



April 2021

DEFENSE LOGISTICS

Army Should Ensure
New System
Operates in All
Situations and
Soldiers Complete
Training

GAO@100 Highlights

Highlights of [GAO-21-313](#), a report to the Committee on Armed Services, House of Representatives

Why GAO Did This Study

GCSS–Army is a single, web-based system that, once fully implemented, is expected to be used to manage \$216 billion in assets annually. This logistics information management system replaces several older systems. The Army estimates it will save \$12 billion through fiscal year 2027 by making logistics management more efficient. Department of Defense officials also expect GCSS–Army will help the Army to ensure that its financial statements are validated as audit ready.

House Report 116-120, accompanying a bill for the National Defense Authorization Act for Fiscal Year 2020, included a provision for GAO to review GCSS–Army. This report examines, among other things, the extent to which (1) GCSS–Army addresses the needs of soldiers and leaders conducting military operations, and (2) the Army equipped and trained personnel to operate GCSS–Army during military operations. GAO reviewed Army documents and regulations; interviewed officials; observed a system demonstration; and interviewed soldiers who had recent experience using GCSS–Army in operational situations.

What GAO Recommends

GAO recommends that the Army (1) dedicate appropriate resources to meet the Army's plan to develop and to field a capability for GCSS–Army to operate when disconnected from the Army's network, and (2) establish a mechanism to track that soldiers are completing necessary training and gaining proficiency in how to use GCSS–Army. DOD concurred with both recommendations and provided suggestions on which offices in the Army should address them, which GAO incorporated as appropriate.

View [GAO-21-313](#). For more information, contact Diana Maurer, (202) 512-9627, MaurerD@gao.gov.

April 2021

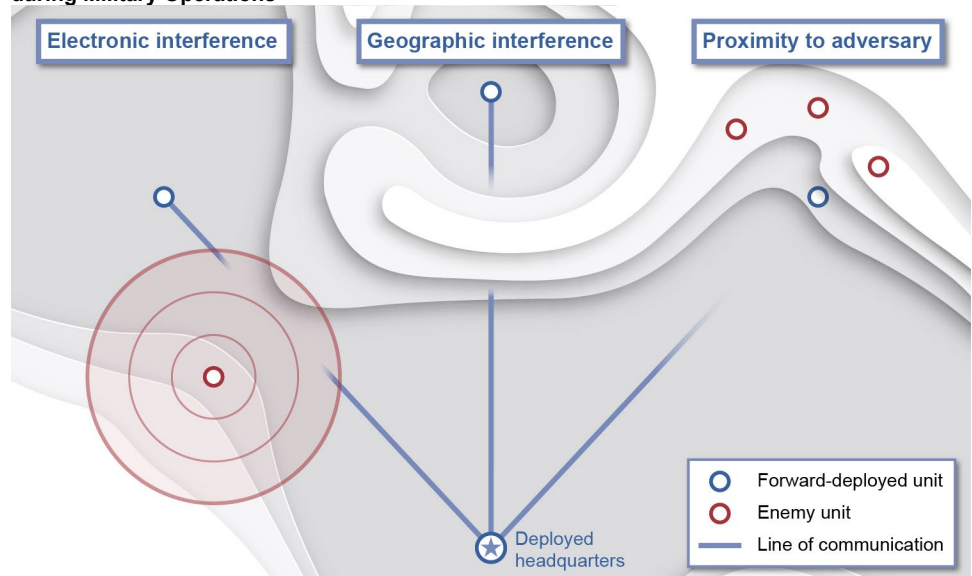
DEFENSE LOGISTICS

Army Should Ensure New System Operates in All Situations and Soldiers Complete Training

What GAO Found

The Global Combat Support System–Army (GCSS–Army)—a web-based information and logistics system—has improved the Army's ability to meet logistics needs during military operations through improved visibility, accountability, and reporting of its assets, such as replacement parts and equipment. However, GCSS–Army does not function in situations where network connectivity is an issue, which could affect combat units' performance during military operations (see figure).

Factors That May Prevent Units from Connecting to the Global Combat Support System–Army during Military Operations



Source: GAO analysis of interviews with Army officials; Ron Dale/stock.adobe.com. | GAO-21-313

Soldiers GAO interviewed told GAO that during military operations, they may be in a remote location close to an adversary where they may or may not have internet or satellite access; cyberattacks are possible; and mountains could obstruct connectivity. The Army plans to develop and to field a disconnected operations capability by 2023, but whether it will dedicate the appropriate resources remains uncertain. Without a capability to operate GCSS–Army when disconnected from the Army's network, Army forces could lose the timely, accurate, and secure information needed to sustain operations.

The Army generally equipped personnel to operate GCSS–Army, but soldiers may not be taking training necessary to effectively use the system. Soldiers stated that better career-specific training is needed and that they rely on alternative ways of learning how to operate the system, such as social media groups. Army officials acknowledge that GCSS–Army's complexity makes it difficult to use and that soldiers need to devote a lot of time to training and working in the system. However, the Army could not confirm whether soldiers were taking the GCSS–Army training that is needed to be proficient in their specific responsibilities. Without a mechanism to track that soldiers are completing the more advanced, career-specific online training, the Army cannot be sure it is reaping the full benefits of the system.

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Abbreviations

CASCOM	Combined Arms Support Command
DOD	Department of Defense
GAO	Government Accountability Office
GCSS–Army	Global Combat Support System–Army
HQDA	Headquarters Department of the Army
PEO EIS	Program Executive Office Enterprise Information Systems
PMO	Program Manager’s Office
VSAT	Very Small Aperture Terminal

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April 12, 2021

The Honorable Adam Smith
Chairman
The Honorable Mike Rogers
Ranking Member
Committee on Armed Services
House of Representatives

The Army estimates that it will save \$12 billion through fiscal year 2027 and improve logistics management by using the Global Combat Support System–Army (GCSS–Army), a single, web-based system that consolidates and replaces several older, standalone information management systems for logistics.¹ Logistics is an essential function underpinning U.S. military power.² The Army uses GCSS–Army to track supplies, to maintain accountability of property, and to monitor equipment maintenance. GCSS–Army integrates with other Army information systems with the objective of getting the right equipment at the right place at the right time to support warfighter requirements.

The Army completed the migration of supply, maintenance, and property accountability systems into GCSS–Army in 2017.³ Next, the Army plans to consolidate and integrate older, standalone systems for Army enterprise aviation and pre-positioned stocks. These systems are expected to be migrated into GCSS–Army by late 2023, according to Army officials. DOD officials stated that once fully implemented, GCSS–Army is expected to manage \$216 billion in assets on an annual basis, such as unmanned aircraft and tanks. Additionally, GCSS–Army is

¹The Army estimates that GCSS–Army will yield cost savings from the retirement of older, separate systems; increase efficiencies resulting in cost avoidances; and improve productivity. Over half of the projected savings—approximately \$6.1 billion—are a result of productivity savings.

²The Army defines “logistics” as including those aspects of military operations that deal with: design and development; acquisition, storage, movement, distribution, maintenance, and disposition of materiel; acquisition or construction, maintenance, operation, and disposition of facilities; and acquisition or furnishing of services. Army Doctrine Publication 4-0, *Sustainment* (July 31, 2019).

³The Army began replacing and migrating older, standalone systems into GCSS–Army in November 2012 to manage the logistics functions of Army tactical units, including ordering and tracking supplies, monitoring unit maintenance, and maintaining accountability of organizational equipment.

intended to be a key component of the Department of Defense's (DOD) plan for correcting financial management deficiencies and ensuring that DOD's financial statements are validated as audit ready, according to DOD officials.⁴

In September 2014, we found that GCSS–Army schedule and cost estimates did not fully meet best practices as established in *GAO Schedule Assessment Guide: Best Practices for Project Schedules—Exposure Draft* and *GAO Cost Estimating and Assessment Guide: Best Practices for Developing and Managing Capital Program Costs*.⁵ We recommended that the Army update its schedule and cost estimates for fielding GCSS–Army to fully incorporate best practices, and DOD concurred with the recommendations.⁶ In April 2015, we reviewed the Army's progress in fielding GCSS–Army to some tactical units and found that the system was supporting the needs of those units, and that the Army was in the process of developing a performance management approach to assess the benefits realized from using GCSS–Army.⁷ As of

⁴We did not assess the ability of GCSS–Army to support financial audit readiness as part of this review. However, in February 2020, GAO reported on its audit of the U.S. government's consolidated financial statements from fiscal years 2019 and 2018 and found that DOD financial management continues to face long-standing issues. Additionally, audits of DOD's full financial statements by outside entities resulted in disclaimers of opinion, material weaknesses and thousands of audit findings. Some of these findings specifically addressed issues with GCSS–Army, such as inconsistent execution of internal controls and errors when recording transactions in the system. See GAO, *Financial Audit: FY 2019 and FY 2018 Consolidated Financial Statements of the U.S. Government*, [GAO-20-315R](#) (Washington, D.C.: Feb. 27, 2020).

⁵GAO, *GAO Schedule Assessment Guide: Best Practices for Project Schedules—Exposure Draft*, [GAO-12-120G](#) (Washington, D.C.: May 2012), and GAO, *GAO Cost Estimating and Assessment Guide: Best Practices for Developing and Managing Capital Program Costs*, [GAO-09-3SP](#) (Washington, D.C.: March 2009).

⁶See 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). DOD identified actions the Army had taken to improve its schedule, and we agreed that if effectively implemented, these actions should fulfill the intent of our recommendation. DOD also stated that the Army had completed actions to improve its cost estimate; however, we stated that these actions were not fully responsive to our recommendation. We closed both recommendations in the report as “not implemented” because the Army did not provide documentation to support implementation, and ultimately fielded GCSS–Army prior to implementing the recommendations.

⁷See GAO, *Army Logistics: Global Combat Support System—Army Is Supporting Requirements at Selected Units*, [GAO-15-378R](#) (Washington, D.C.: Apr. 3, 2015). We did not make any recommendations in this report.

September 2020, we reported that the schedule for future development of GCSS–Army remains a risk, as are the costs and funding of the system.⁸

Recognizing the significance of the Army’s investments, House Report 116-120 accompanying a bill for the National Defense Authorization Act for Fiscal Year 2020, included a provision for us to review the testing of GCSS–Army for military operations and its use by tactical units.⁹ This report: (1) evaluates the extent to which GCSS–Army addresses the needs of soldiers and leaders conducting military operations; (2) describes how the Army has tested and evaluated GCSS–Army to ensure it provides logistics support to tactical units during military operations; and, (3) evaluates the extent to which the Army equipped and trained personnel to operate GCSS–Army during military operations.

For objective 1, we reviewed GCSS–Army documentation, observed a system demonstration, and interviewed various Army officials and soldiers. We interviewed officials with the Army’s Combined Arms Support Command (CASCOM), the Program Executive Office Enterprise Information Systems (PEO EIS), and the GCSS–Army Program Manager’s Office (PMO). We met with groups of soldiers who use GCSS–Army as part of their jobs related to supply support, maintenance, and property accountability, and who are a part of brigade combat teams that recently returned from deployments.¹⁰ These units included the 48th Infantry Brigade Combat Team; the 3rd Armored Brigade Combat Team, 4th Infantry Division; the 3rd Armored Brigade Combat Team, 1st Armored Division; and the 3rd Brigade Combat Team, 82nd Airborne Division. We also spoke to the 2nd Cavalry Regiment and the 173rd Brigade Combat Team, units stationed in Europe.

We also developed, pretested, and distributed an electronic web-based survey to registered GCSS–Army users who returned from deployments between June 2019 and April 2020. However, we did not receive a sufficient response to our survey—despite numerous efforts to improve

⁸See GAO, *Information Technology: Key Attributes of Essential Federal Mission-Critical Acquisitions*, [GAO-20-249SP](#) (Washington, D.C.: Sept. 8, 2020). We did not make any recommendations in this report.

⁹H.R. Rep. No. 116-120, at 101 (2019).

¹⁰Unless otherwise noted, attributed statements in this report reflect the feedback provided by the groups of soldiers that we met with in these units; however, this feedback is not generalizable to the entire population of GCSS–Army users.

the response rate—to consider the responses as generalizable to all users of GCSS–Army. Therefore, we decided not to rely on the responses as evidence.¹¹ As part of the survey development process, we conducted 11 cognitive tests of a draft survey instrument with system users from our target survey population and considered their input as testimonial evidence.¹²

We compared the capabilities of GCSS–Army to requirements in the GCSS–Army Capability Production Document—a document that established the requirements of the system and, at the time of acquisition, was required to be submitted at a certain point in the process to support system fielding.¹³ We also compared the capabilities of GCSS–Army to the requirements laid out in its operational test reports.¹⁴ Operational tests are performed at various stages of the acquisition process and are

¹¹We sent the first invitation to complete our web survey to users in September 2020; however, the response rate over the first 3 weeks was less than 5 percent. Additionally, we discovered that over 200 emails (almost 7 percent of the survey population) were invalid, so we reached out to Army liaisons in an attempt to identify the correct email addresses for those individuals. We also had discussions with audit liaisons at U.S. Army Europe and U.S. Army Forces Command to see if those entities had any means of helping us obtain a higher response rate. Ultimately, we revised our email address list where applicable and also targeted users who had logged into the system since October 2018. We sent reminders to this adjusted address list in October 2020. Despite these efforts, the survey response rate remained at less than 5 percent, which we deemed insufficient to use as evidence for this report.

¹²In developing the survey, we conducted cognitive tests to help refine the questions. In a typical cognitive interview, respondents report aloud everything they are thinking as they attempt to answer a survey question. From May 2020 to June 2020, we conducted 11 cognitive tests with users who had 1) supply, maintenance, or property book responsibilities; and 2) either deployed in support of military operations or served in units stationed in Europe. We incorporated the results from these cognitive tests into the final design of the survey.

¹³Department of the Army, *Capability Production Document for Global Combat Support System-Army Increment: 1* (June 15, 2011). At the time of GCSS–Army acquisition, DOD guidance required a capability production document to be submitted at Milestone C, which is the point at which a program is reviewed for entrance into the production and development phase. DOD Instruction 5000.02, *Operation of the Defense Acquisition System*, (Jan. 7, 2015). A new version of DOD Instruction 5000.02 was issued in January 2020, and no longer requires the submission of Capability Production Documents.

¹⁴Operational test and evaluation refers to the field test, under realistic combat conditions, of any item of (or key components of) weapons, equipment, or munitions for the purposes of determining the effectiveness and suitability of the weapons, equipment, or munitions for use in combat by typical military users; and the evaluation of the results of such test. 10 U.S.C. § 139. Among other things, the Army conducts operational testing to characterize a system’s ability to survive in the event of multiple attacks or threats.

conducted in a realistic threat environment to test the expected capabilities of a system. We then discussed our assessment with Army officials.

For objective 2, we reviewed DOD guidance and Army guidance on acquisition, system test and evaluation reports and documents, and assessed the review of system implementation and performance after fielding to units across the service.¹⁵ Specifically, we examined GCSS–Army operational test reports to identify the threats that the Army tested the system against, and examined other documents related to tests of GCSS–Army’s cyber security. We interviewed relevant officials to determine whether the Army used a classified System Threat Assessment Report as part of operational testing.¹⁶ To describe how the Army evaluated the system after initial fielding, we reviewed CASCOM’s Post-Implementation Review of the system and discussed its methodology, findings, and conclusions with cognizant officials.¹⁷ We also discussed the relevant guidance concerning the review of information system acquisitions and other evaluations of the system conducted by the GCSS–Army PMO subsequent to the Post-Implementation Review.

For objective 3, we obtained and analyzed data on equipment and training related to GCSS–Army. As part of our cognitive testing in the development of a survey instrument, we collected feedback from personnel recently returned from deployment; and personnel who are stationed and participated in exercises outside of the continental United States, to obtain their perspective on the equipment and training related to GCSS–Army. We also spoke to officials from CASCOM, the GCSS–Army PMO, and the Army Shared Services Center regarding their training responsibilities. We assessed the Army’s plan for training soldiers to use GCSS–Army against our guide for assessing federal strategic training

¹⁵Department of Defense Instruction 5000.82, *Acquisition of Information Technology (IT)* (April 21, 2020); Department of Defense Instruction 5000.02T, *Operation of the Defense Acquisition System* (Jan. 7, 2015) (incorporating change 10, Dec. 31, 2020); Department of the Army Regulation 700-127, *Integrated Product Support* (Oct. 22, 2018); Army Pamphlet 70–3, *Army Acquisition Procedures* (Sept. 17, 2018).

¹⁶Due to COVID-19 restrictions, we did not have access to a classified workspace in which to review documentation and therefore relied on testimonial evidence.

¹⁷United States Army Combined Arms Support Command, *Global Combat Support System-Army (GCSS-Army) Post-Implementation Review Version 1.0 FINAL* (April 2019).

and development efforts.¹⁸ This guide is intended to help managers assess an agency’s training and development efforts and make it easier to determine what, where, and how improvements may be implemented. Specifically, the guide states that a principle for evaluating training programs is that agencies should assess competency, obtain feedback, and analyze relevant data. We also determined that a key principle of internal control, as outlined in *Standards for Internal Control in the Federal Government*, was significant to this objective—namely, that management should use quality information to achieve an entity’s objectives.¹⁹ We assessed the Army efforts to collect quality information related to GCSS–Army training against this principle, and met with Army officials to discuss our assessment.

We conducted this performance audit from August 2019 to April 2021 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.

Background

GCSS–Army integrated several legacy systems and subsumed about 40,000 logistics databases across Army units and organizations related to supply, maintenance, and property accountability. This integration affected every supply room, motor pool, repair shop, warehouse, and property book office in the Army.

Logistics and GCSS–Army Roles and Responsibilities

Logistics is one of the elements of the Army’s sustainment warfighting function and entails the planning and executing of the movement and support of forces. Logistics includes the acquisition, storage, movement, distribution, maintenance, and disposition of materiel. Logistics encompasses, among other things, the following aspects of military operations:

- **Supply support.** According to joint doctrine, “supply” includes the procurement, distribution, and maintenance of equipment while in

¹⁸GAO, *Human Capital: A Guide for Assessing Strategic Training and Development Efforts in the Federal Government*, [GAO-04-546G](#) (Washington, D.C.: Mar. 1, 2004).

¹⁹GAO, *Standards for Internal Control in the Federal Government*, [GAO-14-704G](#) (Washington, D.C.: Sept. 10, 2014).

storage.²⁰ For the Army, success in military operations depends on its ability to feed and clothe its forces, fuel its vehicles, arm its combat vehicles, fortify its positions, replace its major end items, and support its information systems.²¹ Quartermaster units execute supply support functions during military operations.²²

- **Maintenance.** The purpose of Army maintenance is to preserve the performance of Army equipment.²³ Maintenance is an enabling process for meeting Army force generation requirements.²⁴ Army maintenance is founded on the principle that equipment can best fulfill its useful service life when soldiers use it according to its intended purpose and maintain it in accordance with its specifications. Soldiers are responsible for performing maintenance on equipment and weapon systems during deployments in order to sustain military operations.
- **Property accountability.** Army Regulation 735-5 states that all property acquired from any source must be accounted for in accordance with applicable Army regulations.²⁵ Specifically, property accountability is the obligation of a person to keep records of all equipment, funds, and documents. In Army units, this person is a property book officer who may be an experienced enlisted soldier; a commissioned officer or warrant officer; or a qualified civilian.

Several entities have key roles and responsibilities associated with GCSS–Army:

- CASCOM is responsible for developing the requirements of the GCSS–Army system in order to deliver the desired capabilities to the soldiers.

²⁰Joint Chiefs of Staff, *Joint Pub. 4-0: Joint Logistics* (Feb. 4, 2019) (incorporating change 1, May 8, 2019).

²¹Army Techniques Publication 4-42.2, *Supply Support Activity Operations* (June 9, 2014).

²²Army Techniques Publication 4-42, *Materiel Management, Supply, and Field Services Operations* (Nov. 2, 2020).

²³Army Regulation 750-1, *Army Materiel Maintenance Policy* (Oct. 28, 2019).

²⁴“Army force generation” is the process used to generate and regenerate combat power and preserve the capital investment of combat systems and equipment to enable training and mission accomplishment.

²⁵Army Regulation 735-5, *Property Accountability Policies* (Nov. 9, 2016).

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- The GCSS–Army Program Manager’s Office—which reports up to the Assistant Secretary of the Army (Acquisition, Logistics and Technology) through the PEO EIS—is responsible for overseeing changes to the system that deliver those capabilities, as well as delivering instructor, key personnel, and new equipment training of the system.²⁶
 - The Army Shared Services Center under the Army’s Communications–Electronics Command is responsible for developing GCSS–Army training, according to both Army Shared Services and GCSS–Army PMO officials.

GCSS–Army Capabilities in Support of Operations

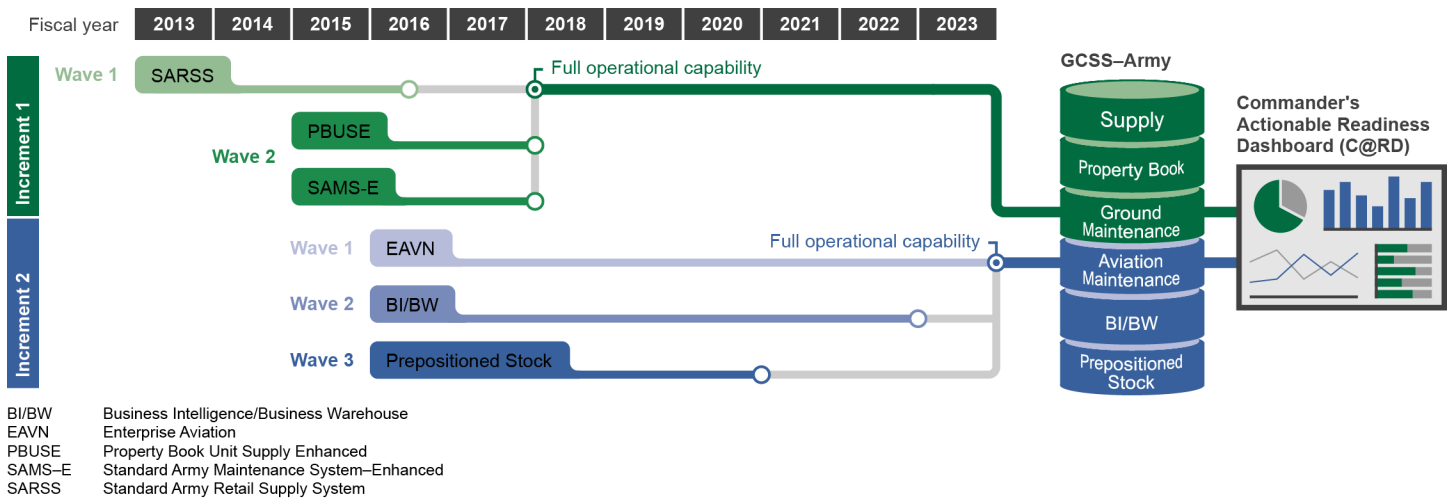
Army personnel access GCSS–Army via an unclassified network connection and a web browser.²⁷ Accordingly, soldiers can use GCSS–Army on existing computer or laptop workstations and also on handheld scanners and tablets issued to units. The system then feeds the data into a system called the Commander’s Actionable Readiness Dashboard, which provides commanders and leaders with a common operating picture for logistics.²⁸ The Army is fielding GCSS–Army in phases that it refers to as increments and waves, as figure 1 shows.

²⁶“New equipment training” is required during fielding of a new system and was provided to each unit receiving GCSS–Army.

²⁷DOD refers to its unclassified network as the Non-Classified Internet Protocol Router network (NIPRnet).

²⁸The common operating picture is a tool that commanders use to understand the sustainment status in their operational area, allowing for better and timely decision-making. It enables commanders to anticipate the needs of the soldiers based on an understanding of the situation and provide support when and where it is needed.

Figure 1: Evolution of Global Combat Support System–Army (GCSS–Army) Functions



Source: GAO analysis of Department of Defense information. | GAO-21-313

Increment 1. The Army completed the fielding of Increment 1 across all tactical units in the active Army, Army National Guard, and U.S. Army Reserve components from November 2012 through November 2017. Increment 1 consisted of two waves during which the Army streamlined and integrated the supply, maintenance, and property accountability functions previously performed by separate legacy systems.

- The Army fielded Wave 1 from November 2012 through March 2016 for Army supply units, approximately 10 percent of the total planned number of GCSS–Army users. During Wave 1, GCSS–Army replaced the Standard Army Retail Supply System and related financial functions.
- The Army fielded Wave 2 from early 2015 through November 2017 for the remaining 90 percent of the planned GCSS–Army user population. During Wave 2, GCSS–Army replaced the Property Book Unit Supply Enhanced and the Standard Army Maintenance System–Enhanced, as well as related financial functions.

Increment 2. The Army started to field Increment 2 in January 2016 when it began integrating the Enterprise Aviation maintenance capability. The Army also plans to incorporate a business intelligence/business warehouse capability and replace the Army’s legacy system for managing prepositioned stock as a part of Increment 2. Once the Army completes the fielding of Increment 2 in 2023, GCSS–Army will be able to provide the full intended capabilities for use by tactical units, according to

program management officials. The Army intends for GCSS–Army to be the service’s single authoritative source of logistics data for management and decision-making.

Soldiers and Leaders Credit GCSS–Army with Improving the Ability to Meet Logistics Needs during Military Operations, but It Does Not Function in All Situations

Soldiers and Leaders Credit GCSS–Army with Providing Better Logistics Visibility, Accountability, and Reporting

Army soldiers and leaders report that GCSS–Army has provided improved logistics visibility, accountability, and reporting in most situations, leading to increased efficiencies in their operations and a more accurate common operating picture for commanders. Additionally, when soldiers have encountered challenges using the system, the Army either has made improvements or is in the process of making improvements to address those challenges.

Visibility. One of the objectives of GCSS–Army is to provide the Army with total asset visibility.²⁹ GCSS–Army provides soldiers with improved logistics visibility, which is one of the main benefits of the new system, according to soldiers from both deployed units and units stationed overseas. When soldiers are performing maintenance in the field, they require up-to-date information about whether parts are readily available, and if not, when the parts can be obtained. Additionally, supply personnel need to know when equipment that is undergoing maintenance is fixed and ready to be picked up. Lastly, property book officers are required to regularly track all equipment and property for which they are responsible.

²⁹Total asset visibility allows commanders and sustainers to have more accurate and timely information about sustainment assets, which allows planners to more accurately forecast future requirements. This helps reduce stockpiles, eliminate duplicative orders, and accurately fulfill the needs of combat forces.

Supply personnel we interviewed at some deployed units said that they benefitted from GCSS–Army because it allows them to see what items they have in stock. These personnel added that GCSS–Army also allows them to see whether maintenance on parts and equipment is complete or not, which saves them the time of contacting and travelling to pick up equipment that may not be ready. Maintenance personnel reported that it is now much easier to find needed replacement parts from other units. Previously, when a truck or another piece of equipment required repair in the field, maintenance personnel would either have to submit a request to a higher level of the Army or a contractor to get a needed part. However, the maintenance personnel now can use GCSS–Army to look at the inventory of nearby units and reach out directly to those units to have the needed parts transferred to them.

Accountability. CASCOM officials stated that a key reason for integrating the legacy systems and databases into GCSS–Army was to improve the accountability of the Army’s financial and materiel management. GCSS–Army was designed to comply with Office of Management and Budget guidance requiring auditability, as well as respond to legislation requiring financial statements to be audit-ready.³⁰ GCSS–Army tracks transactions and soldiers we interviewed from multiple units told us it is easy to view the history of a piece of equipment, as well as identify and investigate instances where mistakes may have been made. These soldiers reported that they appreciate the improved accountability that the system provides.

The Army designed GCSS–Army to help ensure greater compliance with service and federal financial management requirements.³¹ Specifically, soldiers said that part of the Army’s financial issues in the past was a result of individuals not filling in all information or skipping required steps in the legacy systems, such as not closing out work orders or acknowledging receipt of materiel. However, GCSS–Army has built-in data integrity controls that do not allow soldiers to skip those steps for

³⁰Office of Management and Budget Circular A-123, *Management’s Responsibility for Internal Control* (Dec. 21, 2004); National Defense Authorization Act for Fiscal Year 2010, Pub. L. No. 111-84, § 1003(a), (b) (2009). Further, the National Defense Authorization Act for Fiscal Year 2014, Pub. L. No. 113-66, § 1003 (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.

³¹Army Regulation 710-2, *Supply Policy Below the National Level* (Mar. 28, 2008); Appendix D to OMB Circular No. A-123, *Compliance with the Federal Financial Management Improvement Act* (Sept. 20, 2013).

comparable transactions, according to soldiers we interviewed. They added that GCSS–Army helps prevent shortcuts and hoarding of equipment, which also runs counter to service and federal financial management requirements. According to CASCOM officials, when using prior systems, property book officers could hide equipment by not entering the equipment into those systems. The officials said GCSS–Army now gives the Army a greater capacity to track and to see all of those items and reduces the incentive for hoarding equipment.

During our visit to Fort Lee, Virginia, Army officials demonstrated how GCSS–Army improves financial accountability at the unit level. Specifically, CASCOM officials demonstrated to us how GCSS–Army allows commanders to review orders to determine whether the equipment being purchased is really needed. They added that the Army developed this capability because in the past units had purchased equipment they did not need in order to use all of their funding. When soldiers submit an order in GCSS–Army, the system assigns a priority level and then holds the order in a pending status until a commander can review and approve it. According to CASCOM officials, soldiers and approvers are more inclined to act with integrity and accountability knowing that this information is visible to the entire Army.

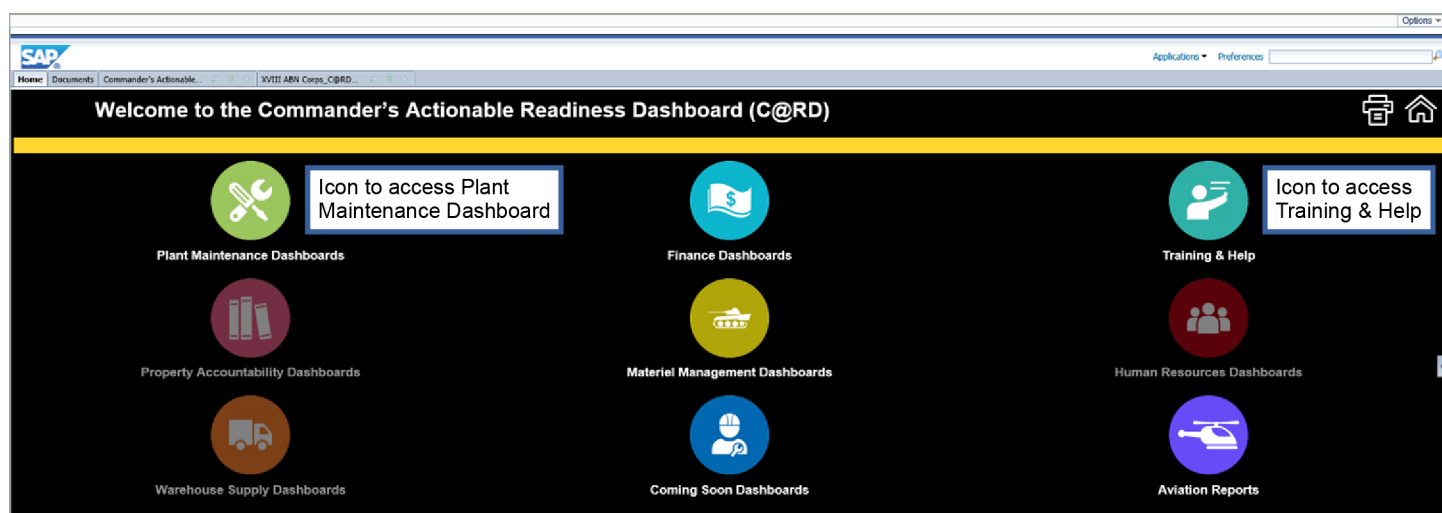
Reporting. The Army designed GCSS–Army to accurately record transactions and make these available for reporting in near-real-time in accordance with DOD guidance.³² As currently fielded, GCSS–Army provides Army commanders with a common operating picture for logistics in order to support decisions that may affect the outcome of combat operations and planning for future operations. Soldiers we interviewed from multiple units, both deployed and stationed overseas, said that GCSS–Army’s ability to process changes and updates in near-real-time, as well as the ease with which soldiers can compile and produce reports, leads to better operational awareness for military leaders. For example, CASCOM officials showed us how commanders can generate a financial report using GCSS–Army and a common operating picture system with a push of a button, whereas with prior systems it would take up to 6 months to produce that same report, according to the officials.

Additionally, GCSS–Army feeds information into other Army information systems specifically designed to deliver a common operating picture.

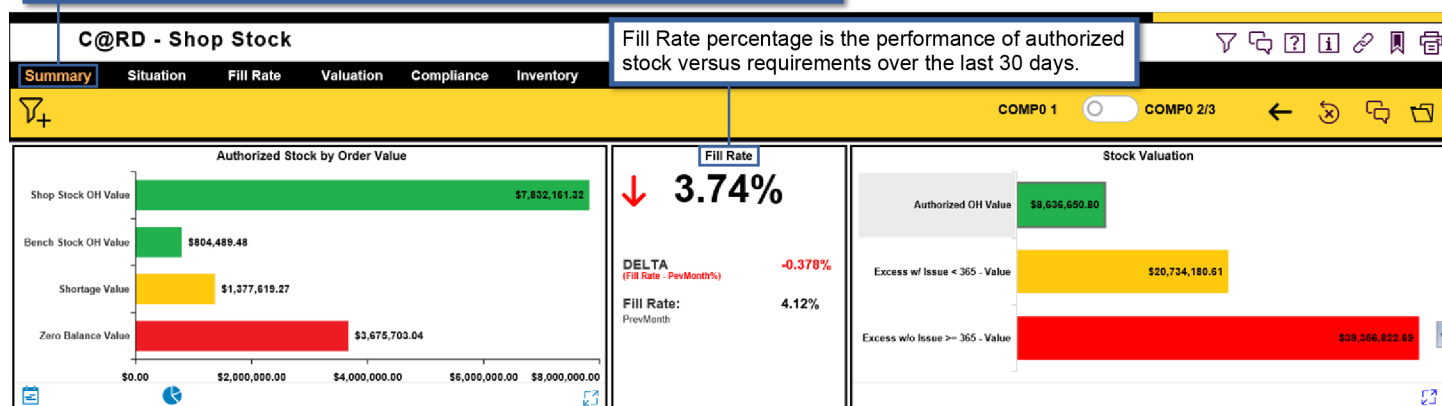
³²Department of Defense, Chief Information Officer Memorandum, *DOD Net-Centric Data Strategy* (May 9, 2003).

Program management officials demonstrated to us how senior leaders can use the system's Commander's Actionable Readiness Dashboard, which is a series of web-enabled tools that produce visualizations of current logistics conditions. According to PEO EIS officials, commanders can customize the dashboard to display the metrics and information that is most important to them. Figure 2 illustrates how the dashboard might appear to commanders.

Figure 2: Visualizations of Global Combat Support System–Army Data via the Commander's Actionable Readiness Dashboard



The Summary tab view displays an "at a glance" view of key performance indicators.



Source: U.S. Army Combined Arms Support Command. | GAO-21-313

Improvements. The Army continues to improve GCSS–Army to address the concerns of soldiers. Army soldiers reported struggling with how to use GCSS–Army compared with legacy systems for certain functions.

Specifically, soldiers cited challenges related to the number of steps GCSS–Army requires for transactions and how a unit’s property is divided up in the system prior to deployment and combined back together in the system after deployment. However, the Army either is taking or has taken steps to address these issues, according to our analysis. For example:

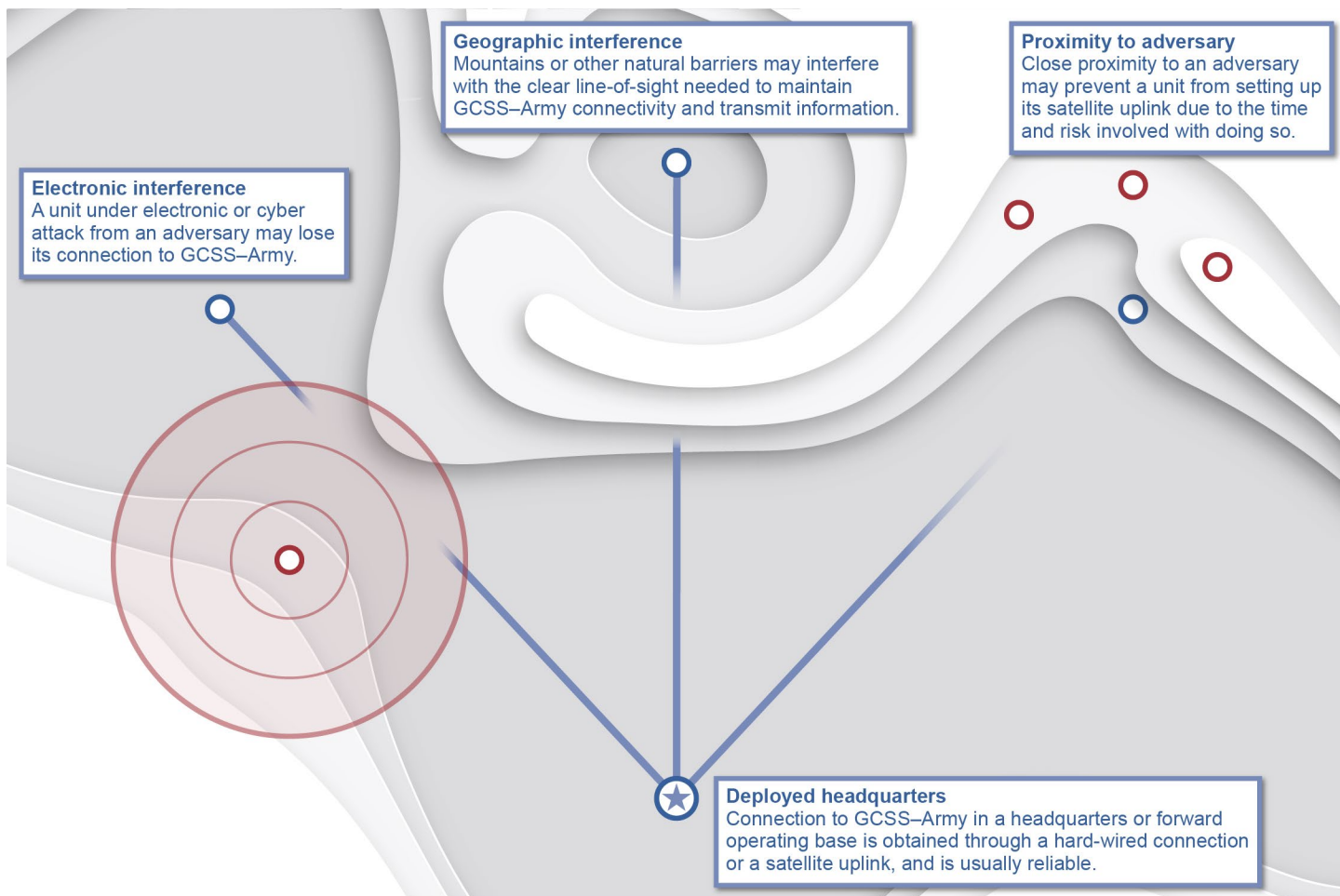
- **Number of steps required for transactions.** GCSS–Army is more difficult to use than legacy systems because of the number of steps required for transactions, according to soldiers we interviewed. For example, property book officers at multiple units stated that in the legacy system, transferring equipment between units required two steps, whereas in GCSS–Army, it requires 11 steps. If any one step is not completed correctly, the order will not be processed, which can be time consuming and frustrating to fix, according to soldiers. CASCOM and the GCSS–Army PMO are taking steps to make the system more user-friendly by reducing the number of steps and making the icons and buttons more intuitive for users.
- **Splitting and re-forming property book.** When units deploy overseas, they may take some of their equipment and leave some behind at their home station, a process known as splitting the property book. Two property book officers we spoke to reported that using GCSS–Army to split the property book in preparation for a deployment, or putting the property book back together after returning from deployment, was a much more time-consuming process than with the legacy system. Both soldiers reported that it took weeks to do this and cited a lack of instruction for how to do this in GCSS–Army as the main factor. Upon returning and trying to put a 60,000-item property book back together, one of the soldiers said she encountered issues for months, with items showing up in the wrong place or the wrong funding code being charged. In response to these issues, the Army has since created a way for soldiers to split their property books in GCSS–Army and to track deployed equipment separately from equipment at the home station. As of June 2020, CASCOM officials reported that 100 percent of Army units were following this new process.

GCSS–Army Does Not Function in All Situations

The Army did not create GCSS–Army with the ability to function in all situations due to budget and time constraints, leading soldiers to have to develop workarounds. Presently, GCSS–Army can work if it is on a computer that is hard-wired into an unclassified network or connected wirelessly to an unclassified network, but is not functional without network connectivity. In order to be connected wirelessly away from a deployed headquarters or forward operating base, soldiers must rely on a satellite

connection and ground receivers that connect to each other and back to a headquarters or forward operating base. This connection is effective as long as both the sender and receivers are within sight of each other (“line-of-sight”). Soldiers said, however, that during a military operation or combat scenario, electronic interference such as a cyberattack by an adversary; geographic interference such as mountains; or close proximity to an adversary could prevent them from accessing GCSS–Army through line-of-sight communications, as shown in figure 3.

Figure 3: Factors That May Prevent Units from Connecting to the Global Combat Support System–Army (GCSS–Army) during Military Operations



○ Forward-deployed unit ○ Enemy unit — Line of communication

Source: GAO analysis of interviews with Army officials; Ron Dale/stock.adobe.com. | GAO-21-313

Relying on line-of-sight communications to operate GCSS–Army could be problematic during military operations. For example, soldiers we interviewed across multiple units, both deployed and stationed overseas, stated that during exercises or training rotations, they could not set up their satellite equipment or did not have a direct line-of-sight between ground receivers. Soldiers we interviewed also stated that the equipment used to establish the satellite uplink is not very durable and is time-consuming to set up. When units on the front lines cannot use GCSS–Army for any of these reasons, the supply chain depends on soldiers completing manual data entry processes and other forms of communication, according to soldiers and CASCOM officials. As a result, personnel at the headquarters will not be able to see what the units need, and the units will not be able to communicate their needs through GCSS–Army.

Additionally, soldiers we spoke with reported that when GCSS–Army connectivity is lost, they have to track transactions manually by writing them down or recording them some other way because they are unable to use GCSS–Army when it is offline. Soldiers reported that GCSS–Army’s lack of connectivity can create inefficiencies such as having to manually process transactions and recreate them in the system later when they reestablish connectivity.

Ensuring that deployed soldiers can use GCSS–Army when disconnected from their headquarters is a long-standing requirement for the system. The 2011 Capability Production Document for GCSS–Army identified “disconnected operations”—the ability to operate when disconnected from the Army’s network—as a key performance attribute, allowing forces to operate across the full spectrum of conflict, including stable peace, unstable peace, insurgency, and general war.³³ Specifically, the Army wanted GCSS–Army to support a minimum of 48 hours of disconnected operations, and ideally support a minimum of 72 hours of disconnected operations. Furthermore, the Army’s operational test reports from 2011 through 2015 identified a disconnected operations capability as one of the requirements for GCSS–Army.

According to officials at CASCOM and the GCSS–Army PMO, the Army sought to develop a disconnected operations capability for GCSS–Army

³³Department of the Army, *Capability Production Document for Global Combat Support System–Army Increment: 1* (June 15, 2011).

prior to fielding it in 2017.³⁴ The officials told us that the contractor developing GCSS–Army had proposed a solution that would enable disconnected operations; however, the officials stated that the Army did not accept it for suitability reasons.³⁵ Therefore, Army leadership made the decision, based on schedule and budget constraints, to field the first increment of GCSS–Army without the capability for disconnected operations.

Providing a disconnected operations capability for GCSS–Army is a high priority for the Army, according to CASCOM and GCSS–Army PMO officials. In September 2020, the CASCOM commanding general recommended that PEO EIS establish a timeline and the associated funding necessary for achieving this objective. In November 2020, CASCOM and GCSS–Army PMO officials stated that the Army plans to develop a disconnected operations solution through a special acquisition approach known as an “other transactions” authority.³⁶ GCSS–Army PMO officials told us the plan requires approximately \$39 million in total funding in fiscal years 2021 through 2022 in order to establish the disconnected operations capability by 2023. To support the plan, in December 2020, the Army solicited solutions for disconnected operations from industry representatives.

Even having secured resources to develop and to field a disconnected operations capability by 2023, the Army’s execution of its plan remains uncertain. GCSS–Army PMO officials said that it is possible the Army could divert the resources for developing and fielding disconnected

³⁴A disconnected operations capability would allow critical missions to continue during times of intermittent connectivity in the operational theater (up to 7 days) by conducting transactions on a remote device and synchronizing once the connection has been restored. See United States Army Combined Arms Support Command, *Global Combat Support System-Army (GCSS-Army) Post-Implementation Review Version 1.0 FINAL* (April 2019).

³⁵Operational suitability defines the degree to which a system is satisfactorily placed and operated in field use, with consideration given to reliability, availability, compatibility, transportability, interoperability, wartime usage rates, maintainability, safety, human factors, habitability, manpower supportability, logistics supportability, documentation, environmental effects, and training infrastructure requirements.

³⁶The term “other transactions” generally refers to agreements entered into under statutory authority for transactions other than contracts, grants, or cooperative agreements. Section 2371 of title 10, U.S. Code, authorizes the Department of Defense’s use of other transactions for research projects, prototype projects, and follow-on production for prototype projects.

operations to other high priorities, such as COVID-19 relief operations. CASCOM officials further noted that the Army has struggled to meet cost and schedule milestones for GCSS–Army in the past. We have also cited schedule and cost risks associated with the program in our prior work.³⁷

Unless the Army dedicates appropriate resources to carry out its plans to develop and to field a disconnected operations capability, soldiers on the front lines may be unable to sustain military operations due to the inability to perform critical logistics functions. According to the Army, without this capability, units will be at risk of logistical failures against near-peer adversaries. If operating in situations where network connectivity is disrupted or soldiers simply cannot risk establishing line-of-sight communications, soldiers may not be able use GCSS–Army to obtain the right supplies at the right time and at the right location. Moreover, tactical commanders will be unable to view real-time information on their logistics common operating picture until the affected units are brought back on-line. As a result, GCSS–Army would be incapable in such scenarios of meeting the battlefield commander’s requirements to conduct operations with the benefit of timely, accurate, assessable, and secure information.

The Army Tested and Evaluated GCSS–Army to Ensure It Provides Logistics Support during Military Operations

The Army tested and evaluated GCSS–Army prior to and after fielding to ensure it provides logistics support to tactical units during military operations. The Army tested and evaluated the Increment 1 version of GCSS–Army in situations where soldiers had connectivity, and included the supply support, maintenance, and property accountability functionalities.

Army evaluation prior to GCSS–Army fielding. The Army identified and addressed a variety of cybersecurity weaknesses as a result of operational testing. For example, the Army tested GCSS–Army for insider and outsider threat vulnerabilities from 2011 through 2015, including unauthorized transactions or logon attempts, ability to access sensitive information, unauthenticated access to key system components, and ability to add malicious code. As part of these tests, the Army used a classified System Threat Assessment Report to establish the threat environment, according to a PEO EIS official.³⁸ These tests identified some cybersecurity weaknesses in the areas of information protection

³⁷[GAO-20-249SP](#).

³⁸The System Threat Assessment Report was required at the time of the GCSS–Army operational testing, but has since been replaced by the Validated Online Lifecycle Threat report.

and detection, which the Army has worked to resolve, according to our analysis. For example:

- The Army reported that in 2011 testers had been able to gain unauthorized access to key GCSS–Army data related to the system’s architecture and budget, as well as security information such as usernames and passwords. The Army corrected this vulnerability within a day of identifying it, according to a June 2012 operational test report.
- During an Army assessment in 2015, testers remained undetected for a period of time after gaining access to a key server within GCSS–Army. The Army reported that, to resolve this weakness, it has employed an automated intrusion detection capability, as well as a manual detection process to supplement it.
- In its final operational test report in November 2015, the Army reported that it had improved its cybersecurity capabilities relative to previous testing and had developed a plan to resolve the remaining insider threat vulnerabilities. As of September 2020, Army officials stated that they have implemented corrective actions for all vulnerabilities identified during operational testing.³⁹

To further test the cybersecurity of GCSS–Army, the Army performed a testing event in 2017 whereby personnel were provided various levels of access and challenged to hack into the system. This test resulted in the Army identifying some vulnerabilities, such as the personnel acting as hackers accessing information and roles that they should not have had, as well as potentially attaching viruses or other malicious content. By July 2018, according to CASCOM documentation, the Army had applied fixes to the vulnerabilities identified in the test.

Extensive Army evaluation after GCSS–Army fielding. The Army extensively evaluated GCSS–Army with a formal Post-Implementation Review after Increment 1 was fielded and determined that GCSS–Army was effective at providing the capabilities, information, and visibility

³⁹We did not assess the cybersecurity of GCSS–Army as part of this review.

soldiers needed to perform logistics duties.⁴⁰ CASCOM officials stated that the Army will conduct another Post-Implementation Review of GCSS–Army after Increment 2 is fielded in 2023.

The Army's GCSS–Army review team for Increment 1 assessed the system's performance and determined that GCSS–Army was successful in 28 of the 30 measures assessed.⁴¹ To conduct this review, the GCSS–Army review team:

- Established and reviewed an approach encompassing 30 measures based on the system's capabilities plan. Examples included measuring effectiveness in terms of recording transactions accurately and making them available for reporting in near-real-time, as well as determining performance in terms of the system's ability to interact with other sustainment information systems.
- Tasked a group of senior logistics experts with reporting their experiences using GCSS–Army. For example, the experts determined the extent to which the system processed workflow functions and produced accurate, timely, and useable reports.
- Convened focus groups with senior officials that use GCSS–Army, such as logistics warrant officers and non-commissioned officers whose roles included supply, maintenance, property book accountability, and automated information systems.
- Conducted an online survey of users, inquiring as to their ability to perform routine sustainment transactions as well as their level of satisfaction with the system.⁴²

⁴⁰According to DOD and Army guidance governing the acquisition of major automated information systems, the functional sponsor and the program manager must conduct a Post-Implementation Review, which is a formal assessment of the fielded information system in its intended operational environment. DOD Instruction 5000.82, *Acquisition of Information Technology (IT)* (Apr. 21, 2020). Department of the Army Pamphlet 70–3, *Army Acquisition Procedures* (Sept. 17, 2018).

⁴¹CASCOM set up the review team in 2018. See appendix 1 for a summary of the Army's findings on these 30 measures.

⁴²According to CASCOM officials, about 24 percent of the surveys did not reach users due to incorrect email addresses. All GCSS–Army users were included in the survey request, and 3.2 percent responded. A low response rate can limit the generalization of findings to a larger population, as well as introduce bias into the findings. The Army only used the survey results for seven of the 30 measures of effectiveness, and the survey was not the Army's only means of gathering information, as it also conducted focus groups and interviews with subject matter experts.

The final GCSS–Army assessment report concluded, “GCSS–Army is what the Army needs,” but acknowledged GCSS–Army was marginally successful in two measures: online training and help desk support.⁴³ The review team learned that the training used to introduce soldiers to the system was unsatisfactory and that the help desk was unable to process new tickets in a timely fashion.⁴⁴ The report included a recommendation to develop a tiered system of GCSS–Army training and education within each business area focused on the different levels of user access. Regarding help desk support, the report noted that since the GCSS–Army PMO adopted new software to submit and manage help desk tickets, the handling of tickets has improved substantially.

In addition to this formal assessment, one official with whom we spoke stated that CASCOM continuously evaluates GCSS–Army. Specifically, the program management office compiles and transmits a Program Management Review briefing to CASCOM leadership; the November 2020 Program Management Review covered the status, challenges, and next steps associated with ongoing development efforts, among other things. The program management office also analyzes help desk tickets on an ongoing basis to determine areas for attention. According to this official, a trend in help desk tickets requesting assistance with system access led the program management office to coordinate with the software support office to develop a technical solution.

⁴³United States Army Combined Arms Support Command, *Global Combat Support System-Army (GCSS–Army) Post-Implementation Review Version 1.0 FINAL* (April 2019).

⁴⁴The review found that the yearly backlog of tickets was averaging approximately 460 and increasing every year. Furthermore, users were submitting more tickets than were being resolved—an “unsustainable rate” given the current level of support according to the report.

The Army Generally Equipped Personnel to Operate GCSS–Army, but Soldiers May Not Be Taking the Training They Need to Use GCSS–Army

Army Personnel Are Generally Equipped to Use GCSS–Army, but Soldiers Noted Some Issues

The Army generally equipped its personnel with enough equipment to access and to operate GCSS–Army. GCSS–Army does not require specialized equipment to use it because it is a web-based system. Soldiers use a variety of equipment, such as a computer, laptop, handheld scanner and tablet, or a Very Small Aperture Terminal (VSAT) satellite uplink to access the system. However, soldiers we interviewed identified certain equipment-related challenges that prevent them from maximizing the potential of GCSS–Army, such as a lack of enough devices and the inability to transfer data from a tablet to a hard-wired computer. For example:

- **Computers and laptops.** Our group discussions with soldiers as well as our 11 cognitive pre-tests revealed that soldiers were generally satisfied with the quality of their computers and laptops. However, soldiers with several units that we spoke with recounted instances in which unit members had to frequently share devices, hindering their ability to complete their duties efficiently while on deployment overseas. Soldiers indicated the ideal ratio for a logistics unit should be one laptop for each user. Additionally, CASCOM officials said that a 2020 U.S. Army Forces Command survey of Army supply sergeants found that one of the biggest challenges cited by soldiers is the need to share or borrow workstations to process supply transactions.⁴⁵ CASCOM officials said that the Army leaves decisions about upgrading or adding computers and laptops to unit commanders, who often prioritize other things, such as field training or military equipment, over computers.

⁴⁵We did not evaluate the Army survey's scope and methodology.

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- **Handheld scanners and tablets.** According to CASCOM officials, the Army provided five handheld scanners to each of the Army's approximately 300 supply warehouses, to be used with tablets, as part of the GCSS-Army rollout. The handheld scanners and tablets are particularly relevant to supply personnel who have to work in a warehouse. Supply personnel with multiple units praised the introduction of handheld scanners and tablets because the devices allowed them to move around their workspaces more easily, featured a simple-to-use menu, and were generally more efficient than laptops because completing transactions on tablets was easier when compared to using laptops.

Even though the scanners and tablets are useful, supply soldiers with multiple units stated that the tablets can inconvenience users. The soldiers said that the devices cannot transfer data or transactions recorded in the warehouse to an office computer via a hardwired connection. Instead, users must use a VSAT or some other wireless network connection to transfer recorded data and transactions onto a computer or laptop. Likewise, the 2020 U.S. Army Forces Command survey of supply sergeants identified this same issue—that GCSS-Army handheld tablets not being allowed on installation networks is one of the biggest challenges that soldiers face. CASCOM officials said that this is not a shortcoming of GCSS-Army or the tablets, but rather a result of security measures put in place by installation security managers, and would need to be addressed by those individuals.

- **Very Small Aperture Terminals.** VSATs help support supply personnel using handheld tablets in warehouses, as well as maintenance personnel operating away from a deployed headquarters, such as on the front lines during combat. Soldiers with multiple units stated the VSATs are integral to providing a network connection, even when they are not deployed, because wireless networks are sometimes unavailable in warehouses or maintenance shops. During the course of our review, soldiers rarely cited concerns with the quantity of VSATs available to them. However, personnel also commented that the VSATs are fragile and that diagnosing problems can be time-consuming. Furthermore, multiple soldiers indicated that assembling and disassembling the VSAT can be problematic, especially when a unit has to move often from location to location during an overseas deployment.

The Army Provides Various Forms of GCSS–Army Training

The Army provided various forms of GCSS–Army training, both as the Army was fielding the system and following the fielding of Increment 1. When the Army began fielding GCSS–Army, it had a training plan in place to train soldiers on how to use the system. The plan included an online portion—not to exceed 10 hours—and an in-person portion with instructors in a classroom environment not to exceed 40 hours. The Army referred to this as new equipment training. The Army also sent out mobile training teams to provide “over-the-shoulder” training of various lengths during the fielding of Increment 1.

As the Army reached the conclusion of fielding the first increment of GCSS–Army in 2017, it moved from new equipment training into sustainment. Similar to the new equipment training, sustainment involves training soldiers via an online suite of classes, which they can take while on the job, as well as training conducted by instructors. GCSS–Army training also takes place at various Army institutions, such as Advanced Individual Training, troop schools, or senior leader training.⁴⁶ Army Shared Services Center officials said that they believe the soldiers have all of the resources and courses that they need available online and that they have produced more training for GCSS–Army than any other Army information system. The Army maintains other online resources, such as the GCSS–Army Help Desk and an End-User’s Manual, to provide additional support for the soldiers now that the system is in sustainment. However, for sustainment training the Army discontinued the over-the-shoulder training conducted by mobile training teams due to budget constraints, according to GCSS–Army PMO officials.

In our group discussions, soldiers told us that some aspects of the training were beneficial to them. For example, soldiers with both deployed units and units stationed overseas who took the new equipment training said that the over-the-shoulder portion was some of the best GCSS–Army training they received. GCSS–Army PMO officials added that supply personnel who received the 30 days of over-the-shoulder training seem to have fewer issues with the system than either the maintainers or property book officers, who received only 7 days of training. Additionally, soldiers with the Army National Guard brigade combat team stated that classroom

⁴⁶Advanced Individual Training is career-specific training, such as Quartermaster School or Transportation School, which soldiers attend following their basic training. The Army operates troop schools at certain designated bases in order to enhance the military skills of soldiers, bridge the gap between operational and institutional training, and enable unit readiness. Senior leader training is designed for soldiers taking on leadership responsibilities, typically at the sergeant first class rank.

GCSS–Army training at the Army National Guard’s Professional Education Center was very beneficial to them. Lastly, soldiers with multiple units stationed in the continental United States said that the support provided by the GCSS–Army Help Desk while they were deployed was better than the support they receive when at their home station. GCSS–Army PMO officials stated that the Help Desk staff prioritize the tickets submitted by deployed soldiers because of the importance of ensuring those soldiers’ issues are addressed quickly.

Additionally, the Army has taken steps to improve training based on soldiers’ feedback. For example, in 2020 the Army Quartermaster School almost doubled the amount of GCSS–Army training to 153 hours in response to feedback that the approximately 80 hours soldiers had been receiving was not enough. Also, GCSS–Army PMO officials said that, in response to criticism that the initial GCSS–Army training database was not very realistic, developed a new database for training purposes and fielded it to the troop schools. CASCOM officials said the training database is so realistic that the Army had to include some obvious differences to let soldiers know that they were not really working in the system. Soldiers in our group discussions who had seen the new training database stated it is a vast improvement over the previous version and should be very helpful to soldiers.

Soldiers May Not Be Completing Training Needed for Their Specific Responsibilities

Even with the Army’s efforts to deliver and improve GCSS–Army training, the system is complicated and difficult to use, and the Army could not confirm whether soldiers were taking all of the training necessary to be proficient in the system. Multiple officials from CASCOM, the Army Shared Services Center, and from several units cited the complexity of GCSS–Army and the difficulty in learning to use it. As a result, Army Shared Services Center officials, as well as some soldiers we spoke to, said that to become proficient in GCSS–Army, a user needs to devote a lot of time to the online training and working in the system.

The Army does require soldiers to take some introductory training before receiving access to GCSS–Army. As GCSS–Army was being fielded, the Deputy Chief of Staff of the Army for Operations (G-3) issued an order requiring users of the system to complete three introductory online

classes before being granted an account in GCSS–Army.⁴⁷ At the conclusion of the courses, users have to complete a course evaluation in order to get the certificate they need to gain access to the system, according to the Army Shared Services Center officials.

CASCOM officials are confident that soldiers are taking the introductory online courses because the courses are required to obtain an account in GCSS–Army; however, according to the GCSS–Army training plan, responsibility for requiring more advanced, career-specific training has been left to the discretion of unit supervisors and commanders. The Army has developed a variety of GCSS–Army training courses designed to teach specific aspects of the system to meet the needs of specific sets of users. For example, unit supply personnel have a different career-specific training course than maintenance personnel. A CASCOM official said that access administrators in each unit—the soldiers responsible for granting access to the system—should be tracking who is completing training. This is intentionally decentralized, according to one CASCOM official, in order to minimize the bureaucratic responsibilities on the Army entities responsible for training.

It is unclear whether soldiers are progressing through the more advanced, career-specific training that is available. For example, according to a memorandum from the commanding general of the XVIII Airborne Corps, the commanders of the XVIII Airborne Corps' tactical units were not requiring their soldiers to complete the more advanced career-specific GCSS–Army training.⁴⁸ Additionally, both GCSS–Army PMO and Army Shared Services Center officials said they do not have the authority to force soldiers to take the online training. Furthermore, GCSS–Army PMO officials stated that, although they track some of the online training, they do not know to what extent soldiers are completing the more advanced, career-specific online training. A CASCOM official added that information from the GCSS–Army online training system does not feed into any other system for the purposes of being tracked or confirming whether soldiers

⁴⁷The order also identifies the Deputy Chief of Staff for Logistics, G-4, as the Executive Agent for GCSS–Army. The Deputy Chief of Staff for Logistics, G-4, is responsible for providing advice on the development of the policies and programs for logistics and supply chain management, maintenance management, and logistics information systems, as well as providing advice on the development of policies and programs for logistics and sustainment at the Headquarters, Department of the Army level, among other things.

⁴⁸Department of the Army, XVIII Airborne Corps Commanding General Memorandum, *Utilization of the Troop Schools Program for Global Combat Support System–Army (GCSS-A) Classes* (Mar. 24, 2020).

are taking the training necessary to gain proficiency in the system. As a result, CASCOM, GCSS–Army PMO, and Army Shared Services Center officials told us they do not know whether units are using their discretion to require the more advanced, career-specific training.

In our group discussions, soldiers said that better career-specific training is needed and added that they rely on alternative means to learn the system, such as social media groups dedicated to GCSS–Army, or the knowledge of more experienced users in their respective career fields. However, the Army does not know to what extent soldiers are taking the more advanced, career-specific training. Given the reported complexity of the system by both the soldiers and developers, it is important that the soldiers complete the more advanced, career-specific training in order to achieve the Army’s desired outcomes from implementing GCSS–Army.

Standards for Internal Control in the Federal Government state that management should use quality information and monitoring activities to ensure the agency’s objectives are achieved.⁴⁹ Additionally, our prior work on assessing training efforts in the federal government states that an agency should evaluate the effectiveness of its training and development efforts, to include assessing competency, obtaining feedback, and analyzing relevant data.⁵⁰

The Army’s monitoring and evaluation activities do not include a mechanism to track the extent to which soldiers are completing the necessary training and thus gaining proficiency to operate GCSS–Army. Without working with unit commanders to establish a mechanism to track the extent to which soldiers are completing the more advanced, career-specific training, the Army cannot be sure whether soldiers are progressing in their career development and knowledge of the system. Additionally, the Army may not be well-positioned to improve the quality of the training for soldiers without a tracking mechanism. Furthermore, the Army projected that GCSS–Army would result in approximately \$12 billion in savings for the department through 2027, of which \$6.1 billion is expected to be productivity savings. However, the Army may not achieve some of its projected productivity savings if soldiers are not taking the necessary training.

⁴⁹[GAO-14-704G](#).

⁵⁰[GAO-04-546G](#).

Conclusions

The Army estimates GCSS–Army will save \$12 billion once fully implemented by 2027. According to Army officials, GCSS–Army already generally improves logistics, increases efficiencies during operations, and delivers more accurate logistics information to commanders. However, the Army did not create GCSS–Army to work in all situations, including disconnected environments during military operations. For example, electronic and geographic interference like a cyberattack or mountains, or close proximity to an adversary, could prevent soldiers from accessing GCSS–Army. The Army plans to develop and to field a disconnected operations capability by 2023, but whether the Army will dedicate the appropriate resources to do so remains uncertain. Until the Army fields the disconnected operations capability for GCSS–Army, soldiers may not be able to obtain the right supplies at the right time and at the right location, which may hinder the ability to conduct battlefield operations.

Moreover, the Army has both equipped and trained soldiers on the basic uses of GCSS–Army, but the system is difficult to use and the Army does not know the extent to which soldiers are taking the training necessary to become more proficient. Responsibility for requiring more advanced, career-specific GCSS–Army training resides with individual units and commanders. However, the Army cannot be sure units are using their discretion to require the more advanced training because it does not have a mechanism to track the training progress of soldiers using GCSS–Army. Without some mechanism to track that soldiers are completing training necessary to learn how to use GCSS–Army in their career-specific responsibilities, the Army is poorly prepared to adjust its training. Furthermore, without a mechanism to track the extent to which soldiers are completing the more advanced, career-specific GCSS–Army training, the Army will be unable to determine whether soldiers are proficient at operating GCSS–Army, which could hinder the ability of GCSS–Army to meet its substantial cost-savings goals.

Recommendations for Executive Action

We are making two recommendations to the Secretary of the Army:

The Secretary of the Army should ensure that the Assistant Secretary of the Army (Acquisition, Logistics and Technology) dedicates appropriate resources to meet the Army’s plan to develop and to field a disconnected operations capability for GCSS–Army. (Recommendation 1)

The Secretary of the Army should ensure that the Deputy Chief of Staff of the Army, G-3, in coordination with the Deputy Chief of Staff of the Army, G-4, work with relevant Army stakeholders to establish a mechanism to

track that soldiers have completed career-specific training necessary for gaining proficiency in the GCSS–Army system. (Recommendation 2)

Agency Comments and Our Evaluation

We provided a draft of this report to DOD for review and comment. DOD provided written comments, which are reproduced in appendix II. In its comments, DOD concurred with both of our recommendations. However, the Army suggested that we direct our two recommendations to different organizations within the Army.

In its comments, the Army concurred with our first recommendation to the Assistant Secretary of the Army (Acquisition, Logistics and Technology), but the Army stated it should be directed to the Headquarters Department of the Army (HQDA), G-8. The Army contended that the HQDA, G-8 is the Army organization responsible for dedicating resources for GCSS–Army and not the Assistant Secretary of the Army (Acquisition, Logistics and Technology). We recognize that the HQDA, G-8 has an important role in the Army’s overall programming of resources to match the defense strategy and Army priorities, and would likely have some role in implementing this recommendation. However, the Assistant Secretary of the Army (Acquisition, Logistics and Technology) has various specific responsibilities related to resourcing that include serving as the proponent for future years research and development; integrating development and acquisition into the budgeting process; and managing the functional requirements, program, and performance for the research, development, test, and evaluation appropriations. Therefore, we continue to believe that the Assistant Secretary of the Army (Acquisition, Logistics and Technology) is the appropriate office for this recommendation.

The Army also concurred with our second recommendation. In the draft we provided to DOD, our second recommendation originally called for the Secretary of the Army to ensure that the Commander, CASCOM work with unit commanders to establish the mechanism to track that soldiers have completed career-specific GCSS–Army training. In its comments, the Army stated that it would be better to direct this recommendation to the HQDA, G-3; HQDA, G-4; U.S. Army Forces Command; and U.S. Army Installation Management Command, instead of CASCOM. The Army contended that CASCOM (a subordinate command to U.S. Army Training and Doctrine Command) does not have the authority to take the lead on establishing a mechanism to capture training and proficiency beyond the institutional training domain. As a result of the Army’s comments, we have redirected the recommendation to the Deputy Chief of Staff, G-3, in coordination with the Deputy Chief of Staff, G-4, and recommended that those headquarters offices work with relevant

stakeholders to establish the mechanism to track career-specific GCSS–Army training.

DOD also provided technical comments, which we incorporated as appropriate.

We are sending copies of this report to the appropriate congressional committees, the Secretary of Defense, the Acting Secretary of the Army, the Chief of Staff of the Army, the Product Manager for GCSS–Army, and the Commanding General, U.S. Combined Arms Support Command. In addition, the report is available at no charge on the GAO website at <http://www.gao.gov>.

If you or your staff have any questions about this report, please contact Diana Maurer at (202) 512-9627 or maurerd@gao.gov. Contact points for our Office of Congressional Relations and Public Affairs may be found on the last page of this report. GAO staff who made key contributions to this report are listed in appendix III.

A handwritten signature in black ink that reads "Diana Maurer". The signature is written in a cursive, flowing style.

Diana Maurer
Director, Defense Capabilities and Management

List of Committees

The Honorable Adam Smith
Chairman

The Honorable Mike Rogers
Ranking Member

Committee on Armed Services
House of Representatives

Appendix I: Post-Implementation Review Determination of Global Combat Support System–Army Capability

The objectives of the Post-Implementation Review were to verify the established capability measures. Table 1 below lists the 30 capability measures that were assessed and the Army review team’s corresponding assessment. The Army review team determined that Global Combat Support System–Army has achieved success in 28 and marginally successful in 2 of the 30 capability measures during Increment 1.

Table 1: Army Assessment of Global Combat Support System–Army (GCSS–Army) Increment 1 Capabilities

Measure	Sub-Factor (SF)	Description	Assessment
Effectiveness	SF 1	Percentage of time GCSS–Army accurately records internal transactions and makes them available for reporting in near-real-time.	Successful
	SF 2	Percentage of properly processed designated Critical Mission Functions.	Successful
	SF 3	User opinion of the GCSS–Army’s ability to perform designated Critical Mission Functions.	Successful
	SF 4	Assessment of GCSS Army’s ability to message users and enable downloading of selected documents in standardized formats.	Successful
Performance	SF 1	Recommendation from Joint Interoperability Test Command (JITC) and CIO/G-6 for Interoperability and Supportability (I&S) Certification is attained.	Successful
	SF 2	Demonstration of GCSS–Army and AESIP interoperability with other sustainment information systems.	Successful
	SF 3	Assessment of GCSS–Army ability support net-centric logistics and operate in a common logistics operating environment.	Successful
	SF 4	Assessment of improvements to the efficiency of system functions, business process, and communications.	Successful
	SF 5	Percentage of time GCSS–Army accurately records external transactions and makes them available for reporting within 24 hours of transaction acceptance. (Threshold = 95%).	Successful
	SF 6	Percentage of time GCSS–Army prevents invalid data input from the user. (Threshold = 95%)	Successful
	SF 7	Assessment of information accuracy in GCSS–Army.	Successful
	SF 8	Percentage of time GCSS–Army provides accurate, timely, and useable reports of logistics management information. (Threshold = 95%).	Successful
	SF 9	Percentage of source transactions successfully traced via audit trail.	Successful
	SF 10	Assessment of GCSS–Army compliance to United States Standard General Ledger (USSGL) accounting and reporting.	Successful
	SF 11	Assessment of GCSS–Army funds control and budgetary accounting features.	Successful
	SF 11	Assessment of GCSS–Army funds control and budgetary accounting features.	Successful
SF 12	Compliance with GCSS–Army Business Enterprise Architecture and Standard Financial Information Structure.	Successful	

**Appendix I: Post-Implementation Review
Determination of Global Combat Support
System–Army Capability**

Measure	Sub-Factor (SF)	Description	Assessment
	SF 13	Percentage of time GCSS–Army properly processes automated workflow functions for relevant business processes.	Successful
	SF 14	Assessment of GCSS–Army ability to enable soldiers to conduct the Soldier sustainment missions.	Successful
	SF 15	Confirmation that GCSS–Army system has a Mean Time Between System Aborts of at least 716 hours.	Successful
	SF 16	Confirmation that GCSS–Army system has an operational availability greater than or equal to 97.5%.	Successful
	SF 17	Confirmation that GCSS–Army system shall have a Mission Critical Maintenance Time of no more than 4 hours (based on clock hours) for 90% of downtime occurrences for critical information technology components.	Successful
Suitability	SF 1	Assessment of the adequacy of manpower available to operate and support GCSS–Army operations.	Successful
	SF 2	Assessment of the adequacy of the personnel capabilities addressing the proper knowledge, skills and abilities to perform all assigned tasks within their given role, assigned position, military occupational specialty and grade.	Successful
	SF 3	Assessment of the adequacy of training, training courseware, training materials (hardcopy and/or electronic), documentation, help screens and cards, web based training, performance support packages, and the distributed training vehicle.	Marginally Successful
	SF 4	Assessment of the adequacy of GCSS–Army to provide an efficient user interface enabling effective human performance.	Successful
	SF 5	Assessment of health and safety issues associated with GCSS–Army.	Successful
	SF 6	Assessment of number and proper classification of help desk tickets, processed by type and severity level.	Successful
	SF 7	Assessment pertaining to adequacy of help desk and other support personnel to resolve user issues and maintain effective service.	Successful
	SF 8	Post-Implementation Review Team observations and assessment of the adequacy of help desk to detect and repair hardware and software issues.	Marginally Successful
	SF 9	Post-Implementation Review Team assessment of the adequacy of documentation to effectively support user and maintenance operations.	Successful

Source: GAO analysis of Army information. | GAO-21-313

Note: During Increment 1, the Army streamlined and integrated the supply, maintenance, and property book accountability functions previously performed by separate legacy systems. The Army fielded Increment 1 from November 2012 through November 2017, and is currently in the process of integrating new functionalities into the GCSS–Army.

Appendix II: Comments from the Department of Defense



DEPARTMENT OF THE ARMY
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103 ARMY PENTAGON
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Ms. Diana Maurer
Director
Defense Capabilities and Management
U.S. Government Accountability Office
441 G Street, NW
Washington, DC 20548-0001

Dear Ms. Maurer,

This is the DoD response to the Government Accountability Office (GAO) Draft Report GAO-21-313: "Defense Logistics: Army Should Ensure New System Operates in All Situations and Soldiers Complete Training" dated February 10, 2021 (GAO Code 103736).

The DoD concurs with comment to the GAO recommendations in the subject report. The Office of the Assistant Secretary of the Army (Acquisition Logistics and Technology) (ASA(ALT)) provides the enclosed responses. The point of contact is Steven L. Brown, 571-256-9448 or steven.l.brown2.civ@mail.mil.

Enclosure

A handwritten signature in black ink, appearing to read "R. Marion", with "LTJG, USA" written in smaller text to the right.

Robert L. Marion
Lieutenant General, U.S. Army
Principal Military Deputy

Response to GAO Report Recommendations

Draft Report, GAO's Review of Global Combat Support System, "Defense Logistics: Army Should Ensure New System Operates in All Situations and Soldiers Complete Training." (GAO-21-313 (103736))

Recommendation 1: The Secretary of the Army should ensure that the Assistant Secretary of the Army (Acquisition, Logistics and Technology) dedicates appropriate resources to meet the Army's plan to develop and field a disconnected operations capability for GCSS-Army.

ASA(ALT) in coordination with TRADOC Response: The Army concurs, however has the following comments. ASA(ALT) does not "dedicate appropriate resources." The HQDA, G8 is the appropriate Army organization to dedicate resources to meet the Army's plan to develop and field a disconnected operations capability for GCSS-Army. Disconnected Operations is funded through 2022, and has begun with Industry day that was conducted in December 2020. There is a multi-phased approach to deliver both disconnected mission critical functions and a new user experience to make processes performed disconnected easier and more intuitive in 2023. GCSS-Army currently has a deliberate offline capability called Store & Forward. This requires users to know that they will be offline and plan what work they want to conduct, while disconnected. If they lose connectivity, without this planning, they have to conduct all mission critical functions manually until connectivity is restored to document offline activities that occurred.

Army Rewording Recommendation: The GAO recommendation should direct resourcing guidance to the HQDA G-8.

Recommendation 2: The Secretary of the Army should ensure that the Commander of U.S. Combined Arms Services Command work with unit commanders to establish a mechanism to track that Soldiers have completed career-specific training necessary for gaining proficiency in the GCSS-Army system.

ASA(ALT) in coordination with TRADOC Response: The Army concurs with comments. The U.S. Army Combined Arms Support Command (CASCOM) is part of our Army's institutional training domain; however, TRADOC does not have the authority to take the lead on establishing a mechanism to capture training and proficiency beyond the institutional training domain. HQDA, G-3 and G-4, should task the U.S. Army Forces Command (FORSCOM) and the U.S. Army Installation Management Command (IMCOM) to ensure Soldiers complete advanced career-specific training and establish a mechanism to track that Soldiers complete the necessary training to gain proficiency in the GCSS-A system.

Army Rewording Recommendation: The GAO recommendation should be adjusted to reflect the correct Army organizations. Please reword to task HQDA G-3, HQDA G-4, FORSCOM and U.S.A IMCOM.

Appendix III: GAO Contact and Staff Acknowledgments

GAO Contact

If you or your staff have questions about this report, please contact Diana Maurer, (202) 512-9627 or maurerd@gao.gov.

Staff Acknowledgments

In addition to the contact named above, Kevin O'Neill (Assistant Director), Matthew Spiers (Analyst-in-Charge), Gabrielle Carrington, Christopher Gezon, Alexandra Gonzalez, Cynthia Grant, Michael Holland, Suzanne Kaasa, Ricardo Marquez, Clarice Ransom, Terry Richardson, and Brenda Thompson made key contributions to this report.

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