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STRATEGY RESEARCH PROJECT

LOGISTICS AUTOMATION SUPPORT OF JOINT VISION 2020 AND ARMY TRANSFORMATION

BY

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ABSTRACT

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TITLE: Logistics Automation Support of Joint Vision 2020 and Army Transformation

FORMAT: Strategy Research Project

DATE: 5 April 2001 PAGES: 24 CLASSIFICATION: Unclassified

This strategy research project analyzes the logistics automation initiatives planned by the Army and provides an assessment of their ability to support Joint Vision 2020 and Army transformation efforts. Department of Defense Reform Initiative Directive (DRID) #54 – Logistics Transformation Plans provides the central guidance necessary to direct required changes in logistics automation. DRID #54 directs the services to develop a total asset visibility capability and field a web-based shared data environment for logistics data by FY 2004. Developing these capabilities faces notable management, funding, communication and contractor challenges.

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LOGISTICS AUTOMATION SUPPORT OF JOINT VISION 2020 AND ARMY TRANSFORMATION

This strategy research project will analyze the logistics automation initiatives planned by the Army and provide an assessment of their ability to support Joint Vision 2020 and the Army's transformation efforts. Joint Vision 2020 requires our military forces to achieve full spectrum dominance. One of the operational concepts necessary to achieve full spectrum dominance is Focused Logistics. Focused Logistics is defined as "the ability to provide the joint force the right personnel, equipment, and supplies in the right place, at the right time, and in the right quantity, across the full range of military operations."[1] Joint Vision 2020 states that focused logistics will "be made possible through a real-time, web-based information system providing total asset visibility as part of a common relevant operational picture, effectively linking the operator and logistician across Services and support agencies".[2] The development of these capabilities will be a significant task for each of the Services due to the lack of programmer expertise and the sheer volume of legacy systems that must be replaced and integrated.

To support Joint Vision 2020 and to become a more relevant force, the Army is undergoing transformation as directed by the Chief of Staff. Transformation efforts are not limited to developing a new, lighter armored force. Transformation calls for changes in many areas to include equipment, procedures, organizational structure, deployment concepts and logistics. A key function among these areas is logistics. Former Chief of Staff of the Army, GEN Dennis Reimer, stated that a revolution in military affairs cannot take place without first having a revolution in military logistics. However, a revolution in military logistics will not take place without significant improvements in logistics automation and information technology capabilities. The task at hand is simply stated. The Army needs to create a real-time, web-based common relevant logistics picture that will lead the way for a revolution in military logistics and assist in Army transformation. To make the required capabilities a reality, the Army must provide the necessary leadership and guidance, centrally manage the integration of all the required systems, aggressively identify and approve the necessary funds and ensure the required changes are supportable by today's technology.

DEPARTMENT OF DEFENSE REFORM INITIATIVE DIRECTIVE #54

Managing transformation across the services requires strong centralized management and leadership at the Department of Defense level. To provide that centralized management and to ensure that military components exert focused effort toward logistics

transformation, the Deputy Secretary of Defense, John J. Hamre, signed the Department of Defense Reform Initiative Directive (DRID) #54– Logistics Transformation Plans on 23 March 2000. This directive requires each military component, the Defense Logistics Agency (DLA) and the U.S. Transportation Command (USTRANSCOM) to submit annual logistics transformation plans. Further, Mr. Hamre directed the Under Secretary of Defense (Acquisition, Technology and Logistics) to review the annual plans, the first of which were due 1 July 2000. When approved, these plans are used to obtain the resources necessary to achieve DoD Strategic Logistics Plan goals and objectives.

In addition to requiring the submission of annual plans, DRID #54 provided guidance concerning the attainment of four intermediate objectives. DRID #54 guidance serves to highlight the important role logistics automation must play in transformation because two of the four intermediate objectives deal specifically with logistics automation. They are:

1) "achieving accurate total asset visibility and accessibility through the use of automatic identification technology/automated information systems and transformed business practices by FY2004 and
2) fielding a web-based, shared data environment providing seamless, interoperable, real-time logistics information for the Department by FY 2004."[3]

DRID #54 takes on critical importance because it serves as a capstone logistics document, providing legitimacy to logistics transformation efforts. It is clear that Mr. Hamre expected significant effort and progress in the area of logistics transformation. He emphatically stated that "Logistics transformation must be rapid. The goals and objectives of the Logistics Strategic Plan must urgently become today's capability instead of tomorrow's vision. We must drive down our costs (e.g., pipeline, maintenance, and logistics footprint costs) as we leverage emerging technology to increase the visibility, accuracy, and speed of logistics operations without compromising our effectiveness. World-class warfighting logistics is our challenge, and we must work together to provide it."[4]

For the Army, input to this important document highlights Army priorities. An examination of Army input to DRID #54 will determine exactly how serious the Army takes logistics transformation and whether its efforts support either Joint Vision 2020 or General Shinseki's guidance concerning Army transformation.

ARMY INPUT TO DRID #54

Army input to DRID #54 is consolidated and submitted by the Directorate for Plans, Operations and Logistics Automation within the Deputy Chief of Staff for Logistics

(DCSLOG). This input comes from across the service and not only supports the objectives laid out in the DoD Strategic Logistics Plan but also offers an integrated perspective of the logistics transformation initiatives required to support the Army vision.[5] Specifically, Army input supports achieving Total Asset Visibility (TAV) and creating a web-based logistics (WBL) system which are the key logistics automation objectives required by DRID #54.

Total "Asset Visibility is the ability of users to view information on the identity and status of all DoD materiel and in some cases, to complete a business transaction using that information."[6] Total Asset Visibility is to be maintained over all DoD materiel assets that are "in-use, in-storage, in-process (maintenance and procurement) and in-transit."[7] "The Army expects to achieve accurate total asset visibility TAV and accessibility through the use of automatic identification technology/automated information systems (AIT/AIS) and transformed business practices by FY 04."[8] However, to make TAV a reality, Army input to DRID #54 calls for progress in four areas: Army Total Asset Visibility (ATAV), Lateral Redistribution, Army In-Transit Visibility (ITV), and Automatic Identification Technology (AIT).

PROJECTS KEY TO IMPLEMENTATION OF TOTAL ASSET VISIBILITY (TAV)

ARMY TOTAL ASSET VISIBILITY (ATAV)

ATAV is the Army component of TAV and is designed to provide leaders and managers with visibility of assets regardless of their status. ATAV uses existing and developing automated systems to provide information concerning location, quantity, condition and movement.[9] Further, the Army has designated ATAV as the authoritative source for data input to the Joint Total Asset Visibility system being developed to meet Joint initiatives.[10]

ATAV is currently achieved through feeds from legacy Standard Army Management Information Systems (STAMIS) (e.g., SAMS, SARSS-O, etc). As the Global Combat Support System-Army (GCSS-A) Tier 1 and Tier 2 are developed and fielded, GCSS-A will then provide the necessary feeds and ATAV will become an embedded capability within the Logistics Integrated Data Base (LIBD).[11] Obviously, continued success in the development of an ATAV capability requires close coordination and integration with STAMIS, GCSS-A and the LIDB.

Unfortunately, GRC International (GRCI, GRC stands for nothing)[12], the contractor responsible for GCSS-A development, failed to meet deadlines on four separate occasions since 1998, the most significant of which was a June 1999 milestone tied to a fielding decision.[13] The slips were the result of changing requirements and the lack of trained

software developers. The Army terminated its contract with GRCI as a result of the contractor's failure to meet deadlines but expects the company to file a lawsuit to regain the contract. In the interim, progress has come to a standstill and the Army has nothing to show for the $70M it spent on the project to date. Additionally, $10M has not been allocated for continued GCSS-A development because GRCI failed to produce deliverables associated with a September 2000 milestone. As timelines continues to slip, the development of an ATAV capability by FY 2004 is now in danger.

Complicating the fielding and contractor problems are potential problems with integration, coordination and management. Because the ATAV goal is so overarching, it requires the involvement of many different organizations responsible for the development, testing and fielding of these systems and their capabilities. For example, the U.S. Army Logistics Integration Agency is the office of primary responsibility (OPR) for ATAV. The Combined Arms Support Command (CASCOM) is responsible for GCSS-A development while the Logistics Information Management Division of DCSLOG's Plans, Operations and Logistics Automation Directorate is responsible for GCSS-A integration. Also, because the LIDB ultimately houses the GCSS-A data that provides the ATAV capability, the Logistics Support Agency (LOGSA) is a key player because they are responsible for the seamless transfer of GCSS-A data to the LIDB. While DRID #54 helps provide centralized management of logistics transformation efforts from the DoD perspective, it is difficult to determine who, if anyone, is providing centralized management of ATAV from the Army's perspective.

LATERAL REDISTRIBUTION

This initiative calls for adjustments to existing logistics business practices as outlined in the Single Stock Fund. Upon implementation of Single Stock Fund, retail sites will no longer be required to process referrals and the Army wholesale system will process all Army lateral redistribution referrals.[14] However, this initiative does not require any additional logistics automation capabilities above and beyond those already included in ATAV. As a result, further discussion of this initiative is not required other than to mention the addition of another agency to the list of those with whom coordination is required. The OPR for lateral redistribution is the Directorate of Supply and Maintenance, DCSLOG.[15]

ARMY IN-TRANSIT VISIBILITY (ITV)

ITV is basically the capability to provide visibility of all supplies and materiel in-transit. Eventually, ITV will track people, medical supplies and household goods as well. "It will

provide visibility of materiel in movement from government and contractor sources (storage/procurement) through transportation nodes to receipt by ordering customers."[16] This capability is dependent upon the ability to link logistics and transportation data using Electronic Data Interchange (EDI) technology. This requires changes to current business processes and policies to facilitate collecting the required data.

To track the development of this important capability, the Army developed a plan that provides guidance and direction for ITV in Army logistics with links to agencies from other services, commercial contractors and supporting agencies.[17] "The ITV program requires tracking of major logistics system modernization projects and integration of ITV milestones."[18] There are 69 projects associated with making ITV a reality. Tracking their progress necessitated the development of a separate chart. In fact, Army input to DRID #54 listed the completion of that chart as a key milestone for the 1st quarter of FY 2001. More than any other capability required to make ATAV a reality, ITV presents the greatest management and control challenges. The most critical projects supporting ITV are: the Wholesale Logistics Modernization Program (WLMP), the Transportation Coordinator Automated Information for Movement System II (TC-AIMS II), GCSS-A, and the Movement Tracking System (MTS).[19]

The changes associated with the Wholesale Logistics Modernization Program (WLMP) take place in Tier II of GCSS-A. These changes will provide visibility of materiel in the Army's wholesale logistics system. Tier II calls for the integration of the wholesale and retail levels of CSS through business process reengineering. To accomplish this integration, WLMP requires software changes to two of U.S. Army Materiel Command's (AMC) largest systems: the Commodity Command Standard System (CCSS) used by the National Inventory Control Points and the Standard Depot System (SDS).[20] "The system, written mostly in COBOL 74 code, has evolved into a complex, tightly integrated system that is difficult to maintain and adapt for changing needs. The major weaknesses include lack of flexibility, slow unfocused reports, code and storage flexibility, maintenance expense, sequential processing of transactions, and outmoded databases."[21] To overcome these challenges, AMC tasked the Army Communications-Electronic Command (CECOM) to implement WLMP. CECOM in turn formed a strategic alliance with the Computer Sciences Corporation (CSC) to perform the modernization and sustainment of these processes.[22] Following a transition period, CSC took responsibility of these systems on 1 July 2000.

TC-AIMS II is one of the key elements required to make ITV a reality. It has been in development since 1987 when the Secretary of Defense directed the introduction of

programs to provide automated support for DoD transportation coordinators. TC-AIMS II consolidates Unit Movement and Installation Transportation functions into a single joint system. It supports daily transportation operations, enhances the deployment process and builds automated unit equipment lists and deployment equipment lists.[23] While these capabilities are impressive, the important aspect of TC-AIMS II is that it will act as the source movement information system providing input for ITV. In this regard, TC-AIMS II provides input to TRANSCOM's Global Transportation Network which is responsible for providing ITV for DoD. TC-AIMS II serves as an example of the difficulty and incredible complexity entailed in creating the capabilities required for a transformed Army. "Initially, there were 149 transportation migration systems which were reduced to 23 systems or functionalities approved for migration."[24] Within DCSLOG, the Directorate for Transportation and Troop Support is the OPR for this system. The Defense Information Systems Agency and the U.S. Army Transportation School's Deployment Modernization Office were also key agencies involved in the development of this system.

In addition to WLMP and TC-AIMS II, GCSS-A is listed in DRID #54 input as a key component needed to make ITV a reality. GSCC-A was previously addressed during the discussion on ATAV and will not be repeated here.

The final key system required to produce ITV is the Movement Tracking System (MTS). MTS provides the capability to identify position, track progress, and communicate with the operators of tactical wheeled vehicles (TWV). This capability provides the tactical link to ITV as supplies and materiel are tracked to the their tactical destination. The MTS is an existing capability but links to TC-AIMS II and GTN remain to be developed.

The ITV initiative is clearly a complicated and extensive effort. Funding for ITV is included in the costs for AIT and other key Army modernization projects. At the joint level, ITV is under the executive direction of U.S. TRANSCOM and their Global Transportation Network (GTN) will be the database for assimilating and disseminating ITV data to all DoD customers. At the Army level, the OPR for ITV is the Directorate for Transportation and Troop Support, DCSLOG.[25] Interestingly enough however, the current DCSLOG homepage for this directorate does not even mention ITV as one of their responsibilities.

AUTOMATIC IDENTIFICATION TECHNOLOGY (AIT)

The fourth key area required to make TAV a reality is AIT. AIT supports both ATAV and ITV and uses a variety of devices to store, read and transmit data.[26] Using AIT saves times, reduces manpower and nearly eliminates errors associated with data collection and input.

The Army must make maximum use of the efficiencies associated with AIT if it is to be successful in its monumental task of providing TAV and ITV for all Army assets moving through the transportation system. The technology "includes linear and two-dimension bar code printing and scanning, magnetic strips, Radio Frequency (RF) identification technology, contact memory buttons, smart cards and optical memory cards."[27] These emerging technologies are not universally understood, therefore a brief description of each is provided.

Two Dimension Bar Codes

Bar codes have been is use for years. In fact, there are very few stores conducting retail sales that do not now use them. Bar codes can be thought of as a key in the form of a unique number that is coded in a series of black and white bars. The key allows you to enter a database that contains detailed information about the item represented by the key. Standard bar codes are limited in the amount of information they contain and users of this technology want a bar code that is capable of containing more data. Users need a portable database rather than a key that merely allows access to a database. This problem was overcome by recognizing that regular bar codes are one-dimensional. In other words, the information or data contained in a bar code is the same throughout the vertical dimension. In fact, the height of a standard bar code could be shortened without losing any information whatsoever. Two-dimension bar codes make more efficient use of the same space by storing a significantly greater amount of information in the code by making maximum use of the height as well as the length of the symbol. The ability to encode a portable database in two-dimension bar codes makes this technology a perfect match for ATAV and ITV. Migrating from one-dimension to two-dimension bar code capability will be an important leap for logistics automation.[28]

Magnetic Strips

The use of magnetic strips is another automated identification technology with which most people are familiar. They have been used for years on credit cards and airline boarding passes. Magnetic strip technology is very similar to that found in audio or video tapes. Magnetic material is applied to a plastic or paper card. Information is then recorded or written to the card. That same information can then be read or rewritten many times. For increased data capability, information can be written in tracks with each strip containing multiple tracks. The typical ATM card contains three tracks. Current magnetic strip

technology can produce resilient magnetic strips that are virtually immune to inadvertent magnetic damage.[29]

Radio Frequency Identification Technology

"RF AIT technology permits rapid and accurate capture, retrieval and transmission of supply and transportation source data. RF AIT facilitates source data automation, eliminating human error and maximizing efficiency. This information is transferred electronically to and from automated information systems that support asset visibility and logistics operations."[30] RF tags along with both fixed and hand-held interrogators provide visibility of equipment, supplies and ammunition for CONUS and OCONUS shipments. "Fixed interrogators installed at key transportation nodes read RF tags attached to pallets or containers and pass the data to a regional server for display in ATAV and the Global Transportation Network. To date, RF AIT has been installed at over 150 sites in Europe and the Balkans, 60 sites in CONUS and 30 sites in Korea."[31]

Contact Memory Buttons

Contact memory buttons are basically memory chips encased in metal. They are capable of storing significant amounts of data. Like RF tags, magnetic strips and bar codes, contact memory buttons need a machine to encode the information and read it. Readers can then pass the data to a main database. Contact memory buttons are passive in that they have no capability other than to store data and they are only activated with an appropriate reader. Contact memory buttons are considered extremely secure and difficult to counterfeit.[32]

Smart Cards

Smart cards contain a microprocessor to manipulate data that is stored in memory. They are read/write capable and extremely secure. A significant advantage of smart cards is their large memory. This allows each card to be personalized for a user by including biometric information such as a fingerprint. Another significant advantage of smart cards is that multiple applications can be housed on the same card. For example, a smart card could be used not only as a transit pass but also as a credit card to purchase goods.[33]

Optical Memory Cards

One of the latest inventions in the world of plastic cards is the optical memory card. These cards are data storage cards that are based on optical recording technology - the process of writing and reading with light. The optical card contains a wide reflective optical

recording stripe encapsulated between transparent, protective layers. Storing of medical records is the primary and most widely used applications for optical memory cards. Optical memory cards are secure and durable with tremendous storage capacity.[34]

AIT Summary

Automatic identification technology captures, retrieves and transmits supply and transportation source data. This information can then be easily transferred to other information systems that support Army and DoD asset visibility and logistics operations. AIT is particularly appropriate for warehouse and depot operations as well as capturing data at transportation nodes. However, AIT is also planned for use at power projection sites and with ammunition and maintenance operations. Input to DRID #54 specifically highlights the fact that AIT is being integrated into the ammunition process using RF and bar code technology. This will assist in providing asset and in-transit visibility as ammunition assets move through the transportation system to ammunition supply points. Additionally, AIT will integrate into maintenance operations, providing information concerning non-mission capable equipment, repair parts identification and availability and expected delivery dates.

Most automatic identification technologies are commercial off-the-shelf or emerging technologies. As a result, the task associated with integrating these technologies with military systems is enormous. As the OPR for ITV, this integration task is ultimately the responsibility of the U.S. Army Logistics Integration Agency.[35]

Unfortunately, there are several risks associated with the current level of AIT funding. First, integrating AIT into ammunition operations was scheduled for FY05. Reduced funding has slipped completion to FY 07. Additionally, integrating AIT into Tier II ammunition depots, plants and ports will not take place. Second, integrating AIT into maintenance operations will be severely impacted. Third, current funding will interrupt the fielding of radio frequency technology across the Army and limit implementation in support of power projection sites. Finally, current funding may eliminate the migration from linear bar codes to 2D bar codes.[36]

DRID #54'S SECOND INTERMEDIATE OBJECTIVE - WEB-BASED LOGISTICS (WBL)

In addition to TAV, Army input to DRID #54 supports achieving the directive's second key objective which is to field a web-based, shared data environment to provide seamless, interoperable, real-time logistics information. To reach this objective, the intent is to use a single enterprise database, in other words, a national level database that appears to be a single database from the user's perspective.[37] The user will interact with a single virtual

database that has components that are not necessarily in the same location. Regardless of database location, the information accessed will be the same. Ultimately, a single enterprise database will provide many users a single source for data entry, reduce costs and make the Army's logistics business process more effective.

At the very core of this capability is the ability to access the database using global internet technology. "Under this concept, total asset visibility becomes an embedded capability with shared real-time access available to all within the supply chain."[38] This includes warfighters, force planners, logisticians, suppliers, distributors, and carriers.

CASCOM, one of three OPRs for WBL, wants to develop WBL with the following key attributes. There should be no wholesale/retail boundaries. WBL should reduce complexity on the battlefield for both the warfighter and the logistician. Users should be able to access WBL capabilities by using only a web browser. WBL should use common web-based internet protocols. Finally, but most important, WBL must have assured communications with global connectivity.

Ultimately, WBL will provide improved access to a single source of logistics data. However, there are some potential risks associated with this capability. The pace of change required to make WBL a reality is extremely fast. There is some danger that not all organizations associated with WBL will be able to stay abreast of a rapidly changing situation. Another risk is that strategic and operational level staffs and commanders will inappropriately use and act upon tactical data. Also, tactical level staffs and commanders may jump their chain of command and degrade command and control because they have access to national level, real-time information. Risks associated with database security will increase tremendously. A significant risk for WBL is that it appears to be totally dependent upon communications. The Army's limited experience with WBL may serve to complicate and confuse the requirements generation process (i.e., You don't know what you don't know). Finally, implementing a WBL capability could have severe impacts on the scheduling and implementation of other logistics automation projects. With those risks in mind, the Army's input to DRID #54 is examined.

ARMY INPUT TO DRID #54 CONCERNING WBL

Army DRID input states the development and fielding of a WBL system will be incorporated in the development, fielding and integration of GCSS-A with the WLMP. To demonstrate an initial WBL capability, the Army selected the Single Property Book System as its initial web-based pilot project. This project began May 2000 and if ultimately

approved, the fully developed system will be ready for fielding throughout the Army in FY 02. Funding for the development of WBL will be accomplished through the funds identified for GCSS-A and WLMP development. An additional $9.1M was identified in FY 00 specifically for the development of the web-based pilot capability (Single Property Book System) for GCSS-A. The OPR for WBL is shared between PEO STAMIS, AMC CECOM and CASCOM, with CASCOM taking the lead.[39]

PROJECTS KEY TO THE IMPLEMENTATION OF WEB-BASED LOGISTICS (WBL)

SINGLE PROPERTY BOOK SYSTEM PILOT PROGRAM

The Single Property Book System pilot was initiated for two reasons. The first reason was to demonstrate the ability to perform limited logistics functions in a web-based environment. The second reason was to initiate a risk mitigation strategy for GCSS-A development should the contractor responsible for GCSS-A be unable to meet the deliverables required in the contract. In addition to using web-based technology, the pilot program will access a national, enterprise level property book database.

COMMUNICATIONS PIPELINE

The long pole in the tent of creating a WBL capability is the communications that are required to support it. At the request of TRADOC and CASCOM, The U.S. Army Signal Center recently completed a sensitivity analysis of the communications required to support the any user, anywhere, anytime concept. They determined that a web-based logistics application could require anywhere from 300 kilobytes/second to 12 megabytes/second of bandwidth depending on the capabilities of the user's computer. However, the Signal Center identified that the Army could expect to have only 1.5 megabytes/second allocated for its use at any of the four Satellite Tactical Entry Points (STEP) in the United States. This means that given current communications limitations, the current concept cannot be achieved and the Army faces significant challenges to a WBL concept that calls for soldiers to be able to access national level databases anywhere on the battlefield.

ANALYSIS

The concepts and visions necessary to guide future efforts are remarkably synchronized and mutually supportive. Army logistics transformation plans support the Chief of Staff of the Army's transformation guidance. Army transformation supports Joint Vision 2020 and the logistics concepts in Joint Vision 2020 match the guidance and requirements enumerated by the Deputy Secretary of Defense memorandum DRID #54

which calls for Logistics Transformation Plans. The guidance is straightforward and consistent and sets the stage for successful logistics transformation.

However, one potentially troubling aspect of the Army's logistics automation initiatives is that these key capabilities are managed and developed by a myriad of organizations that must coordinate and share requirements and information every step along the way. Offices of Primary Responsibility (OPRs) for the different capabilities required to make TAV and WBL a success are situated across the Army and involve virtually every major logistics agency and staff. These include: three directorates and the Logistics Integration Agency within DCSLOG, U.S. TRANSCOM, AMC, DLA, LOGSA, TRADOC, CASCOM, CECOM, PEO STAMIS and the U.S. Signal Center not to mention a host of contractors and commercial companies. Despite the challenge associated with coordinating the efforts of all of these activities, the management practices associated with these efforts help attain a degree of synergism. Key players are incorporated in the necessary working and steering groups. System integration teams are in place guided by Councils of Colonels and General Officer Working Groups, all working toward common goals outlined in the required annual logistics transformation plans. At this point, the leadership, organization and management of logistics transformation efforts are success stories.

Funding provides the first area of concern as it relates to the Army's plans for logistics transformation. GCSS-A plays a critical role in the success of ATAV, ITV and WBL. Unfortunately, despite the fact that over $70M has been spent on GCSS-A to date, the program is in trouble and the current contractor has been terminated. Future funding ($1.1B through FY 07) is in jeopardy unless progress can be demonstrated. Although a new contract may be awarded by the end of March 2001 for a new systems integrator, progress could still be delayed if the ousted contractor decides to file lawsuits. Other funding issues surround AIT as Army input to the DRID highlighted several risks associated with current funding levels. If the Army is going to get serious about creating new logistic automation capabilities and making the revolution in military logistics a reality, it must also get serious about funding them appropriately.

Additionally, problems with contractors must also be anticipated and controlled. The Army planned well when it developed a risk mitigation strategy for GCSS-A. Its efforts to task TRW Corporation to develop a web-based pilot in parallel to GCSS-A development by GRCI will save time and reap significant benefits if GRCI remains terminated. Nevertheless, GCSS-A development is now at a standstill and timelines are forced further into the future.

Finally, technological limitations may in fact hinder Army visions for logistics systems. Current limitations to communications pipelines and bandwidth will not allow a web-based logistics systems to access a national level database from any battlefield location, any time. Lessor solutions appear feasible but the ultimate goal for WBL will have to be reached one step at a time.

CONCLUSION

These are important and exciting times for the Army. As the Army struggles to ensure it remains a relevant force for the future, the Department of Defense calls for transformation DoD wide. If both DoD and Army efforts are to be successful, all members of the team must contribute. For the Army, this includes the logisticians. The guidance provided in DRID #54 – Logistics Transformation Plans, is exactly what is needed for the Army to focus on those aspects of logistics automation that will help produce a Revolution in Military Logistics.

This strategy research project discussed the two key intermediate objectives required from Army logistics transformation plans; making Total Asset Visibility a reality and doing so in a web-based, real-time, shared data environment. In analyzing the Army's plans to reach these objectives, several keys to success have emerged. With continued management vigilance, communications research and development, contractor oversight, and appropriate funding, logistics automation can significantly contribute to the creation of a transformed Army and the realization of Joint Vision 2020.

WORD COUNT = 5006

ENDNOTES

[1]General Henry H. Shelton, Joint Vision 2020 (Washington, D.C.: The Pentagon, June 2000), 30.

[2]Ibid.

[3]Deputy Secretary of Defense John J. Hamre, "Department of Defense Reform Initiative Directive (DRID) #54 – Logistics Transformation Plans," memorandum for Secretaries of the Military Departments, Washington, D.C., 23 March 2000.

[4]Ibid.

[5]Myron Fonseca <FonsecaMM@hqda.army.mil>, "DRID 54,"; attachment 3.0.doc; electronic mail message to James Hodge <James.Hodge@carlisle.army.mil>, 1 February 2001.

[6]Ibid, 3.4.doc.

[7]Ibid.

[8]Ibid.

[9]Ibid.

[10]Ibid.

[11]Ibid.

[12]Wayne Jackson <wsjackson@ems.att.com>, "RE: GRCI?," electronic mail message to James Hodge <hodgejmkck@earthlink.net>, 16 March 2001.

[13]Bill Murray, "Army Seeks New Modernization Vendor," 19 February 2001; available from <http://www.disa.mil/info/poa04ac.html>; Internet; accessed 19 February 2001.

[14]Fonseca, 3.4.doc.

[15]Ibid.

[16]Ibid.

[17]Ibid.

[18]Ibid.

[19]Ibid.

[20]Ibid, 3.5.doc.

[21]"Wholesale Logistics Modernization Program,"; available from <http://www.wlmp.com/information/wlmp_background.cfm>; Internet; accessed 12 March 2001.

[22]Ibid.

[23]"TC-AIMS II,"; available from <http://www.deploy.eustis.army.mil/InfoFusion/TCAIMSII.htm>; Internet; accessed 12 March 2001.

[24]Ibid.

[25]Fonseca, 3.4.doc.

[26]Ibid.

[27]Ibid.

[28]"Bar Code 1 2-Dimensional BarCode Page," available from <http://www.adams1.com/pub/russadam/stack.html>; Internet; accessed 12 March 2001.

[29]"Intelligent Data Acquisition Technologies Consulting and Education,"; available from <http://www.idat.com>; Internet; accessed 12 March 2001.

[30]Fonseca, 3.4.doc.

[31]Ibid.

[32]"Intelligent Data Acquisition Technologies Consulting and Education,"; available from <http://www.idat.com>; Internet; accessed 12 March 2001.

[33]Ibid.

[34]Ibid.

[35]Fonseca, 3.4.doc.

[36]Ibid.

[37]Ibid, 3.5.doc.

[38]Ibid.

[39]Ibid.

BIBLIOGRAPHY

"About TC-AIMS II." Available from <http://www.tcaimsii.belvior.army.mil/Introduction/about_tc-aims_ii.html>. Internet. Accessed 12 March 2001.

"Bar Code 1 '2-Dimensional Bar Code Page'." Available from <http://www.adams1.com/pub/russadam/stack.html>. Internet. Accessed 12 March 2001.

Brown, Daniel G., Henry T. Glisson, Charles H. Coolidge, and Charles S. Mahan Jr. "Panel I: Military Transformation." Defense Transportation Journal 56 (December 2000): 14-29.

Cannon, Charles C. JR., Major General, Acting Deputy Chief of Staff for Logistics. The Army Strategic Logistics Plan. Washington, D.C., 11 May 2000.

"CASCOM Information Systems Directorate." Available from <http://www.cascom.army.mil/automation/Automated_Systems/Index.htm>. Internet. Accessed 9 January 2001.

Ferris, Louis M. "ATAV Vision." Army Logistician 32 (Nov/Dec 2000): 3-5.

Fonseca, Myron. "U.S. Army Input to Defense Reform Initiative #54", Directorate for Plans, Operations and Logistics Automation, Deputy Chief of Staff of Logistics, 31 January 2001.

Hamre, John J., Deputy Secretary of Defense. "Department of Defense Reform Initiative Directive (DRID) #54 – Logistics Transformation Plans." Memorandum for Secretaries of the Military Departments. Washington, D.C., 23 March 2000.

"Intelligent Data Acquisition Technologies Consulting and Education." Available from <http://www.idat.com>. Internet. Accessed 12 March 2001.

"InTransit Visibility ITV." Available from <http://lia.army.mil/ls/itv.htm>. Internet. Accessed 11 March 2001.

Jackson, Wayne <wsjackson@ems.att.com>. "RE: GRCI?." Electronic mail message to James Hodge <hodgejmkck@earthlink.net>. 16 March 2001.

"Logistics Information Systems Division." Available from <http://www.dtic.mil/jcs/j4/divisions/lisd/lisd.html>. Internet. Accessed 25 January 2001.

"Logistics Integrated Data Base (LIDB)." Available from <http://www.logsa.army.mil/pam700/lidbgi.htm>. Internet. Accessed 11 March 2001.

Luciano, Angel L. and Hans Hollister. "Keeping Track of Your Shipments Using Automatic Identification Technology." Army Logistician 31 (Jan/Feb 1999): 103-105.

Murray, Bill. "Army Seeks New Modernization Vendor." Available from <http://www.disa.mil/info/poa04ac.html>. Internet. Accessed 19 February 2001.

"Project Manager Global Combat Support System-Army." Available from <http://www.gcss-army.lee.army.mil>. Internet. Accessed 9 January 2001.

Shelton, Henry H., General, Chairman of the Joint Chiefs of Staff. Joint Vision 2020. Washington, D.C.: The Pentagon, June 2000.

"TC-AIMS II." Available from <http://www.deploy.eustis.army.mil/InfoFusion/TCAIMSII.htm>. Internet. Accessed 12 March 2001.

Wallace, Roy, and Christopher R. Hardy. "Seamless Logistics System." Army Logistician 31 (Jan/Feb 1999): 17-19.

Weidenthal, Kurt II. Critical Information Technology Must Be Funded to Achieve a Successful Revolution in Military Logistics. Strategy Research Project. Carlisle Barracks: U.S. Army War College, 12 March 1998.

"Wholesale Logistics Modernization Program." Available from http://www.wlmp.com/information/wlmp_background.cfm>. Internet. Accessed 12 March 2001.