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The Honorable Robert Wittman
Chairman
The Honorable Madeleine Z. Bordallo
Ranking Member
Subcommittee on Readiness
Committee on Armed Services
House of Representatives

Army Logistics: Global Combat Support System-Army Is Supporting Requirements at Selected Units

The Global Combat Support System-Army (GCSS-Army) is among a new generation of information systems that are replacing older legacy systems in the Department of Defense (DOD). The Army initiated GCSS-Army in 2003 with the intent of replacing several separate information systems used to manage logistics at Army tactical units, such as ordering and tracking supplies, maintaining accountability of organizational equipment, and monitoring unit maintenance. Once fully fielded, GCSS-Army will manage \$216 billion in assets on an annual basis and, according to DOD officials, is intended to be a key component of the department's plan for correcting financial management deficiencies and ensuring that its financial statements are validated as audit ready by September 30, 2017, as called for by the National Defense Authorization Act for Fiscal Year 2010.¹

As an information system that supports the Army's management of its supply chain, GCSS-Army intersects two long-standing areas on our high-risk list:² (1) DOD's supply chain management, which has been on the high-risk list since 1990 because of challenges related to managing inventory, tracking materiel distribution, and maintaining asset visibility; and (2) DOD's business systems modernization program, which has been on the high-risk list since 1995 because of the size, complexity, and significance of related modernization efforts. We have also previously assessed the schedule and cost estimates for GCSS-Army.³

¹The National Defense Authorization Act for Fiscal Year 2010, Pub. L. No. 111-84, div. A, § 1003(a), (b) (Oct. 28, 2009). Further, the National Defense Authorization Act for Fiscal Year 2014, Pub. L. No. 113-66, div. A, § 1003 (Dec. 26, 2013), also mandates a full audit of DOD's fiscal year 2018 financial statements, and that those results be submitted to Congress by March 31, 2019.

²GAO, *High-Risk Series: An Update*, GAO-15-290 (Washington, D.C.: February 2015).

³In September 2014, we recommended that the Army update its schedule and cost estimates for GCSS-Army to fully incorporate best practices. DOD concurred with our recommendation to improve its schedule and identified actions the Army had taken, and we agreed that, if effectively implemented, these actions should fulfill the intent of our recommendation. DOD also concurred with our recommendation to update its cost estimate and stated that the Army had completed actions to improve its cost estimate; however, we stated that these actions were not fully responsive

According to Army officials, GCSS-Army has an estimated life-cycle cost of \$3.9 billion and, as of December 2014, the Army had spent about \$1.8 billion. As of February 2015, GCSS-Army had been fully fielded to two Army units: the 11th Armored Cavalry Regiment at Fort Irwin, California, and 2nd Brigade, 1st Armored Division, at Fort Bliss, Texas. Fielding for the remainder of the Army has been divided into two waves. Fielding of wave 1 began in November 2012. Wave 1 of GCSS-Army replaces the legacy system used to support supply functions and provides additional related financial capabilities at Army installation warehouses and tactical warehouses.⁴ As of February 2015, wave 1 had been fielded to about 200 units. According to Army officials, full fielding of wave 2 is expected to begin in July 2015. Wave 2 of GCSS-Army replaces the legacy systems used to support maintenance and property accountability functions and their related financial capabilities at the unit level. Once units complete fielding of wave 2, they will be using the “full solution” of GCSS-Army. GCSS-Army is scheduled to be fully implemented across the Army, including Active, Reserve, and Guard units, by September 2017. The Army estimates the system will have more than 150,000 users.

Due to the cost, complexity, and importance of the system, you requested that we evaluate the use of GCSS-Army at locations where it has been fielded. This report assesses the extent to which (1) the system is able to support the logistics requirements of selected tactical units at locations where GCSS-Army has been initially fielded and (2) the Army has developed a performance management approach for measuring any benefits realized from using the system.

To identify the extent to which GCSS-Army supports logistics requirements of selected tactical units, we reviewed Army regulations that set forth and describe specific logistics functions and requirements of tactical units.⁵ We reviewed training materials and presentations describing the system’s capabilities and how soldiers are expected to use the system. We met with GCSS-Army program management officials and representatives responsible for developing the system’s requirements (Combined Arms Support Command, Fort Lee, Virginia) to discuss the expected capabilities of the system. We also selected three units to visit in order to observe use of the system and interview system users. Specifically, we visited: an installation warehouse that used wave 1 and was located on the same installation as the Combined Arms Support Command (Logistics Readiness Center, Fort Lee, Virginia); a unit using the full solution of GCSS-Army (2nd Brigade, 1st Armored Division, Fort Bliss, Texas); and a tactical warehouse located on the same installation that used wave 1 (504th Quartermaster Company, Fort Bliss, Texas). To see how operations were being performed using the legacy systems, we also visited a tactical warehouse that was preparing to field wave 1 of GCSS-Army (24th Quartermaster Company, Joint Base Lewis-McChord, Washington). During these visits, we observed personnel using the system to perform some tactical logistics tasks; collected documentation, such as printouts of screenshots, illustrating how tasks are being performed; and interviewed some users of the system to capture their experiences. We also obtained from users any examples of

to our recommendation. See GAO, *DOD Business Systems Modernization: Additional Enhancements Are Needed for Army Business System Schedule and Cost Estimates to Fully Meet Best Practices*, [GAO-14-470](#) (Washington, D.C.: Sept. 30, 2014).

⁴Installation warehouses are organizations that operate at fixed locations and provide supply support to customers on a DOD installation. Tactical warehouses are organizations that provide supply support to tactical Army customers, to include moving with a unit to a theater during deployments.

⁵Army Regulation 710-2, *Supply Policy Below the National Level* (Mar. 28, 2008); Army Regulation 735-5, *Property Accountability Policies* (May 10, 2013) (including Rapid Action Revision issued Aug. 22, 2013); and Army Regulation 750-1, *Army Materiel Maintenance Policy* (Sept. 12, 2013).

improvements in capabilities compared with their experiences using the legacy systems. We did not assess the system's ability to support financial audit readiness.⁶ Because fielding was under way, we visited only a small number of locations based on a nonprobability sample to provide illustrative examples that reflect some user perspectives. Accordingly, results from our site visits are not generalizable to other locations that are using GCSS-Army.

To assess the extent to which the Army has developed a performance management approach for measuring benefits realized from using the new system, we met with officials from the Program Manager, GCSS-Army; the Combined Arms Support Command; and the Army Deputy Chief of Staff for Logistics to obtain information on the expected benefits of the system and how the Army intends to measure performance under GCSS-Army compared with performance under legacy systems. We also reviewed Army documents, such as quarterly reports, describing their planned actions and some of the data that had been collected. Because fielding is under way, data on actual performance improvements and associated benefits are limited.

We conducted this performance audit from June 2014 to April 2015 in accordance with generally accepted government auditing standards. Those standards require that we plan and perform the audit to obtain sufficient, appropriate evidence to provide a reasonable basis for our findings and conclusions based on our audit objectives. We believe that the evidence obtained provides a reasonable basis for our findings and conclusions based on our audit objectives.

Results in Brief

At the three selected Army units we visited, GCSS-Army was supporting current logistics requirements. Specifically, based on our visits to two units that had fielded wave 1 of the system, units were able to perform warehouse operations using GCSS-Army. Similarly, based on our visit to a unit that had fielded the full solution of GCSS-Army, the system was supporting supply, property accountability, and maintenance functions. Some users at each of the locations also told us that the system was providing certain capabilities that were not available using legacy systems. While units had experienced a decrease in productivity during the initial transition from legacy systems to GCSS-Army, system users reported returning to a more normal operating level after becoming familiar with how to use the system.

The Army is developing a performance management approach to assess the extent of benefits realized from using GCSS-Army. The Army expects GCSS-Army to provide about \$11.8 billion in financial benefits through fiscal year 2027, with most benefits beginning after the system is fielded to the entire Army in September 2017. According to the Army's Economic Analysis for the system, these benefits will comprise a \$1 billion cost savings from the retirement of legacy systems, efficiencies resulting in cost avoidances of approximately \$2 billion, and productivity enhancements providing \$8.8 billion in benefits. To measure the extent of the benefits, the Army is developing a baseline measurement of the performance of units that are using legacy systems to perform logistics tasks. Because the Army's approach is currently under development, it is too early to evaluate its effectiveness.

⁶For a discussion of audit readiness, see Department of Defense Inspector General, *Global Combat Support System-Army Did Not Comply With Treasury and DOD Financial Reporting Requirements*, DODIG-2014-104 (Washington, D.C.: Sept. 3, 2014).

Background

The lack of accurate and timely information in the management of Army logistics operations has been a long-standing issue. As we previously reported, the Army experienced challenges in maintaining visibility of materiel during the redeployment of forces from Operation Desert Storm.⁷ Based on a review of those challenges, the Army identified the need for a standard management information system that used a common database capable of anticipating, allocating, and synchronizing the flow of resources. To address this need, in 1995 the Army undertook a comprehensive management initiative to fully integrate the functional areas of supply, distribution, and maintenance in order to provide logisticians better visibility of materiel. The initiative included developing an Army-specific information management system. However, the Army changed course in 2003 and selected a commercial-off-the-shelf software solution to configure for Army functions.⁸

This software solution, GCSS-Army, will replace several information systems that support the logistics functions of supply, maintenance, and property accountability that are performed by tactical units at multiple locations. GCSS-Army is also part of the Army's ongoing transition from older legacy systems to more modern enterprise resource planning systems.⁹ These systems, once integrated, are intended to provide a single source of data for management and decision making, as well as to improve overall financial management and audit readiness.

In August 2011, the Army began operational testing of GCSS-Army with users at Fort Irwin, California, and Fort Bliss, Texas, supporting supply, maintenance, and property accountability functions. In December 2012, the Under Secretary of Defense for Acquisition, Technology and Logistics approved a full deployment decision for GCSS-Army, which allowed the Army to begin deploying the system to all remaining locations.¹⁰ The Army has divided the remaining fielding of the system into two waves.

The Army began fielding wave 1 in November 2012 to replace one legacy system used to support supply functions at Army installation and tactical warehouses.¹¹ According to program management officials, wave 1 represents approximately 10 percent of the total number of GCSS-Army users. Additionally, units that field wave 1 will generally provide services to customers that are operating under legacy systems. By March 2016, the Army expects to complete fielding of wave 1 to about 315 units.

According to Army officials, the fielding of wave 2 is expected to begin in July 2015 and will replace two systems used to support unit maintenance and property accountability functions at

⁷GAO, *Operation Desert Storm: Lack of Accountability Over Materiel During Redeployment*, [GAO/NSIAD-92-258](#) (Washington, D.C.: Sept. 23, 1992).

⁸The Army selected Systems, Applications, and Products (SAP), with Northrop-Grumman as the primary contractor for developing the system.

⁹The Army's enterprise resource planning systems include GCSS-Army, the Logistics Modernization Program, the General Fund Enterprise Business System, and the Integrated Personnel and Pay System-Army.

¹⁰According to the full deployment decision, the Army is also required to provide quarterly reports to the Defense Acquisition Executive on the status of deployments, performance metrics, and operational metrics.

¹¹The primary legacy system used by installation and tactical warehouses is the Standard Army Retail Supply System (SARSS).

the unit (company) level.¹² According to program management officials, wave 2 represents approximately 90 percent of the total number of GCSS-Army users. Once units receive wave 2, they will have the “full solution” of GCSS-Army, and both the warehouse and customers will perform their operations using GCSS-Army. According to program management officials, the Army expects to complete fielding of the system by September 2017. The Army is also considering future increments of GCSS-Army, which could include capabilities such as management of ammunition and prepositioned stocks.

GCSS-Army Was Supporting the Army’s Logistics Requirements at Selected Tactical Units

Observations on Wave 1 of GCSS-Army

At the two Army units we visited that had fielded wave 1 of GCSS-Army, personnel were able to perform the unit’s core supply functions using the system. According to Army guidance, a warehouse is expected to be able to receive, store, inventory, and issue items to customers. During our visits to one installation warehouse and one tactical warehouse, we found that the warehouses using wave 1 were able to perform these kinds of tasks. For example, during both of our visits, we observed warehouse personnel receiving, storing, and preparing items to be issued to customers. We also observed managers using the system to generate performance reports that assessed the status of operations at the warehouse. These managers stated that these near-real-time reports enabled them to identify issues requiring their attention. For example, we observed that these reports show which items needed to be shipped, which soldiers should perform those actions, and which items were delayed.

Officials told us that wave 1 was providing better visibility of inventory located in Army warehouses than the legacy systems did because the system relies on a single source of data. For example, an official told us that GCSS-Army enabled them to see in near real time whether other warehouses had inventory that could support their needs. Officials stated that a similar capability was available in the legacy system; however, the information they could access was outdated. Additionally, GCSS-Army was enabling performance monitoring of any unit that had fielded the system. For example, an official at a higher-level command responsible for overseeing installation warehouses told us that her office was able to monitor the performance for all installation warehouses that had fielded wave 1 of GCSS-Army. The official stated that her command was able to analyze trends—such as demands and lead times for individual items—by accessing the near-real-time data from the system. Prior to GCSS-Army, the official stated that the command acquired performance data through a time-consuming process that involved data calls and individual phone calls.

In addition to the improved visibility provided by the system, officials at both locations we visited told us that wave 1 enhanced certain capabilities for internal warehouse operations. For example, the manager at one warehouse told us that the system provided better management and accountability of inventory than was the case with the legacy system because access to GCSS-Army is restricted. In order to perform a task, users must have a common access card and permissions that authorize them to perform the task. Additionally, the system maintains a

¹²An Army company consists of two or more platoons, usually of the same type, with a headquarters and a limited capacity for self-support. A company normally consists of approximately 60 to 200 soldiers that can perform a battlefield function independently, such as manning a combat outpost. Within 2nd Brigade, 1st Armored Division, there are approximately 30 companies. The two legacy systems that will be retired after wave 2 are the Standard Army Maintenance System-Enhanced (SAMS-E) and Property Book Unit Supply Enhanced (PBUSE).

log of which users have performed which transactions for an item. The warehouse manager stated that, as a result, it was much easier to research inventory discrepancies. Another enhanced capability is the automatic replenishment of parts. According to one warehouse manager, GCSS-Army automatically orders parts to replenish items that have been issued to customers. The warehouse manager told us that, in contrast, legacy systems would take at least 72 hours before ordering the item.

These two units had experienced some obstacles during the initial transition from legacy systems to GCSS-Army. The Army expects a decrease in productivity upon initial fielding of GCSS-Army as users learn to use it. At both wave 1 locations we visited, officials told us that they had experienced a decrease in productivity upon initial fielding. Specifically, warehouse managers told us that fielding the system required users to learn how to perform transactions in the system that they had been accustomed to performing using legacy systems. While users were performing the same type of tasks—such as issuing an item—that they performed using the legacy system, they often were required to complete more steps in GCSS-Army than they had in the legacy system. They also had to learn new terminology. Officials stated that, because warehouses fielding wave 1 must continue to provide services to customers while they are learning to use the new system, their warehouse's performance declined during the initial fielding. For example, managers at one warehouse told us that upon initial fielding, they experienced a 2-month backlog in receiving and distributing items. Managers stated that, to address this challenge, they devoted more personnel to process items. These managers also told us that, as users became more experienced with GCSS-Army, they were able to return to a more normal operating level.

Observations on the Full Solution of GCSS-Army

At the unit we visited that had fielded the full solution of GCSS-Army, the system was supporting supply, property accountability, and maintenance tasks. For example, we observed a tactical warehouse using the full solution of GCSS-Army and, as we had observed at wave 1 locations, warehouse personnel were using the system to receive, store, and manage items. We also observed warehouse personnel issuing items to customers. Upon receipt of an item, for example, customers used a computer terminal located at the warehouse and logged into GCSS-Army to acknowledge receipt of the item before leaving the warehouse. Warehouse officials told us that in the legacy environment and at wave 1 locations, supply activity between a warehouse and a customer occurred in two different systems. Accordingly, when a unit received an item from the warehouse, each organization would have to track the supply action within its own system, and data from the two systems would be reconciled. However, at the location using the full solution of GCSS-Army, both the customer and the warehouse had access to and used the same information. For example, a company supply sergeant showed us how he ordered a part using the system, and we observed a screen alerting him that an item he had ordered was available for retrieval at the warehouse. Warehouse personnel and the company supply sergeant told us that sharing information reduced the need for phone conversations asking about the location of a part. An official from the Combined Arms Support Command stated that this enhanced visibility should reduce unnecessary trips to a warehouse to retrieve a part that had not arrived. Additionally, warehouse personnel said it was no longer necessary to perform reconciliation of records because both the customers and the warehouse were using the same system. According to a company supply sergeant who used the full solution, reconciliation could take as long as a week under legacy systems.

GCSS-Army also was supporting Army property accountability requirements at the unit we visited. According to Army regulation, property accountability requirements include tracking the

disposition for all items acquired by the Army on a consolidated property list. Property accountability officials at the unit that had fielded the full solution of GCSS-Army told us that the system enabled them to track where all items on the property list were physically located, as well as the individuals who had responsibility for each item. Property accountability officials told us that, because the system is the authoritative source of data used among all organizations within the unit, transferring responsibility for property was much quicker than in legacy systems. During our visit, we observed a company supply sergeant logging into his unit's GCSS-Army account from a remote location and transferring responsibility by issuing hand receipts¹³ for items. Officials told us that the better visibility provided by using a single system made quality control processes much quicker. Specifically, they stated that during changes in company leadership, inventories and property accountability paperwork could be accomplished in days compared to weeks under legacy systems. Property accountability officials also told us that because all property was accounted for within GCSS-Army, the ability for units to hoard items and trade them was limited.

GCSS-Army also was supporting maintenance requirements at the unit we visited. According to Army regulation, maintenance requirements include scheduling and tracking repairs and managing repair parts. According to the maintenance manager at one unit that had fielded the full solution of GCSS-Army, the system enabled maintenance personnel to schedule and track the status of repairs, as well as to manage inventories used to support the repairs. Additionally, the maintenance manager stated that because all of the information resided in one system, users were able to order repair parts and track their status in one system rather than having to use multiple systems. The benefit, according to the maintenance manager, was having more timely maintenance data—such as near-real-time data on the readiness of vehicles, parts shortages, and the status of maintenance actions. The official told us that under the legacy environment, each unit would store its own maintenance data in a separate system, so managers had to collect information by contacting each unit. In contrast, GCSS-Army enabled users to aggregate near-real-time data. For example, the maintenance manager told us that items with long lead times were hindering fleet readiness in the brigade, and that GCSS-Army enabled him to quickly identify the scope of the issue and to make decisions on controlled exchanges¹⁴ to address parts shortages. Similarly, the maintenance manager told us that during a 3-hour division-wide maintenance meeting, the brigade using GCSS-Army was able to quickly and accurately provide a status update in less than 5 minutes, while other units using legacy systems had to spend more time collecting, clarifying, and refining data to provide their status updates.

The Army Is Developing an Approach to Assess the Benefits of GCSS-Army

The Army is developing a performance management approach to assess the extent of benefits realized from using GCSS-Army. The Army expects GCSS-Army to provide about \$11.8 billion in financial benefits through fiscal year 2027, with most benefits beginning after the system is fielded to the entire Army in September 2017. According to the November 2012 Army Economic

¹³A hand receipt is a signed document acknowledging acceptance of and responsibility for items listed on the receipt. According to property accountability officials, all items on the property book are hand-receipted to company commanders within the brigade, who then issue sub-hand receipts to individual users.

¹⁴A controlled exchange is the removal of a serviceable part from unserviceable equipment for immediate reuse in restoring a similar item of equipment.

Analysis¹⁵ for GCSS-Army, the Army will realize a cost savings of approximately \$1 billion through the retirement of legacy systems; efficiencies that result in cost avoidances¹⁶ of approximately \$2 billion; and productivity improvements¹⁷ that will provide \$8.8 billion in benefits. Specifically, the Army estimated a cost avoidance of \$1.2 billion by reducing costs associated with multiple reorders of lost, wrong, or delayed shipments and a cost avoidance of approximately \$700 million through the right-sizing of inventory and better visibility over reparable items. Additionally, the Army stated that GCSS-Army will lead to improved business processes that will increase productivity. For example, the Army estimated that GCSS-Army, by reducing the time necessary to develop and refine reports, will provide productivity improvements of approximately \$6.8 billion from fiscal years 2018 through 2027. Similarly, the Army estimated that GCSS-Army's improvements to supply planning and reporting will provide productivity gains of approximately \$1.7 billion from fiscal years 2018 through 2027.

To measure the extent of the benefits gained with using GCSS-Army, the Army is developing a baseline measurement of the performance of units using legacy systems to perform logistics tasks. For example, to assess the performance of warehouses using wave 1 of GCSS-Army, the Army collected 40 months of historical data from a representative sample of Army units on a suite of supply chain metrics, such as customer wait time and demand satisfaction. According to Army officials, the baseline measurements for wave 1 are complete. For wave 2, the Army is developing a data set of metrics to document Army performance under the legacy maintenance systems, such as repair cycle time, and property accountability, such as property accuracy. The Army is augmenting these metrics by conducting field interviews with approximately 15 units at five different locations to capture the number of hours needed to perform various actions—such as reconciling information between legacy systems—as well as the level of effort required to complete inventories on time. For wave 2 baseline measurements, Army officials stated that data gathering is under way as of January 2015 and will continue until approximately 50 percent of the Army units are converted to wave 2. Additionally, Army officials told us that they are continuing to refine what they will measure, and that they may expand the number of field interviews to consider a broader population, such as Army National Guard, Army Reserve, and active units stationed overseas. Army officials stated that they will compare unit performance against the baseline after GCSS-Army is fielded.

Federal internal control standards state that managers should compare actual performance to planned or expected results throughout the organization and analyze significant differences.¹⁸ We previously reported that the Army did not track whether expected financial benefits were being realized from the use of another system.¹⁹ Accordingly, the Army's approach could be a

¹⁵U.S. Army Program Executive Officer for Enterprise Information Systems, *Economic Analysis (EA) The Global Combat Support System-Army* (November 2012).

¹⁶According to the Army's Economic Analysis, a cost avoidance is a reduction in some future resource requirement that has not been included in an approved Army program because investment in some needed program will not have to be made.

¹⁷According to the Army's Economic Analysis, a productivity improvement is a reduction in future personnel time and effort requirements associated with a function or assigned task.

¹⁸GAO, *Standards for Internal Control in the Federal Government*, [GAO/AIMD-00-21.3.1](#) (Washington, D.C.: November 1999).

¹⁹GAO, *Defense Logistics: Army Should Track Financial Benefits Realized from its Logistics Modernization Program*, [GAO-14-51](#) (Washington, D.C.: Nov. 13, 2013).

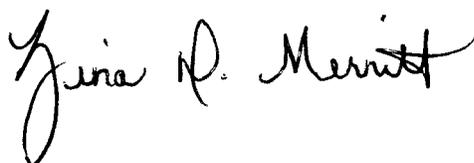
positive step in measuring whether the expected benefits from fielding the system materialize. However, because the Army's approach is currently under development, it is too early to evaluate its effectiveness.

Agency Comments

We are not making recommendations in this report. We requested comments on a draft of this product from the Department of Defense. On March 27, 2015, officials from the Army Deputy Chief of Staff for Logistics provided us comments in an email that stated the information in the report was fair and accurate, and that they concurred with the draft report.

We are sending copies of this report to the appropriate congressional committees, the Secretary of Defense, and the Secretary of the Army. Also, the report is available at no charge on the GAO website at <http://www.gao.gov>.

Should you or your staff have questions concerning this report, please contact me at (202) 512-5257 or merrittz@gao.gov. Key contributors to this report were Thomas Gosling, Assistant Director; Danielle Ellingston; and Jim Melton. Contact points for our Offices of Congressional Relations and Public Affairs may be found on the last page of this report.



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