean that we take more sustainment with us initially in our fielded forces or we push anticipated supply based on planned requirements; the former course of action making the force heavier and deployment more difficult, and the latter course often further disrupting and congesting an already broken process.

Given this reality, then, an adjustment must be made to the concept. The first parameter must be effectiveness. The system has to work effectively or it will be of no value; efficiency is of lesser importance. An undisguised effort for many years now has been underway to make the Army's logistics system more efficient. Wal-Mart is frequently the model touted by many for what efficiency in distribution-based logistics ought to look like. No military logistician believes that the Army's logistics system and process will ever be, or even should be, exactly like Wal-Mart's. The context and conditions in which military logistics is conducted are radically different and much more complex. However, the desire to parallel "Wal-Mart like" efficiencies runs quietly under the surface. Maximizing efficiency, or even optimizing it, may not provide the necessary effectiveness. The heretofore traditional method of logistics, where the footprint was large and stocks equating to many days of supply were established, was an effective method, but it clearly lacked efficiencies. Distribution-based logistics offers efficiencies, but it cannot seek these at the expense of the ultimate bottom line, which is effective support. Achieving efficiencies, especially at the strategic level where dollars are big and the perspective is broad, that do not contribute to effectiveness at the operational and tactical level ultimately risk the lives of soldiers, failure of missions, and the loss of a war.

Another key parameter must be flexibility. The system has to be able to be adapted to fit the situation. Flexibility in distribution may mean that the system looks different for different scenarios. We cannot be too wedded to a single theoretical design if it will not work in a specific campaign plan. Having this flexibility built into the logistics design of the plan precludes the type of crisis response that will inevitably occur if there is a system failure. Some have argued that flexibility and adaptation are different qualities, and that the best way to adjust to radical changes in environment or context is by being less rooted in preplanning.[63] This is absolutely not true and is extremely dangerous. Executing logistics by discovery or serendipity is irresponsible and will lead to failure. Flexibility does not mean that we conduct logistics planning on the fly or that we make it up as the situation develops. Flexibility and the ability to adapt comes from being able to deviate or adjust from a plan.

A flexible approach to distribution-based logistics may call for a system where selected sustainment commodities that are forecasted easily are indeed stockpiled or where the logistical footprint is indeed larger. This is not a throw back to the old ways of doing business but rather an acknowledgement of the necessity to do what works and to develop appropriate mitigation against anticipated and perceived risk. The reality of war is that, when a process is not working,

every effort is made to solve the problem. Flexible tailoring of how we develop and execute distribution-based logistics at the front end will enable us to adapt the system more readily when operationally necessary.

A third parameter must be practicality. Distribution-based logistics need not be perfect. Perfect has always been the enemy of good enough. A great deal of uncertainty is inherent in a complex system such as this one. Managing this uncertainty can be overcome in many ways. Some may argue that robust information technology is the best way to do this so that having close to perfect situational awareness and data will limit uncertainty. Experience repeatedly has shown that perfect situational awareness is an impossibility. The chaos and ambiguity of the battlefield precludes it from happening. Secondly, any strategy that rests upon technological reliance as opposed to technological leveraging will fail. These are the most vivid lessons of the Force XXI experience, and they must not be discounted.

Uncertainty is best managed by distributing it to the levels where risk is real and can be addressed. To use an example from OIF, this may mean that the theater leader, who has ultimate responsibility for the theater-wide planning and resourcing, works with the corps or even the division or brigade leaders early in the planning process to come up with feasible answers to how to get mail or meals or water or fresh fruit or ice to soldiers along extended lines of communication during every phase of operations. Many of the answers to solve these challenges during OIF came about when logistics leaders and planners from all these levels worked together to develop practical solutions that were outside of the conventional distribution system model that existed up until that time. That these answers were developed deep into the operation in April, May, and June 2004 is unfortunate. Sharing the uncertainty across all levels 6 months earlier in November, December, and January would likely have led to the same conclusions and solutions about how to provide support and possibly would have precluded some of the problems that did arise.

Another key parameter of distribution-based logistics is that it must be validated deliberately. There must be a plan and process for establishing it and verifying that the system is set and will work. A "rockdrill" or a rehearsal in a warehouse in the desert is not good enough. There were "rockdrills" aplenty for OIF, and the impression was that the system was sound. Nothing could have been further from the truth. Several critical elements of the distribution system must be addressed and validated. The distribution system must have a reliable means to execute over the horizon communications that can pass logistics requisition data as well as logistics status and reporting data. It must include an in-transit and TAV plan for more than just the strategic lift aspect of transportation and supply that is capable of being projected inland. There must be a validation that a right-sized logistics footprint exists. It must have adequate forces and resources phased and flowed in a timely manner, arrayed in the proper locations, and equipped with the proper tools so that the forces can receive, configure, and transport sustainment to the limits of advance or the Phase Line that is operationally acceptable. An exhaustive identification and analysis of the possible failure points in the system must take place so that risk can be anticipated and mitigated, and uncertainty can be managed. Finally, there must be a validated metric for measuring success based on the effectiveness of logistics support to synchronize with the operational scheme of maneuver.

The final parameter of distribution-based logistics involves process ownership. Someone must be in charge of the process and the system. The general consensus since OEF and OIF has been that no one agency or organization exercises overall control of the distribution process; the follow-on implication is that this lack of ownership lies at the root of the distribution problems experienced during these operations. This conclusion recently prompted the Secretary of Defense to designate USTRANSCOM as the overall distribution process owner and the organization responsible to ensure that distribution-based logistics is realized. Assigning responsibility is fine, but the reality is that USTRANSCOM cannot solve theater distribution problems as they are not present in the theater in a capacity to do so. USTRANSCOM

operates at the strategic level and does a great job of coordinating the movement of personnel and equipment to the theater but not within it.

Distribution must be fed by a wholesale supply and requisitioning system that provides and injects the necessary materiel into the transportation pipeline. This has always been, and will continue to be, DLA's job. Merging the two agencies, one a combatant command and one a DoD command, may be possible, but indications are that it will be resisted and may not be in the best interest of all concerned. Frankly, the distribution system at this level works very well. The only valid complaint about distribution-based logistics at the highest strategic level is that commercial and defense industries do not produce or stockpile all of the combat critical demand items in peacetime that are required during wartime; an age-old problem experienced by every nation that is not a strictly militaristic state with all industry focused on the continual production of military materiel. The United States has always had to, and will likely continue to always have to, ramp up peacetime industry to a wartime footing.

Ownership of the distribution system must be shared, not just placed in the lap of USTRANSCOM. The real test of distribution-based logistics is in the last 100 miles; or, in the case of OIF, the last 800 miles. This portion of the theater cannot be affected by USTRANSCOM, nor should it be. Ownership of distribution-based logistics within the theater must be carefully divided between the different organizations that operate at different levels therein. The Theater Support Command gets a large piece and should be the key headquarters that manages the end-to-end distribution from the high water mark to the front lines. In the current logistics organizational model, they must be assisted by the corps support command, division support commands, and by the logistics formations of the brigades themselves. As the force transforms, these organizational structures may change in name and form, but the shared responsibilities will still exist. Ownership of the process, more specifically ownership of certain parts of it, must still be assigned to the proper level.

Doctrine and Concepts—Reexamine Key Concepts Associated with Distribution.

The concept of TDD needs to be reexamined for the simple fact that no guarantees exist on a battlefield. The term is misleading and causes operational commanders to count on something that may not occur. This can have an extremely adverse effect on many different levels. Not only might failure be associated with execution of the mission because the promised support was not delivered, but also the erosion of trust previously established between operator and logistician can have much farther reaching negative consequences. Serious damage has been done during OEF and OIF in this regard; our failure to successfully demonstrate this concept being the cause.

The concept of TDD should not be abandoned. It does have utility. Establishing a TDD, repeatedly demonstrating the ability to achieve it, and then providing the supported unit with relative assurance about when to expect something once it has been requested is useful in predicting sustainability of a particular course of action or plan. TDD is a goal to strive for, and it must be explained in that way. It may be achievable at some levels and in some circumstances, but it is ultimately an assumption until it can be proven as a fact. We must remember that when we make assumptions that are not valid, we modify or discard the assumption. TDD must be approached in this manner. It is possible, even probable, that TDD will change as events change. We must be alert to that and cognizant of what caused it to get better or worse so that we can sustain or improve the process. The utility of TDD is in its use as a metric against which the distribution-based system is measured. Most importantly, if we are not meeting the stated TDD for a particular commodity, we must use this as a prompter to initiate immediate examination and evaluation of the system to discover and aggressively rectify the fault.

TAV must be broadened in its scope and reach on the battlefield and refined in its use in garrison and training. The concept of TAV is valid, but its value to date in a wartime theater of operations has been negligible. The reality is that in the

last 10 years we have been unsuccessful in our ability to extend TAV beyond the strategic level; arguably all that we were able to do in OIF and OEF. The Army and the wholesale supply system did a relatively good job of affixing RF tags to equipment, containers, and vehicles but a dismal job of leveraging any of the TAV information beyond the aerial or sea port of debarkation. The true utility of TAV is that it enables the redirection of incoming supplies to support a new priority or to respond to a developing situation; either within the Army force component or to a joint service component. None of this will ever be possible unless TAV can be made to work at the materiel management centers of the theater and corps support commands. The TAV goal is to have end-to-end visibility. At a minimum, TAV must exist through to the operational level where sustainment stocks come under divisional or separate brigade control.

The fix involves equipping, training, and discipline. TAV must be pushed forward on the battlefield. This takes several things; most notably hardware and software at forward nodes that can be used to access the system. Secondly, it takes training at levels much lower than TRANSCOM and DLA and the discipline to make it happen. Once the force is adequately equipped, the problem is reduced to a classic "train as you fight" issue. Utilization of TAV technology and procedures as a matter of routine in a peacetime environment in daily operations, exercises, and training is a key part of the strategy needed to make it work in wartime. This utilization must occur in the two active duty theater support commands in Germany and Korea and at the corps and division level. Necessary fielding and extensive training on TAV also must occur in reserve component theater support commands; a reserve component theater support command was most recently the critical materiel management and distribution logistics node in OIF.

The concept of in-transit visibility (ITV), a component of TAV that is based on tracking the transportation platform as opposed to the cargo, is working now. The Movement Tracking System (MTS) is a satellite based system that effectively provides this capability and is currently being fielded to logistics units at all levels and to selected echelon above division combat and combat support units. MTS worked very well in certain locations during OIF. However, other aspects of OIF may call into question its future utility. The Army's likely dilemma with MTS will be to continue the fielding as is, or to migrate all Army platforms to one common system. The common system would likely be Blue Force Tracker (BFT); a satellite based version of the existing Force XXI situational awareness system known as Future Battle Command Brigade and Below (FBCB2). The reason that there are two situational awareness systems, MTS and FBCB2, goes back to the Force XXI experiments. FBCB2 was designed to only be fielded to divisional units at brigade level and below, to include the forward support battalion, and to some selected units in the division base. MTS was developed for the echelon above division units; primarily logistics units and combat and combat support units such as Corps Field Artillery and Military Police. The systems never interfaced and still do not.

The reason there might be pressure to dump MTS is because BFT received a great deal of praise during OEF and OIF. Much of this can be attributed to a "gee-whiz" effect in units that had no such situational awareness tool and then were given this system at the last minute; basically they went from nothing to something overnight as rapid fielding was executed in the final days before crossing the line of departure into Iraq. MTS works for logisticians, giving them everything they need to conduct ITV, but the desire to have one common system may be too great. Plus, there are advantages to pure fleeting the force in terms of maintenance, training, and interchangeability. A closer look at comments on BFT by key OIF leaders, to include the V Corps Commander, and an examination of the experiences of the 4th Infantry Division with FBCB2, specifically with regard to maintenance and system failure rates, should occur before a final decision on MTS is made.[64]

If the decision is made to keep both MTS and BFT, the fielding of MTS must be relooked and expanded to include a much broader basis of

issue in all logistics units in both the active and reserve components. It must also be expedited rapidly so that fielding is accomplished now and not in accordance with the current Department of the Army Master Priority List (DAMPL) order. Further research must be done to create an interface between the two systems. MTS can coexist with BFT, but its survival depends on proving that it can stand alone and still be part of the overall network by having the capability to pass data back and forth.

If the decision is made to cancel MTS, then two things must occur. Existing MTS systems across the Army immediately should be redistributed exclusively to active and reserve component logistics units. Specifically, MTS should be given to all logistics battalion headquarters and select transportation units; focusing on petroleum, palletized loading, semi-trailer, and heavy equipment transport units. This will ensure that an ITV capability is resident and pervasive across the logistics force in the short term. The Army's logistics leadership must then aggressively fight to ensure that MTS is rapidly replaced one for one by BFT in accordance with the expanded basis of issue described above.

Doctrine and Concepts—Supporting Simultaneous Deployment and Employment.

It is clear that a new paradigm is developing in how Army forces are likely to be employed in the future. Reading the current *Army Transformation Roadmap*, any number of the CSA's recent statements regarding the "expeditionary" nature he wants the Army to adopt, or simply observing how operations were conducted during OEF and OIF, it becomes apparent that the U.S. military will focus on being able to conduct decisive combat operations simultaneously with conducting deployment operations. Not part of the original logistics transformational charter, supporting simultaneous deployment and employment represents a huge transformational challenge for Army logisticians. This concept has implications on logistics transformation that may be overlooked if they are not carefully addressed.

Part of the challenge of supporting combat operations while the force is still deep into the deployment process, or conducting "a rolling start" as it was termed for OIF, lies in basic logistics planning and the development and execution of the initial support concept. In every operation in the future, unless otherwise dictated, we must plan to force package and integrate combat service support capability that enables support from the rear deck of the tank back to a plug into the wholesale supply and maintenance system; an end-to-end capability that allows for immediate and indefinite sustainment of whatever size unit is committed. This inevitably will require a break from traditional methods employed today that layer support echelons from brigade back through the theater support command in a build-up of forces. A likely approach may be the creation of an adequately sized logistics task force (LTF) that is flowed in as part of the combat force, with required resources from all echelons, and tailored to provide full-spectrum combat service support. Depending on the force projected, this LTF may or may not be comprised of the organic support units associated with the force. In general, efficiencies must be sacrificed to ensure effective support; this may mean that duplicate LTFs are established when forces are dispersed.

A second transformational requirement for simultaneous deployment and employment involves bending a rather rigid deployment process to the supported commander's intent. This topic generates lots of discussion between parties which believe that this already happens and those who think that it occurs in name only. Joint and service doctrinal reference terms such as Latest Arrival Date and Required Delivery Date have different practical definitions depending upon what metric is being assessed and who is assessing it, specifically related to a pure transportation action or a target for when a unit can actually fight. What is clear is that large-scale transportation movements tend to initiate arguments for large-scale efficiencies. The focus must always be that the concept of employment drives the concept of transportation, and not the reverse.

A final requirement is the transformation of the traditional model of how we execute reception,

staging, onward movement, and integration or RSOI tasks upon arrival in the area of operations. It is anticipated that the requirement to do RSOI will still exist in the future, but current debate centers on where and how it should be done. The transformational change required here is a mindset change more than anything else. Deployments in the future must be marked by the movement of combat ready formations that are capable of executing their missions when the ramp comes down, the door is opened, or the hatch is unbattened. This is beyond the scope of anything involving routine strategic deployment to date, with the exception perhaps of an airborne assault, but it must become the norm. Where commercial, governmental, domestic, or foreign laws and regulations preclude it from occurring, efforts coordinated at the highest strategic level necessary must be made to gain permissions, mitigate risk, and, most of all, to manage expectations.

New concepts such as "sea basing" proposed by the Marine Corps and the Navy hold some promise. Some could argue that the floating an Army division and all necessary echelon above division support forces off the coast of Turkey and then projecting it through the Suez Canal and into operations was the biggest and most successful sea basing operation ever. The challenge for the Army will be to determine if the scope and size of projecting a large land component force equivalent to an Army division or corps calls for other solutions that may be more suited to projection from homestation to the area of operations without having to go through the sea base.

Perhaps the most feasible answer is to limit the requirement for as much of the RSOI process as possible by deploying units in as close to a combat ready mode as possible. Again, this requires certain permissions for issues involving deployment of combat vehicles that are uploaded with ammunition and fuel. In addition, it requires a plan to rapidly reinstall weapons and radio equipment that may have to be dismounted for security reasons as well as a plan to ensure that basic loads of food, water, and repair parts are integrated and accessible on organic transport vehicles. It also must include an accounting of noncombat related life support items such as tentage, cots, and personnel baggage required for a long-term presence. Finally, it must be planned to occur in the most severe level of austerity using only the organic resources of the deploying unit.

OIF provided an excellent, albeit relatively unpublicized, example of how to successfully employ a large and lethal Army force while in the midst of deploying it. Operations conducted between January 19, 2003, and April 14, 2003, by a mission tailored 30,000-soldier task force built around the 4th Infantry Division serve as an exceptional model of just how effectively we can execute this concept. All of the characteristics described above, force packaging and integrating required logistics capability into the flow of forces, adjusting the deployment mechanisms to meet the commander's intent, and streamlining the JRSOI process, were exhibited in the planning and execution of the deployment of Task Force Ironhorse.

The teaming, cooperation, partnership, and flexibility demonstrated by III Corps, FORSCOM, and USTRANSCOM resulted in the most rapid, precise, and efficient deployment of ground maneuver forces that the Army has ever executed. The upload, embarkation, debarkation, and configuration for combat of Task Force Ironhorse demonstrated the art of the possible. The first ship was being loaded within 120 hours of deployment notification and was underway a mere 48 hours later. Within the next 7 days, seven more ships were loaded and were enroute; and by February 2, 2003, the entire division and all active duty component echelon above division units were staged in combat configured task organization at the port of embarkation awaiting transportation.[65] When the decision was made to commit Task Force Ironhorse through Kuwait, it took the division only 10 days to get the first combat force package, a four battalion reinforced brigade combat team and the divisional cavalry squadron, through RSOI and committed into combat in Iraq north of Baghdad. Estimates are that this time would have been reduced to 72 hours if permission had been granted to deploy with ammunition uploaded on combat vehicles.[66]

Discounting sailing time, the Army was able to project 115 Abrams Tanks, 128 Bradley Fighting Vehicles, 18 Self-propelled Howitzers, 18 Multiple Launch Rocket Systems, 16 reconnaissance and attack helicopters, associated logistics and other support vehicles from motor pools into combat in 15 days. With ammunition uploaded, this time could have been reduced to 7 days. This demonstrates how a heavy force with overwhelming combat power can be uploaded for a contingency, placed in a standby status off of the coast of a hostile shore, be downloaded, and made ready for combat in an extremely rapid manner. This is reality today. If and when sailing times are reduced by the development of extremely high speed ocean going transport vessels, the argument about the inability to rapidly project heavy forces will become moot.

Organizational Design—Modular, Multifunctional, Multicapable.

It has been recognized for some time that a key component of logistics transformation, specifically with regard to the ability to sustain forces projected in an expeditionary manner, is the modular redesign of echelon above division combat service support organizations. Modularity enables the development of tailored logistics task forces of the kind previously described. The Army already does this tailoring today with current force structure that is far from modular. The resulting problem is that this is only accomplished with a great deal of effort, coordination, and with directive authority that cuts across several command echelons. The theory and practice are there, but the process is far from routine or as effective as it should be. Another product of the Force XXI experimentation era, echelon above division modular logistics units that perform supply, maintenance, and transportation functions, were all previously designed by CASCOM. Few of these designs have found their way into being, but the templates are all still there. The Army, specifically TRADOC and CASCOM, needs to step up the transition to modular units right now. They are relevant to the force today as well as to the future force.

Multifunctionality is another goal for logistics unit redesign, although so far it has been confined mostly to redesign efforts within brigade or divisional structure. An example is the forward support company that was designed to support maneuver battalions in the Force XXI Division and the Stryker Brigades. The concept of multifunctionality applies to echelon above division logistics unit redesign as well. It is especially effective in reducing the command and control and administrative overhead that pure modularity usually requires; a modular unit requires some redundancies in these areas to enable it to be split and operated effectively. The Army needs to develop a number of echelon above division multifunctional logistics companies; a recommendation would be one per brigade element. These companies, in addition to purely functional ones that are modular, will enable the Army to have a ready pool of units that have the expertise and experience to provide the full spectrum of support functions. Multifunctional companies will be able to receive augmentation in the form of attachment from modular units, will deploy with the brigade, and will serve as the initial link between the brigade's organic logistics element and the corps or theater.

Another requirement to achieve the transformation of logistics is a continued push towards producing multi-capable soldiers and units. In the late 1990s, CASCOM was very successful in combining several military occupational specialties in certain career fields and enhancing logistics support by developing soldiers who could perform tasks that spanned several echelons of support levels. The most notable success was the multi-capable maintenance soldier who could perform both organizational level and direct support level tasks. This resulted in manpower and manhour efficiencies and a reduction in personnel required. More importantly, however, it introduced effectiveness in the system as a greater degree of maintenance was able to be performed forward on the battlefield and combat systems were returned to the fight faster since some level of evacuation and the corresponding time associated with it was eliminated. Similar results may be possible in other logistics career fields and should be pursued.

A final area of logistics force structure that requires a relook is the logistics battalion headquarters. Today, there are 21 different varieties of headquarters designed to support deployable Army ground forces. Also, nine different kinds of battalion headquarters are designed to support aviation units, medical units, and to work at ports.[67] Some of these headquarters are multifunctional, and some are purely functional. A consolidation and simplification of these headquarters is required at both the divisional and echelon above division level. As the Army redesigns itself around the brigade as the central maneuver force, an opportunity exists to change concurrently the number of different types of ground support logistics battalions from 15 to 4. The Army should develop three versions of the Forward Support Battalion (FSB); one to support a heavy brigade, one to support a light brigade, and one to support the Stryker Brigade. All the remaining logistics battalions, to include the Divisional Main Support Battalion (MSB) and all functional supply, maintenance, transportation, and movement control battalions, should be converted to the Corps Support Battalion (CSB) design. Note that if the Airborne Brigade, Air Assault Brigade, and Armored Calvary Regiment are not changed in the Army redesign, a slightly different FSB type headquarters for each of these would also be required.

The arguments for doing this are strong. The CSB is currently the only logistics battalion in the Army that is designed to be task organized or tailored to meet mission requirements. The only one with the appropriate staffing to command and control any type of logistics unit, less aviation and medical, a CSB historically commands up to seven different units in wartime. With a small staff augmentation of less than 10 personnel, or a redesign to make them a permanent part of the organization, the CSB could easily command aviation maintenance or medical supply or treatment units as well. The MSB is no longer needed; a CSB can fill this role. Functional battalions have limited capabilities; they do not have the staff expertise, experience, or knowledge to command and control any type of unit outside of their basic branch affiliation. Counter arguments will likely be presented by branch "purists" who claim that only transportation officers, or quartermaster officers, or ordnance officers can command certain types of units. This is archaic and shortsighted thinking. The success of the multifunctional logistician program is proof to the contrary. Branch specificity is only useful for lieutenants. The transition to multifunctional units and assignments needs to start with a select number of companies and apply to all captains. At the field grade level, there only needs to be one logistics career field; currently Functional Area 90 or Multifunctional Logistician. Branch parochialisms need to be set aside, and the "branch protected" functional logistics commands need to be disbanded, redesigned, and redesignated as CSBs.

Logistics Transformational Enablers—Kill the Nonfunctional and Fill the Gaps.

Transformation has spawned a number of "enablers" over the years. Industry responded enthusiastically to the Army's call for new materiel and equipment solutions, new technologies, and new systems to develop an approach to warfare in the information age. As part of this process, the manner of developing and fielding logistics transformational enablers in the past decade has worked well. There have been many opportunities to get logistics transformation enabling items into the hands of soldiers to see how they perform in actual usage. This method, which includes a feedback loop from the soldier to the combat developer for modifications and improvements, is loosely referred to as "spiral development." It works well and should be continued.

At the same time, however, this process has perpetuated a situation where some enablers take on a life of their own, and it becomes difficult, if not impossible, to terminate a program that is not meeting requirements. A great example of this was the Combat Service Support Command and Control System. As noted previously, CSSCS was a system designed to provide situational awareness and a common operating picture of units' overall logistics posture and status. In more basic terms,

CSSCS was an automated version of the logistics status report (LOGSTAT). It also contained a suite of planning tools incorporated from other stand alone logistics planning models. In development for more than a decade in one form or another, CSSCS has never been able to provide logisticians with the responsive, reliable, and relevant results it promised to deliver. Although fielded for many years, with periodic software upgrades along the way, it never took hold as a useful and used tool which indicates its status as a failed system and program. The utter disregard for the system during OEF and OIF sounded its death-knell. A new system called the Battle Command Sustainment Support System (BCS3) is now under development to take its place.[68]

There are several lessons here and at least one significant caution. The major lessons include a call to the combat developers and system and program managers in CASCOM, TRADOC, AMC, and on the Army Staff to listen to the field. For years, scores of logistics units and logistics leaders from individual CSSCS operators up through Division Support Commands, Corps Support Groups, and Corps Support Commands reported the significant shortcomings, problems, and failures of CSSCS. Their comments and concerns were listened to, noted, adopted as best as possible into subsequent versions of the system, but were never truly heeded and certainly never resolved. The result was years of effort and energy, mountains of money spent, and nothing of practical utility to show for it. Another lesson is that a line has to be drawn where we cut our losses, regroup, and go back and start over in a new direction. We waited for a war to tell us what we already knew years before but would not admit to. In one sense this was fortuitous, because without OIF to expose the glaring deficiencies and inadequacies of something like CSSCS, it would very likely still be chugging along and providing nothing of value.

The caution here involves the next generation of systems that come as a replacement for existing ones; again CSSCS and its replacement, BCS3, being a great example. If the replacement system is nothing more than the previous one with a new name, perhaps a new look, but with the same theory, same technology, and same architecture and structure, it will suffer the same fate. Clearly some of the science will migrate, but if we rely too much on what was a failure before, we will have problems. If we develop BCS3, or any other system, without identifying, understanding, and addressing the root causes of what went wrong with its predecessor, we are wasting our time, money, energy, and effort again. The message is that if BCS3 is just CSSCS in different clothing, it will be recognized immediately. Efforts from the very top must preclude this from happening.

With specific regard to logistics transformation and the requirement to develop an information technology system that facilitates logistics situational awareness, the recommendation is to keep it simple. What is needed is a LOGSTAT that is timely and accurate, easy to use, and able to be sent over assured communications that do not depend on line of sight. Do not call it a command and control system because that is not what it is; command and control is what commanders do, not machines. It does need the planning suite as one already exists in Operations Logistics Planner (OPLOGPLN) for the operational level and the Logistics Estimator Worksheet (LEW) for the tactical level. The Common Operating Picture (COP) that is fed in from other Army Battle Command Systems is nice to have but not at the expense of the LOGSTAT functionality. What is required is a means to access in-transit visibility so that the data from the Movement Tracking System can be displayed and monitored. CSSCS was never able to provide any sort of automated predictive logistics analysis. It is unlikely that BCS3 will be able to do so either. This function is still a human one, with the machines serving as a decision support tool.

A number of gaps are yet to be filled by logistics enablers. Areas that require enablers to further logistics transformation include the supply and requisitioning system, communications, force protection for logistics units, repair parts storage and transport, and water distribution. Plans are in place for the eventual upgrade of legacy supply systems; the Standard Army Supply System (SARSS) and the Unit Level Logistics System

(ULLS). The Global Combat Service Support System (GCSS) will replace SARSS and ULLS, as well as legacy maintenance management systems, but this will not occur in total for several more years.[69] The truth is that SARSS and ULLS work fine for the Army, but lack of an assured communications system and data pipeline over long distances precludes its reliability in settings other than the motorpool in a garrison environment. This is no great secret or revelation; the problem has existed and been acknowledged for years. The solution simply had been out of reach for lack of technology until the development of satellite communications, and then not acted upon from that point due to lack of priority and funding. The opportunity to fix this problem in the near term with SARSS and ULLS, and subsequently in the future for GCSS, exists now. Procure the satellite based communications gear based on insights and justifications from the OEF and OIF experiences, and many problems will be solved. Letting GCSS suffer the same communications constraints that the current systems have, a line of sight radio system with limited range and bandwidth, provides no advantage and no transformational benefit.

A transformation in force protection for logistics units requires enablers of a different sort. Unlike having to wait for new technologies or new systems to be developed and built, a transformation in force protection can be achieved by simply rewriting tables of equipment authorizations and procurement of more fielded systems. Ring mounts, 50 caliber machine guns, and 20 millimeter grenade launchers would go a long way to enhancing the survivability of logistics units. Increasing the numbers of radios, global positioning systems, and night vision devices to common sense levels in logistics units may have more immediate transformational effect than any other action ever taken, causing a dramatic improvement in the ability of logisticians to not only protect themselves but to perform their sustainment jobs more effectively. Making the "soft targets" of the Army less soft is another measure that is taken easily. A new tactical truck for the Army is not currently needed, and the Army's logistics leadership wisely cancelled that program in recent months. What is needed are modifications and retrofit to existing trucks to improve hardening. An adjustment to production lines to incorporate better survivability characteristics in the existing models yet to be produced completes this strategy. These are all pen strokes and budget adjustments with little requirement for research and development, testing, and program review. They can and should be executed now.

We have again proven that we need to have immediate access to an adequate and robust selection of repair parts. Distribution-based logistics will diminish some of this challenge, but there must still be parts carried down range by units and under their direct control to meet the current need until the larger system can provide the necessary resupply. The answer has always been to authorize units to carry a certain number of spare parts; termed a Prescribed Load List (PLL) at the organizational level and as an Authorized Stockage List (ASL) at the direct support echelon. There are two transformational aspects to this issue. The first involves a method of thinking about PLL and ASL in a more transformational way to ensure that any limits we place on these stockages of parts do not significantly reduce our ability to operate in a combat environment. PLL and ASL are determined by peacetime demands not wartime ones. OIF offers an outstanding opportunity to do the wartime analysis required to "right-size" our stockages of repair parts at all levels of supply so that we do not face the crises we faced in Iraq with certain items; track shoes, track pads, and suspension items being examples. PLL and ASL are also limited by a willingness to sink costs into on the shelf inventory. Again, transformational thinking needs to be applied here. It must be about effectiveness over efficiency. Inventories must be determined by need, not by aversion to cost of items on hand but not used in peacetime. Finally, PLLs and ASLs traditionally are limited by a unit's ability, or inability, to transport. There are several materiel solutions of a transformational nature. One is better systems for carrying parts of some of the commercially available containers that exist today; containers that have designed shelving

and drawer spaces for maximizing available space. They are expensive but readily available. The other solution is more of the right kind of trucks, specifically those having a palletized loading capability, that can be made available to move, quickly download, and move repair parts again. The exact number of trucks required and a decision on where to assign them, either to the brigade's logistics organization or to an echelon above brigade logistics organization such as a CSB, need to be determined once requirements for PLL and ASL are set.

A final transformational enabler that, like radios, global positioning devices, and night vision devices, long has been recognized as a valid requirement but remains unresourced is bulk water transportation. The Army today has primarily the same bulk water distribution system it had in World War II, Korea, and Vietnam. We rely on 400-gallon trailer mounted water tanks and canteens. The 3,000- and 5,000-gallon Semi-Trailer Fabric Tank (SMFT) and the 500-gallon collapsible gallon water drum, developed in the 1970s and 1980s, lack flexibility in movement or are too small and labor intensive to be effective. The answer, of course, is a water tank truck, which does exist in small numbers. Never fielded in great numbers due to dollar constraints, its absence plagues us every time we deploy the force in any size configuration. The Army has been pursuing the development of a modular water system based on a water tank that can be lifted and moved by a palletized load system (PLS) truck. The weight of water and the lift limitations of the truck actually require more transportation assets to be committed to complete water distribution than if a 5,000-gallon tanker similar to an Army fuel tanker were to be used. This is one instance where a new transformational solution is actually resident in an older established platform. Additional capability in the form of the PLS water tank is fine, but it should follow the procurement of water tanker trucks.

Transforming Logistics Leaders.

The final and most important logistical transformational change that must occur involves leader development. Developing transformational logistics leaders is different than simply explaining what transformation is or that it has stalled. As described previously, that is a relatively easy thing to accomplish, but it will only help to restart the logistics transformation process. To ensure that transformation is successfully continued and concluded, the Army needs to transform its leaders as well. Transformation is as much about soldiers, and the way they think and act in a new operational framework, as is it is about materiel, systems, and processes. This is a well-recognized and well-publicized idea that has routinely made its way into DoD, Joint, and Army transformation publications; usually in the foreword or the very first paragraphs.[70] It, like many other transformational concepts, has been written about more than it has been implemented.

This process of leader development must occur at all levels both in the logistics schoolhouse and in logistics units in the field. Several overriding themes must be stressed in leader development programs. The leader development models that currently reside in the traditional "leadership development schools" such as the Primary Leader Development Course (PLDC) or in the officer basic courses should be retained. The leader development portions of logistics branch specific courses for noncommissioned officers at both at the basic and advanced levels and the Combined Logistics Captains Career Course should maximize their focus on small unit leader actions and tactical proficiencies. Leader development programs in units must focus on the practical application of staff functions, military occupational skill training, troop leading procedures, and combat survival skills. The idea that to be able to support, you must be able to survive must be stressed constantly; there is no rear area.

The frame of reference, strategic environment, and context in which both current and future operations will be conducted is marked by a much greater degree of complexity, uncertainty, chaos, and ambiguity than just a few years ago. In addition, threat patterns have begun to emerge, seen most vividly in Iraq, indicating that logistics forces are the primary targets of our adversaries. The tendencies towards asynchronous threats redefine the battlefield in such a manner as to

require the same level of combat preparedness from every soldier in every unit regardless of location or position. Finally, operational strategies being discussed for employment of Army forces in the future point towards a logistics footprint that relies more on junior leaders in an autonomous role with a much greater responsibility and fewer layers of logistical hierarchy above them in the area of operations to offer guidance or to provide redundancy of support.

A final thought on leader development as it applies to logisticians in general and to transformation in particular. Innovation, adaptability, and a mature sense of when and how to identify, mitigate, and take risks are required leadership traits in logistics leaders at all ranks. Innovation is important because it encourages leaders to generate new ideas and see them to completion. Adaptability fosters an attitude towards accepting change. Both of these leader qualities also contribute to the ability to improvise, adjust, and reinvent flexible solutions and support concepts once the force is engaged. Understanding risk management will enable leaders to stay grounded in the reality of "what is" when it comes to transformational concepts and not get lost in the nebulous area of "what if" that may cause operations to fail when concepts are not mature enough or not viable enough to be effective.

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 no matter 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.[71] 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.

WHAT WE CHANGE FIRST AND WHO MUST CHANGE IT

The priority for logistics transformational change will always be a debatable point. The reality is that the Army can probably change several things simultaneously and should strive to do so. The most important thing to change, however, is more easily identified. Logistics transformation efforts must start with the people and the mindset; the logistics leaders and soldiers of the force must adopt ownership of transformation. Education of the current status; identification of past, present, and future challenges; and the roadmap for the way ahead are the starting points. Everything else will flow from this beginning. By doing this, we will identify the believers and the blasphemers, the change agents and the naysayers, and we will combine the folks with the muddy boots and the folks whose buildings and offices have no windows into one team. What must change first also describes who must change it. It will take all of the individuals identified above working together to get logistics transformation back on track and to keep it there.

CAMPAIGN QUALITY LOGISTICS WITH A JOINT AND EXPEDITIONARY MINDSET

Meeting the Goal—Campaign Quality Combat Service Support.

The current CSA charter to the Army is very clear. We must become a relevant and ready campaign quality Army with a joint and expeditionary mindset. This does not contradict logistics transformation. In fact, it helps to focus it. The phrase campaign quality has several connotations. As it applies to logistics, it means developing and validating the sustainment linkages among the tactical, operational, and strategic level of combat service support. These linkages include all interrelated functions of logistics and combat service support: supply and services, transportation, ordnance support, health service support, human resource support, financial management operations, legal support, and religious support. Campaign quality also means that all phases of a campaign described by Army and Joint publications must be planned, nested, synchronized, and rehearsed at all levels.

Joint is Not a Four-Letter Word.

Joint logistics likewise does not oppose or challenge logistics transformation. Joint operations are a reality, a necessity, and the desired way of conducting operations. Joint logistics enables each service to take advantage of other component capabilities and strengths, promotes economies of scale, avoids duplication of effort, and precludes counterproductive competition when resources are scare. The Army needs to do a great deal more in its logistics transformation efforts to promote jointness. The first step is to communicate what we are doing to our sister services. The priority of that communication should be with the Marine Corps, followed by the Air Force, and then the Navy.

Army logistics transformation initiatives that impact most on other services involve support provided under Inter-Service Support Agreements and in instances where the Army has been designated as the lead service. The changes that the Army is seeking to make in achieving a distribution-based logistics system are the most critical ones that need to be shared. If DoD directs a change in focus for the Army towards a sense and respond logistics system, the requirement to share how the Army plans to implement these processes becomes even more important because it will involve some changes from the current approach. The Army also needs to clarify its role as an expeditionary force and synchronize its efforts with both the Navy and the Marine Corps with regard to "sea-basing" initiatives being worked by those services. Finally, the Army needs to share technologies and information on certain logistics

enablers; specifically the ones dealing with in-transit visibility. Sister services and higher Joint headquarters being able to access information on inbound Army convoys promotes joint situational awareness of the logistics effort.

A significant transformational logistics initiative proposed from the Joint Staff is the creation of a Joint Theater Logistics Command (JTLC). Still in the discussion phase and lacking any concrete approval or guidance to establish this headquarters, the idea requires serious analysis by the Army. This command would replace or perhaps subsume the Army's Theater Support Command. It would definitely have an impact on roles and missions, responsibilities and requirements, and command and control of theater level combat service support. The JTLC would be responsible to the combatant commander or the land component commander as a Joint headquarters and not a service one. The Joint Staff has developed many arguments that point to advantages in doing this, including unity of effort, common standards, enhanced interdependence, single arbitrator of priorities, economies of scale, information fusion, and better integration of staffs. The Joint Staff presents almost no disadvantages. The Army has yet to express a strong opinion on the matter in anything currently published. The danger is that this concept, which may indeed be the best way to go, may be adopted and directed without being vetted with the Army; a problem because the Army will almost certainly be charged with making it a reality and may not be prepared to do so if not aware of the full scope of the issue.

To Be More Expeditionary—What it Really Means to Logistics Transformation.

Expeditionary warfare and logistics transformation are a good fit for one another. The expeditionary method of operations will serve to drive logistics transformation where it needs to go. Logistics transformation, in turn, will help to scope the reality of what expeditionary is and what it can be. The term expeditionary has been in the Army lexicon for many years, and many Army operations in the past can be classified as expeditionary in nature. In recent times though, the term expeditionary has become more associated with the Marine Corps than the Army. The Army's doctrinal writing on the subject is currently rather thin, but we can expect that to change as soon as this new vision takes hold.

Expeditionary operations are described by rapid and immediate projection of forces into an area that is frequently controlled by the enemy. Forces conducting these types of operations are usually tailored so that they are no heavier than necessary. Logistics characteristics of expeditionary operations often include the requirement to support from a distance, to deal with severe austerity, to adapt to the environment, and to ensure advantage by seeking innovation. Supporting expeditionary operations may mean that there is a temporary creation of a support structure in a task force format to sustain operations to their conclusion.[72] It may also be, for the Army anyway, that expeditionary operations are not temporary in nature and that follow-on logistics forces must be accommodated and incorporated into the sustainment plan.

Logistics transformation supports the conduct of expeditionary operations in several ways. Modularity and multifunctionality are key elements in the transformed logistics force and requirements for providing a tailored support package that has both the needed tactical and operational capabilities and the strategic linkages. The ability to conduct "reach-back" sustainment operations enabled by transformed information technology systems and a robust and dependable distribution-based logistics system is a prerequisite for successful expeditionary operations. The ability to operate in an austere environment and to do things such as RSOI without significant overhead or additional force commitment is where the Army is headed and what is frequently required in an expeditionary setting. The ability to expand the lodgment and sustain operations for an indefinite period over extended lines of communications addresses the realities of today's strategic environment and likely future conflicts. Finally, the innovative and adaptive nature of Army logisticians ensures that the uncertainty,

disorder, and friction inherent in expeditionary operations will be managed successfully.

REENERGIZING LOGISTICS TRANSFORMATION

How We Do It . . . Now.

Reenergizing logistics transformation now is all about leverage and opportunity. More than a few good reasons have been identified for why the Army must continue to transform. Similarly, even more examples exist of where we have yet to do so. The best and worst thing that could have happened to logistics transformation was the Global War on Terror and the experiences of OIF and OEF. It was the best thing because it gave the Army perspective on where we really are with the transformational change process to date; exposing strengths, weaknesses, and future possibilities through the crucible of combat. It also gives us incentive, initiative, and arguments to resource the fixes needed. On the other hand, the tempo of current operations and the necessary attention and energy that must be given to wartime operations could detract from the simultaneous requirement to transform.

A great opportunity exists now to harness the current mood and recognition that change is needed. The lessons of OIF and OEF are not difficult to see despite the 6-8 months it took to publicly acknowledge them. The Army does not appear to be confusing victory with success in terms of how effectively we have transformed our logistics forces, systems, and processes. There is support for change at all levels; from the units in the field, through Joint and service headquarters and staff, through DoD, and in Congress.

The Army is also fortunate on two other accounts. The template for change is already out there, and the great work done in the last decade holds many of the answers. Some effort may need to be modified or updated to meet current requirements or to address present realities, but the fact is that logistics transformation does not have to begin again from a cold start. The second advantage is that the Army currently enjoys a wealth of recent and relevant combat experience from the logisticians who will be tomorrow's senior leaders. This is a rare opportunity that must not be overlooked. These soldiers, commanders, command sergeants majors and first sergeants, staff officers and noncommissioned officers, platoon leaders and platoon sergeants at all levels of divisional and nondivisional logistics units from the theater support command, COSCOM, and DISCOMs are key in jump-starting transformation. They have a great expectation for change because they just witnessed what is and what might be. The Army must track these leaders and extract their valuable insights.

The Way Ahead.

Restarting a stalled process is not easy. In the case of the stall of logistics transformation, it is made more complicated because the stall may not be self-evident to all the individuals involved or concerned or upon whom it impacts. Transformation is about people; it always has been, and it always will be. The people of the Army, soldiers and civilians, must be involved to transform it. No technology or piece of equipment or new and revolutionary process will make it happen without people involvement. This is not an incredible insight; rather it is a blindingly obvious one. This may explain why it has been so easily overlooked or taken for granted. Getting the whole Army, especially Army logisticians, involved in transformation is how to get it going again and how to keep it going.

Logistics transformation is a contact sport. It cannot be accomplished from the sidelines, or the stands, or the press box. It must happen on the field, and the players must be willing to get dirty and work hard to win. The field today is even more difficult to traverse than it might normally be. There are more obstacles, the stakes are higher, and the other team is playing for keeps. At the same time, though, our team has more talent, more experience, and is more engaged and focused than it has ever been. There is also the question of resources and support, both of which run significantly deep at the moment. The time

to get logistics transformation going is now. We must tone down the rhetoric, the promises of the briefing slides and point papers, the concept sales pitches and get after the hard work at hand. We must do it with an integrated strategy, a roadmap, a timeline, and milestones. This is our logistics corps and our doctrine. It is ours to form and design and ours to train and fight. We must not fail.

ENDNOTES

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3. *Ibid*., p. 14.

4. Dennis J. Reimer, "A Note from the Chief of Staff of the Army on The Revolution in Military Logistics," *Army Logistician,* January-February 1999 [journal on-line]; available from *http://www.almc.army.mil/alog/backissues.htm*; Internet, accessed November 7, 2003.

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7. Murray Davies, *Commanding Change: War Winning Strategies for Organizational Change*, Westport, CT: Praeger Publishers, 2001, p. 26.

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10. *Ibid*.

11. The first series of significant articles focusing on the aspects of logistics change, or the Revolution in Military Logistics as it was originally termed, began to appear in 1998 and 1999 when Major General Dan Brown was the Commanding General of the Combined Arms Support Command (CASCOM). These articles, mostly written by personnel assigned to CASCOM, detailed the major work conducted during this period as the 4th Infantry Division at Fort Hood, Texas, was being redesigned to what became known as the Force XXI model. CASCOM's two-fold requirement to write new logistics doctrine, and to develop new support concepts to utilize the "logistics enablers" in the redesigned divisional logistics battalions of the Force XXI Division, were the impetus for these articles. Quite frankly, up to this point CASCOM had very little product to share with the field. The product now matured, and the opportunity to test Force XXI logistics concepts and force structure at National Training Center rotation 99-05 in March 1999, with the same brigade of the 4th Infantry Division that had conducted the Advanced Warfighting Experiment some 2 years earlier, generated a series of articles. Most of these articles were published in *Army Logistician*.

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13. Dennis J. Reimer, Army *Vision 2010*, Washington, DC: U.S. Department of the Army, November 1996; available from *http://www.army.mil/2010/introduction.htm*; Internet, accessed on November 7, 2003.

14. The focus of the Force XXI Advanced Warfighting Experiment (AWE) in 1997 was on situational awareness as provided by the first generation Future Battle Command Brigade and Below (FBCB2). While logistics in support of the rotation were conducted, it was not a major part of the data collection effort designed and executed by the Army. In fact, significant artificialities in the form of extra military personnel and contractors termed "Red Hats" were deployed to ensure that logistics support, or lack thereof, would not in any way hamper the data collection effort on the situational awareness aspects of the experiment. Far from being a normal "freeplay" exercise in terms of logistics support, the AWE saw a much greater level of logistics support than would normally be present to support this size force. Furthermore, the systems and concepts later exercised in 1999 were not fielded to the 4th Infantry Division or developed to the degree that they could be presented as new doctrine or tactics, techniques, and procedures. The logistics community published only a handful of articles referencing the AWE and very little discussion or analysis among logisticians at large across the Army took place as a result. See "Digital Warfighting Ability Tested," *Army Logistician*, March-April 1997 [journal on-line]; available from *http://www.almc.army.mil/alog/backissues.htm*; Internet, accessed November 7, 2003. See also "Army EXFOR Tested in AWE," *Army Logistician*, July-August 1997 [journal on-line]; available from *http://www.almc.army.mil/alog/backissues.htm*; Internet, accessed November 7, 2003.

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30. U.S. Department of Defense, *Sense and Respond Logistics: Co-evolution of an Adaptive Capability, Concept of Operations*, Version 3.0, Washington, DC: Office of Force Transformation, September 12, 2003, para 1-2; available from *http://www.oft.osd.mil/library/library_files/document_229_SRL%20CONOPS%20v3.0.doc*; accessed on January 22, 2004.

31. Crane, p. 2.

32. *Ibid*., p. 3.

33. Knight, *p*. 16.

34. *Ibid*., p. 15.

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36. Crane, p. 7.

37. John A. Bonin, *U.S. Army Force Central Command in Afghanistan and the Arabian Gulf During Operation Enduring Freedom: 11 September 2001-11 March 2003*, Carlisle, PA: Army Heritage Center, March 2003, p. 29.

38. John Abizaid, quoted in Bob Edwards, "Military Finding it Hard to Keep Up with Troops Logistical Needs," *National Public Radio Morning Edition, 31 March 2003* (746 words) [database on-line]; available from Lexis-Nexis; accessed November 17, 2003.

39. Victor D. Hanson, quoted by Richard B. Cheney, *Remarks by the Vice President to the American Society of News Editors,* Remarks presented at The Fairmont Hotel, New Orleans, LA: The White House, Office of the Vice President, April 9, 2003; available from *http://cndyorks.gn.apc.org/caab/articles/cheneyonroguestates.htm*; Internet, accessed January 22, 2004.

40. Numerous articles regarding the apparent success of logistics operations during OIF appeared in both Army and Joint professional military journals between March and October 2003. All of these articles were extremely laudatory in tone and claimed only great successes. See George Cahlink, "Logistics Lessons," *Government Executive*, Vol. 35, No. 14, September 2003, pp. 61-65; Susan Declercq Brown and Phyllis Rhodes, "DLA: Logistics Backbone of Iraqi Freedom," *Army Logistician*, July-August 2003 [journal on-line], available from *http://www.almc.army.mil/alog/backissues.htm*, Internet, accessed November 6, 2003. See also Walter Kross, "Iraqi

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42. Walter J. Boyne, *Operation Iraqi Freedom: What Went Right, What Went Wrong, and Why*, New York: Forge Books, 2003, p. 124.

43. This data was kept as a matter of record by the author in my own personal notes while serving as the Assistant Chief of Staff, G4, for the 4th Infantry Division in Tikrit, Iraq, on the dates indicated.

44. Boyne, p. 124.

45. U.S. Army Operation Iraqi Freedom Study Group, "U.S. Army Operation Iraqi Freedom Observations Quick Look," briefing slide 5 of 88, Leavenworth, KS: Center for Army Lessons Learned, August 2003; available from *https://call2.army.mil/oif/brief.asp*, Internet, accessed November 6, 2003.

46. *Ibid*., slide 16 of 88.

47. See 3rd Infantry Division, Mechanized, "Third Infantry Division: Operation Iraqi Freedom," briefing slides with scripted commentary, Fort Benning, GA: U.S. Army Infantry School Infantry Conference 2003, September 8, 2003, slide 16, available from *https://call2.army.mil/oif/brief.asp*, Internet, accessed November 6, 2003. See also 4th Infantry Division, Mechanized, "Task Force Ironhorse: Operation Iraqi Freedom," briefing slides, Fort Benning, GA: U.S. Army Infantry School Infantry Conference 2003, September 8, 2003, slides 23-24, available from *https://call2.army.mil/oif/brief.asp*, Internet, accessed November 6, 2003. See also 101st Airborne Division, Air Assault, "101st Airborne Division (AASLT) in Operation Iraqi Freedom," briefing slides, Fort Benning, GA: U.S. Army Infantry School Infantry Conference 2003, September 8, 2003, slide 37, available from *http://call2.army.mil/oif/brief.asp*, Internet, accessed November 6, 2003.

48. Anthony H. Cordesman, *The Iraq War: Strategy, Tactics, and Military Lessons,* Westport, CT: Praeger Publishers, 2003, p. 206.

49. This data was kept as a matter of record by the author in my own personal notes while serving as the Assistant Chief of Staff, G4 for the 4th Infantry Division in Camp New Jersey, Kuwait, and Tikrit, Iraq, between April 12, 2003, and June 16, 2003.

50. Eric Schmitt, "Army Study of Iraq War Details a 'Morass' of Supply Shortages, *New York Times,* February 3, 2004, sec. A, p. 1, [database on-line], available from ProQuest, accessed February 15, 2004.

51. See Susan Declercq Brown and Phyllis Rhodes, "DLA: Logistics Backbone of Iraqi Freedom," *Army Logistician,* July-August 2003 [journal on-line], available from *http://www.almc.army.mil/alog/backissues.htm*, Internet, accessed November 6, 2003. See also Walter Kross, "Iraqi Freedom: Triumph of Precision-Guided Logistics," *Army Logistician*, September-October 2003 [journal on-line], available from *http://www.almc.army.mil/alog/backissues.htm*, Internet, accessed December 6, 2003.

52. *GAO-04-305R: Defense Logistics: Preliminary Observations on the Effectiveness of Logistics Activities During Operation Iraqi Freedom,* Washington, DC: U.S. General Accounting Office, December 18, 2003, p. 3, available from *http://www.gao.gov/new.items/d04305r.pdf,* Internet, accessed January 22, 2004.

53. *Ibid*., pp. 2-3.

54. *Ibid*., p. 5.

55. This data was kept as a matter of record by the author in my own personal notes while serving as the Assistant Chief of Staff, G4 for the 4th Infantry Division in Camp New Jersey, Kuwait, and Tikrit, Iraq, between April 12, 2003, and June 16, 2003.

56. Donald H. Rumsfeld, *Transformation Planning Guidance*, Washington, DC: Department of Defense, April 2003.

57. The only logistics battalions to actively work transformation in the sense of redesigning force structure and organizations are the four of the five logistics battalions of the 4th Infantry Division at Fort Hood; the Forward Support Battalion of the 4th Infantry Division Brigade stationed at Fort Carson retains the former nontransformed structure, and the two logistics Battalions of the 25th Infantry Division and 2d Infantry Division at Fort Lewis. There are three echelon above division logistics battalions at Fort Hood and one at Fort Lewis that have had some interface with transformation in terms of supporting these transformed divisional battalions, but these units themselves have not transformed to any great degree. Logistics battalions in the 1st Calvary Division at Fort Hood and another battalion from the Separate Infantry Brigade at Fort Richardson are in the process of transforming as of this writing.

58. Davies, p. 15.

59. Headquarters, Department of the Army, Field Manual 4-0, *Combat Service Support,* Washington, DC: U.S. Department of the Army, August, 2003, para. 1-60.

60. Department of Defense, *Sense and Respond Logistics: Co-evolution of an Adaptive Capability, Concept of Operations*, Version 3.0, Washington, DC: Office of Force Transformation, September 12, 2003, available from *http://www.oft.osd.mil/library/library_files/document_229_SRL%20CONOPS%20v3.0.doc*; accessed on January 22, 2004.

61. *The Sense and Respond Logistics Capability and Operation Iraqi Freedom,* McLean, VA: Science Applications

International Corporation, August 11, 2003, p. 5, available from *http://www.oft.osd.mil/library/library.cfm?libcol=6*, Internet, accessed January 12, 2004.

62. *Delivering Materiel Readiness to the Army*, Army Logistics White Paper, Washington, DC: U.S. Department of the Army, December 2003, available from *http://www.army.mil/features/LogWhitePaper2004/LogWhitePaper.pdf*, Internet, accessed January 10, 2004.

63. *Sense and Respond Logistics: Co-evolution of an Adaptive Capability, Concept of Operations, Version 3.0*, p. 2.

64. V Corps Commander Lieutenant General William Wallace, in a position better than most to know FBCB2 as he fielded it in 4th Infantry Division 7 years ago, has issued some cautions, stating:

> what's important to understand is what you get and what you don't get . . . the fact that you are looking at one screen that has blue and red icons on it does not necessarily mean that the picture that you're looking at is a coherent, real-time, no-fooling picture of what's going on the battlefield.

See Jefferson Morris, "Wallace: 'Digital Divide' Separates Soldiers From Net Warfare," *Aerospace Daily,* October 9, 2003, available from *http://ebird.afis.osd.mil/ebfiles/s20031009223408.html*; Internet, accessed October 9, 2003.

65. Commander, Headquarters, U.S. Army Garrison, Fort Hood, TX, William H. Perry, III, "Chief of Staff Army, Deployment Excellence Award (DEA) Nomination 2003," memorandum for Department of the Army, Headquarters, Installation Management Agency, Washington, DC, June 24, 2003, part 2, tab a, p. 2.

66. 4th Infantry Division, Mechanized, slide 6.

67. The 21 different types of logistics battalion headquarters designed to support ground forces include five types of Forward Support Battalions (Heavy, Light, Air Assault, Airborne, and Force XXI); a Brigade Support Battalion (Stryker); four types of Main Support Battalions (Heavy, Light, Air Assault, and Airborne); a Division Support Battalion (Force XXI); two types of Support Battalions to support Separate Brigades (Infantry and Armor); two types of Regimental Support Squadrons to support Armored Cavalry Regiments (Heavy and Light); a Corps Support Battalion; a Transportation Battalion (Motor Transport); a Transportation Battalion (Movement Control); a Petroleum Supply Battalion; a Maintenance Battalion; and a Water Supply Battalion. The nine different types of logistics battalion headquarters to support aviation and medical forces and to conduct or coordinate port operations include five types of Division Aviation Support Battalions (Heavy, Light, Air Assault, Airborne, and Force XXI); an Aviation Intermediate Maintenance Battalion; a Medical Logistics Battalion (an Area Support Medical Battalion); and a Transportation Battalion (Terminal).

68. Department of the Army, Battle Command Sustainment Support System (BCS3): Functional Requirements Document, Phase I, Fort Lee, VA: Combined Arms Support Command, November 2003, available from *https://www.cascom.lee.army.mil/private/TSM_BCS3/BCS3%20FRD%20FINAL.doc*, Internet, accessed February 2, 2004.

69. Department of the Army, *Global Combat Support System-Army, GCSS-Army, High Level Functional Description*, Fort Lee, VA: Combined Arms Support Command, January 31, 1998, available from *https://www.cascom.lee.army.mil/private/ISD/GCSS-A/Documentation/GCSS-Army_High_Level_Funtional_Description_31_Jan_98.doc*; Internet, accessed February 2, 2004.

70. Rumsfeld, Foreword.

71. Headquarters, Department of the Army, Field Manual 4-0, *Combat Service Support,* para. 1-9.

72. Marine Corps Doctrinal Publication 3, *Expeditionary Operations,* Washington, DC: U.S. Department of the Navy, Headquarters, U.S. Marine Corps, April 16, 1998, pp. 32-35.