THE GLOBAL COMBAT SUPPORT SYSTEM – ARMY: IMPACTS ON FORECASTING US ARMY LOGISTICS AT THE CORPS AND DIVISION LEVEL

MSA 699 Applied Research Project Report
Central Michigan University

Submitted in Partial Fulfillment of Requirements
For the Degree of
Master of Science in Administration
(Concentration in Human Resources Administration)

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April 15, 2018

EXECUTIVE SUMMARY
As of January 2018, the US Army has fully fielded its new Enterprise Resource Planning (ERP) Software, the Global Combat Support System – Army (GCSS-A), “Increment 1” across its entire logistics spectrum with an exception of its Aviation support Community. GCSS-A is web-based; SAP software program that now runs all US Army unit financial transactions, Property Book management actions, unit supply management, warehousing supply management and maintenance. The GCSS-A system replaced several individual, aging and outdated information management systems that ran each aspect mentioned, giving the Army a blended, macro-lens view into its real-time logistics posture. For years, US Army logisticians operated in “stove-piped” information systems in which one hand could not see what the other was doing.

The GCSS-A system provides greater flexibility and visibility in real time for all respective aspects of logistics it replaced; however, there is an underlying assumption by senior Army leaders that the ability to forecast logistics requirements at the Division and Corps level using GCSS-A is now degraded. Therefore, the purpose of this research was to determine post GCSS-A implementation, if US Army Logistics Managers at the Corps and Division level were able to forecast logistical requirements at those respective levels, given their initial GCSS-A training. Specifically, the study addressed Active Duty, Division and Corps Logistics managers’ training, and their knowledge of the system. The researcher found that GCSS-A is a very capable system of assisting Logistician in forecasting requirements but that initial training levels was also seemingly insufficient. The study also found however, that due to Modularity, personnel and capabilities previously at the Division and Corps level, were pushed to their subordinate brigades, per the Army’s Modularity Concept. GCSS-A does not lack the capabilities to necessarily forecast at the Division and Corps level, rather the personnel needed to conduct the forecasting, no longer resides at those levels.
The researcher makes the connection that Senior Leaders are not receiving the same level of rigorous forecasting analysis at the Active Duty Division and/or Corps level because its no longer happening there. This issue of forecasting logistics goes back further than just GCSS-A. There is no longer a higher material management capability beyond the brigade level because under modularity, divisions and corps no longer deploy as entire units. The personnel authorizations reflect this change (by design) and the capability has been pushed down to brigades to conduct their own materiel management. The Army must now take a look at the definition of material management and what it actually means. How do logisticians management something they don’t truly know how to define. GCSS-A is a very "capable" system. The researcher recommend through this study that Division and Corps G4 sections take a proactive role in educating senior level commanders and staffs on exactly what their respective roles in logistics forecasting is. Next the researcher recommended integrating the G2s (Security managers and Unit Status Reporting Managers at Division and Corps level so that not only GCSS-A data synchronizes across the respective and necessary staff, but that if need be, the appropriate level of classification is adhered to when consolidating data at those levels. Equipment Readiness cannot just be a “logistician’s thing.” Finally, the researcher suggested that the Army develop a Senior Leader GCSS-A refresher course and internal logistic on-boarding process for Senior Army Logistic Officers who have been out of the logistics field for considerable periods of time.

The results of this research supported clear and achievable recommendations that can be implemented by Senior Leaders, the Army, and Logisticians everywhere.
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Chapter 1: Problem Definition

Background

Global Combat Support System-Army (GCSS-A) Army is a tailored, web-based Enterprise Resource Planning (ERP), developed by Northrop Grumman for the US Army, developed from commercial software solutions. The GCSS-A software package now serves as the baseline for all US Army logistics and finance automations. The GCSS-A solution will eventually replace virtually all antiquated US Army logistics management information systems across the entire tactical logistics environment and eventually link into an entire Joint Logistics enterprise. This changeover to GCSS-A has impacted all US Army Compositions (COMPOs) (i.e. Active Duty, Army Reserves, and the Army National) and obviously all units within these COMPOS, regardless of they type. GCSS-A has also integrated with Department of Defense (DoD) financial systems and provides accurate cost management and financial visibility for tactical materiel and sustainment. In 2012, the decision was made to integrate GCSS-A into the Army in two phases (Wave I and Wave II). Readers outside of the Army should make no mistake; the transformation to GCSS-A is the “most significant transformation effort in history for an information system (McCloskey, 2015).” With over 40,000 local databases merging into one online system, the GCSS-A transformation marks the largest logistics IT system merger of any kind, worldwide, not just in the military.

To date, 281 warehouses were converted over to GCSS-A and 346 out of the total 1034 units have been trained on all current system ERP functions (Piggee, 2017). Yet, feedback from US Army Corps (3-Star Generals) and Division (2-star Generals) Commanders indicates that a perceived materiel (Army material) management gap exists now. These Commanders are no
longer receiving the level of detailed analysis and materiel management they were experienced in the past and became accustomed to over the past 20 years, prior to GCSS-A.

There are several factors that have contributed to this decline of confidence in trained staff and personnel are right at the forefront. The Army now currently lacks seasoned personnel and GCSS-A knowledge capabilities to allow for analytic forecasting, a logistics common operational picture between echelons, supply chain management visibility, and the synchronization between strategic to tactical levels. Another key factor is that Corps and Division “logistics staff required for robust analysis has not come to fruition and even reduced in size (Hurley, 2017). According to the current Corps and Division’s Modified Table of Organization & Equipment (MTOE) and Tables of Distribution & Allowances (TDA), both are the Army’s combat and Garrison manning / equipment authorization documents respectively, the current G-4 sections (an Army unit’s logistics staff) have been reduced by 20% from their original designs. As a result, Corps and Division logistic staffs are forced to focus almost exclusively on day-to-day operations rather than managing GCSS-A analytics (Hurley, 2017). A unit team or specially trained personnel are now needed for the sole purpose of logistics forecasting using GCSS-A.

On top of the authorized number of personnel issue, there are mandated rank reductions as well were positions that were formally Lieutenant Colonel (LTC) positions have been reduced to Major (MAJ) or Captain (CPT). This severely reduced experience levels at Sustainment units at Echelons Above Brigades (EAB), such as Theater Sustainment Commands (TSCs), Expeditionary Sustainment Commands (ESC), and Sustainment Brigades. Materiel management at the Brigade and Division level rested on these units. A final issue is that the Army lacks a
clear understanding of materiel management roles using GCSS-A, the responsibilities of managers using the system, and tasks performed by each echelon.

**Research Problem**

The purpose of this research is to determine post GCSS-A implementation, if US Army Logistics Managers at the US Army Corps (3-star) and Divisional (2-star) level are able to forecast logistical requirements at their respective level, given their initial GCSS-A training. The GCSS-A enterprise system rich with real-time, big data, that the initial training at the managerial level was primarily focused on how to understand what supervisors were seeing from their users, rather than synthesizing it from data, to information, into knowledge for complete understanding. Perhaps that was the next step in training, and the overall plan was for units to adapt on the go with on-the-job-training as they use the system. Regardless, in order to answer this primary question, the following sub-questions described:

1. Do Logistics managers at the US Army Corps and Divisional level have the appropriate mix of knowledge and past experience in combat logistics to capitalize off of the GCSS-A available capabilities?

2. Do US Army Corps and Divisional G4 (Logistics) Sections have the appropriate number of personnel utilizing GCSS-A for day-to-day logistics operations and future logistical planning for combat operations?

3. Do Logistics Managers at the US Army Corps and Division level feel their initial GCSS-A implementation training was sufficient enough for logical forecasting in the respective units for which they were assigned?

4. Do the appropriate people within the US Army Corps and Divisional G4 sections receive
the necessary GCSS-A information / reports needed for logistical data analysis and forecasting for combat operations?

5. What solutions can the US Army or AESIP, PEO EIS implement to better capitalize off of the new GCSS-A ERP in order to be more proactive rather than reactive?

These questions constituted the focus for the research project. The researcher addressed these questions by utilizing a survey through Survey Monkey and distributed the survey through the GCSS-A Facebook pages to anonymous GCSS-A sustainers. Screening information within the survey helped ensure an equal ratio of surveys by Corps and Division Sustainers was used. The data collected addressed what level the sustainer was assigned (i.e. Corps or Division), was GCSS-A training sufficient to forecast logistic requirements for combat, and what efforts or solutions were implemented to address personnel or training shortfalls. The information gleaned was collated, analyzed, and synthesized for answers and potential solutions to logistical forecasting for US Army Corps and Divisional units who utilized GCSS-A (if applicable).

**Research Audience and Rationale**

The results or recommendations of this research are primarily intended for three US Army agencies and all US Army Corps and Maneuver Divisions. The first agency is the US Army Center for Lessons Learned (CALL) who is charged with leading the Army’s Lessons Learned Program by identifying, collecting, analyzing, disseminating, and archiving best practices. Next, the US Army Training and Doctrine Command (TRADOC) who are charged with creating, modifying US Army doctrine and training for the entire force. Third, this study is intended for the US Army’s executive agent for GCSS-A, The Army Enterprise Systems Integration Program (AESIP), Program Executive Officer Enterprise Information Systems (PEO EIS), who is the US Army’s program manager for GCSS-A. The AESIP cannot change its
existing contract with Northrup Grumman (Civilian agency), who assisted in the development of
the GCSS-A software, however they can incorporate future solutions into future
recommendations for software updates. Finally, this research offered solutions directly for US
Army Corps and Maneuver Divisions but is not intended for EAB, Sustainment Commands
above the Brigade level, or day-to-day logistics battalion or company size units. As their
logistics planning may defer.

GCSS-A is a single system that establishes a common operational picture for supply,
maintenance, property, and tactical finance. With budgetary, legal and fiscal constraints, the new
GCSS-A system will not be superseded by another automations solution for quite some time.
Basically, the US Army “received what it asked for,” however, the system may currently not be
used to it fullest potential. The software allows for basic analytics but users simply may not
know how to properly use the system because of it’s nascent nature. Although, this new system
of record (i.e. GCSS-A) has replaced outdated systems and software, solutions to better
capitalize off its existing capabilities are still emerging. In order for the US Army to get the most
“bang for its buck” it can adjust its subject matter expert (SME) population, rank and experience
requirement at the Corps or Division level and/or develop new techniques to address forecasting
shortfalls. With evolving threats from Nation States, independent actors become more
rambunctious, and a growing threat of force on force, maximum utilization of GCSS-A to
forecast logistics as far forward as possible is essential. Successful materiel management requires
leaders at all levels to understand processes and ensure discipline in execution.

Research Study Scope/Delimitations

The target audience for this study was “Active Duty” logistics users and managers at the
US Army Corps and Division level using GCSS-A. Below the Division level are considered
“tactical” units while Division GCSS-A tactical user input was also used to offer context from the tactical level. The study was not intended for logistic managers in National Guard or Reserve Divisions, even though they have converted to GCSS-A. This study was intended for GCSS-A users at the operational level (i.e. Corps and Divisions). This study was not intended for units above the Corps level or below the Division level.

The three echelons of Army planning are strategic, operational, and tactical. At the strategic level, the Logistics Modernization Program incorporates supply chains, maintenance, repair, overhaul solutions, and integrates business processes across logistics systems Army wide. At the operational level, the Lead Materiel Integrator Decision Support Tool compares the Army’s resources with validated, prioritized requirements, essentially matching supply with demand. At the tactical level, the GCSS–A both modernizes and integrates operations within every warehouse, supply room, motor pool, and property book office across the force. Finally, this study is also not intended for the US Army Aviation community in any component at any level. Aviation logistic information technology (IT) systems and automations have not been upgraded to GCSS-A, however this is an Army shortfall that this research did not address.
Chapter 2: Review of the Related Literature

Introduction to the Literature and Background on the Army

According to Army doctrine, the Army operates in what it calls “the Operational environment.” Army Doctrine ADRP 4-0 Sustainment, 2012 provides context for the “Operational Environment in that it “consists of many interrelated variables and sub-variables, as well as the relationships among those variables and sub-variables. How the many entities and conditions behave and interact with each other within an operational environment is difficult to discern and always results in differing circumstances.” “Therefore, no two operational environments are the same. The Army fights wars within this environment using a concept called Unified Land Operations that, according to ADP 4-0 Sustainment, 2012 means it participates in wars as part of the joint force (i.e. one of several service branches of the US military) within the operational environment.

Within the Army’s Unified Land Operations Concept, the Army divides the environment into primarily three major echelons (tailored by types of units), the strategic, the operational, and the tactical level of warfare (Mission Command, 2012). At the strategic level, leaders develop ideas for employing the instruments of national power (e.g. diplomatic, informational, military, and economic) in a synchronized and integrated fashion to achieve theater, national, and/or multinational objectives. At the operational level, tactical employment of forces is linked to the National and military strategic objectives, with the focus on the design, planning, and execution of operations. Finally, at the tactical level of warfare is where the employment and ordered arrangements of forces (i.e. units, people, and equipment) are in relation to each other. The levels of warfare assist commanders in visualizing a logical arrangement of forces and aid in allocating...
resources at the appropriate level (Mission Command, 2012). This also helps in assigning tasks based on conditions within the respective operational environment.

**Three Army Components.** It is also important to mention to the reader, that the US Army is divided up into three major components (COMPOs) for primarily pay purposes (there are nine in total but this is unimportant for the purposes of this study). These three COMPOs span the three echelons mention previously.

The COMPO one (COMPO 1) units consists of Regular Army units. These COMPO 1 units are made up of units of Soldiers who are on active duty, work and get paid for Army service on “24/7” basis (i.e. 24 hours a day, seven days a week).

The COMPO two (COMPO 2) units are US Army National Guard units, which can be activated upon official requests from either States or the Federal Government. These COMPO 2 units consist of Soldiers assigned to a state who work for the US Army but primarily activate only once a month in order to train and drill in order to keep their skills sharp and stay trained to a particular level. COMPO 2 units are often activated for state level activities.

Then, there are COMPO three (COMPO 3) units, which consist of US Army Reserve Soldiers who also are activated primarily once a month to train and drill but who are primarily used for US Government Federal missions support. Both COMPO 2 and 3 exist for the purpose of augmenting the Regular Army’s workforce but in reserve and primarily do not draw a weekly pay-check. Both COMPO 2 and 3 units have logistic units within them and both COMPO 2 and 3 units have received the same GCSS-A system upgrade. For the purposes of this study, the researcher only focused on COMPO 1, Regular Army units, who work with the GCSS-A system on a 24/7 basis. Although COMPOs 2 and 3 have received GCSS-A and have been trained, there
is a high propensity of search results to vary if comparing units that work with a system on a 24/7 basis against units that work with the system monthly.

Corps, Divisions, and BCTs. Within the Regular Army (COMPO 1) there are several types of maneuver units, primarily at the operational and tactical level. This study again, focuses only on the logistics practices of the Regular Army’s Corps level and Divisional units because of their commonality in tactical deployments. The researcher’s study focused on the Army’s three active duty Corps and the nine active duty Divisions that have implemented the GCSS-A system.

According to ADRP 4-0, Elements of Sustainment, the Corps provides a headquarters that specializes in operations as a land component command node. When it’s required, a Corps may become an intermediate tactical headquarters “under the land component command, with operational control (OPCON) of multiple divisions (including multinational or Marine Corps formations) or other large tactical formations (ADRP 4-0, Sustainment, 2012).”

Then, there are Divisions, which are the Army’s primary tactical war-fighting headquarters element. Their principal task is directing subordinate brigades. Divisions are not fixed formations. Therefore, they can be employed to command over several different types “Brigade Combat Teams (BCT) in an operation or they may control more than one of a particular type of BCT. A division can control up to six BCTs with additional appropriate supporting brigades during major combat operations. The types of support brigades are combat aviation, fires, maneuver enhancement, battlefield surveillance, and sustainment. The sustainment brigade normally remains attached to the TSC or ESC but supports the division (ADRP 4-0, Sustainment, 2012).” Next, the smallest level of an Army land owning headquarters element, as a combined arms organizations, is the Brigade Combat Team (BCT). The US Army’s switched to its 2007’s Modularity Concept in 2007, where the BCT forms the basic building block of the Army’s
tactical formations. Prior to 2007, active duty divisions owned all the Brigades it was assigned. Under Modularity, the BCTs is now the principal unit that executes tactical engagements. “Three standardized BCT designs exist: armor, infantry, and Stryker. Battalion-sized maneuver, fires, reconnaissance, and Brigade Support Battalion (BSB) are organic to BCTs (ADRP 3-0, Operations, 2012).” It is important to note that “the Army normally refers to its size in terms of BCTs, which are the basic “building blocks” for the employment of Army combat forces” (Wood, et al., 2018). BCT’s are usually employed within a larger framework of global Unified land operations but are sufficiently equipped and organized to conduct independent operations as needed if required. Division’s and Corps are not necessary for BCT independent deployment.

The New Army Wide Logistics System. Since the implementation of computers into the US Government, the US Army has pursued modernized systems, services, and processes that improve efficiency and increase effectiveness. To be clear, effective decisions are not always the most efficient and vice versa. From a logistics standpoint, the intent is to always be more efficient, doing more with less. The Logistician mindset is often rooted in business savvy practices such as Lean Six Sigma, focused primarily and on efficiency of spending money. Contrast to this, Combat Commanders, which Army Logistician exists to support, are often more concerned with being effective; these Combat Commander focus on achieving a desired outcome or end state. It is very difficult to be efficient doing this. Efficiency and Effectiveness do not always mesh well together and it’s often possible that the goals, which support effectiveness, cause efficiency to suffer, and vice versa. A non-Army example of this would be, sending an overnight birthday card. Sure, if the sender would have “forecasted” the exact arrival date of the birthday card in advance, the overnight shipping price of nearly $28 USD could have been avoided (not an efficient method); but, the fact that the card arrived on time, is surely effective
for the person on the other end. The receiver gets a birthday card, the day of their birthday; oblivious to the cost the sender incurred getting the card to the receiver on-time.

As technological capabilities expand and the need to record, interpret, and analyze big data in real time increases in importance, so does the growing instances of successful and failed attempts to implement new systems. Creating an analytical feedback loop that allows decision-makers to use real time, empirical data to forecast logistical requirements is the primary function of the Army’s new ERP, GCSS-A. The US Army has attempted to adopt the best practices for efficiency from its civilian contemporaries, many of which have already proven there are several benefits in adopting the ERP system, harnessing big data. Surprisingly, the DoD as a whole, is in the process of implementing nine ERP programs, replacing over 500 legacy systems across all services (e.g. the Air Force, and Navy) estimated to cost hundreds of millions of dollars to operate manually (Slabodkin, 2011).

GCSS-A has been implemented across all three Army echelons (i.e. the tactical, operational, and strategic level) in a phased approach since 2012. GCSS-A was implemented initially in two phases (or waves) to all tactical level units and to every US Army base, worldwide. Phase I started back in 2012 and went through 2015 impacting all finance systems at the tactical level tied to units materiel management and warehousing. Phase II started in 2015 and ended in 2018, impacting all tactical unit’s maintenance and property management systems.

The tactical level was the primary target level for both phases of the GCSS-A implementation plan into the Army. Although the Army spends money in varies ways, GCSS-A is now the largest executer of funds from the Army’s general funding because all automated supplies transactions are executed through this systems (Corrin, 2017). At the tactical level, the majority of data is inputted by logistics Soldiers into the system. Users of the system at the
tactical level included managers working in Army warehouses called supply support activities (SSA’s), unit maintenance managers, unit materiel mangers, company sized unit commanders, Battalion logistic sections (called S4’s), Brigade Support Operations sections, and Division staff sections, as well as, others leaders throughout the Division level (ADRP 4-0, Sustainment, 2012). US Army Corps operates at the Operational Level primarily with only a G4 section and a few logistics planners in Planning Cells. According to Lt. Col Christopher Romero, GCSS-Army marks the first time all associated Army financial transactions was put into a single consolidated database for all to see. The GCSS-Army database provides near-real-time information on cost and supplies. The system promised, “to enable commanders to build “a complete logistics picture where they can make sound tactical decisions, manage budgets effectively, and enhance their readiness (McCloskey).”

There exists a need for GCSS-A data analyst at the operational level where these systems catalog and correlate tactical unit data. At the operational level, data should be processed and interpolated to transform the data into useful, relevant, and actionable information. The information gleaned can be used to determine when and how operations were impacted regarding the distribution of supplies, ordering maintenance parts, logistic projections, training requirements, and materiel accountability. This information can also tell where units are having shortfalls in efficiencies and how effective their programs are. Operational level GCSS-A system users include, but are not limited to, Combat Sustainment Support Battalions (CSSB), Sustainment Brigades (SBs), Expeditionary Support Commands (ESC), Theater Support Commands (TSC), Army Service Component Commands (ASCC), and direct reporting units. These specific users were not the focus of this study.
At the strategic level, decision makers could theoretically utilize the full potential of the GCSS-A system. At this level, leaders can obtain overarching operational picture in real time, affording them better information to make decision with as well as greater accuracy. Examples of GCSS-A at the strategic level include, Combatant Commands (COCOM) including Transportation Command (TRANSCOM), Army Commands (ACOM), the Defense Contract Management Agency (DCMA) and the Defense Logistics Agency (DLA). Again, these users were not the focus of this study but are an important echelon of the system.

Personnel at each of these three levels utilize, GCSS-A for finance, maintenance, supply, and material management. These echelons or levels, interact with each other levels and systems daily, allowing the Army as a whole, to function properly. The old architecture design of these levels allowed for data collection and assessment primarily within their own respective area, called “stovepipe reporting” in which Army Logisticians have operated in for decades (Wyche, 2013). This older system architecture did not allow for appropriate data sharing across units or echelons.

When GCSS-A was implanted in both Wave 1 and Wave 2, users select users from the unit were given online training. Several teleconferences were held by designated GCSS-A PM training teams leading up to they system’s implementation. Approximately, 30 days out from fielding, all new equipment training sessions were led by instructors who simulated actual scenarios online only. The web-based training introduced and reinforced navigation techniques and self-help training aids within the GCSS-Army portal.

Effectiveness vs. Efficiency. Choosing the priority of which business functions nest well with effective war fighting decision making, is really a balancing act and perhaps anyone’s guess to forecast and/or assess. The GCSS-A system is now one of the largest across the Department of
Defense next to the new personnel and finance ERP system that is the largest in the world. This research did not integrate information about the new personnel and finance ERP. The biggest efficiency vs. effectiveness battle issue GCSS-A has yet to fight will come with the Aviation logistics support community. Also the Army Aviation support community gives the biggest argument yet why forecasting is so important. Aviation support gets its own “pot of money” just to keep Army helicopters flying. Due to this fact and because GCSS-A is so exact, issues arise because of standard practices of pilots over-logging /tracking flight hours by approximately 12-22% due to cumulative rounding. The more flight time a unit has “this year,” the argument is often made, that the same unit needs more money the following year. This over-logging of flight hours however, makes estimated maintenance time-tables very inefficient at the macro level because the parts often ordered against the over-logged hours, just sit there in the warehouse – very inefficient. These parts then begin to corrode. This isn’t the only issue, but its a major one that has caused the fielding of the GCSS-Army implementation to be pushed back, to an unknown future date for the entire Aviation logistics support community for now (Almquist, 2018).

GCSS-A aggregated data from different business/functional areas enhances both short-term and long-term decision-making. The US Army fights the Nations wars through three distinct lenses or echelons that are codified in written doctrine. The Presidential Policy “Directive Eight” describes national preparedness as planning, organizing, equipping, training, and exercising in order to build and sustain the capabilities necessary to prevent, protect against, mitigate the effects of, respond to, and recover from those threats that pose the greatest risk to the security of the Nation. In an article titled Sustainment Role in Strategic Land power published in Army Magazine, LTC Mann and CPT Amato outlined the roles of sustainment units
and how the Army’s logistics enterprise system supports its Soldiers fighting on the ground. In the article, the duo petition that the Army’s ERP system is necessary and directly supports the “Directive Eight” by creating efficiencies within the Army. The ERP streamlines processes that ultimately improve readiness. With an increase in readiness, there’s no surprise, the Army’s lethality also increases equivocally. The end state is when the Army’s lethality is enhanced; the Nation’s ability to prevent conflicts increases thus an increase effectiveness. This goal is somewhat however immeasurable.

It is unclear What GCSS-A Manages Are Required To Do With the System At Each Level. ‘Who” aggregates and interpolates GCSS-A data at each level within the Army is still unclear but must be answered to identify the depth and level of training required. Identifying the roles and responsibilities of GCSS-A data collectors, analyzers and personnel in order to interpolate data at every level cannot be overstated. New managerial analysis officers need prior logistics experience as well as longevity within their unit. The Army must invest in people in the form of training and recruiting. The Army needs to recruit and train technically competent analysts at every level now that GCSS-A has been implemented. GCSS-A training, depending on the logistics function varied greatly during implementation. Users and managers received applicable training allowing them to better facilitate their function as either a supervisor or a user. Although the GCSS-A Program Manager (PM) fielded GCSS-A to all Active duty units with a standardize training package per function, per position the timeframe was roughly two weeks to 25 days depending. The details of training at every level are too lengthy and intricate to address in this study but the Army has now incorporated GCSS-A training into all of its new enlisted member, logistics recruits at their entry level, Advanced Individual Training (AIT) per function. Active Duty Officers now get initial GCSS-A managerial courses. Yet, many senior
logistics leaders were overlooked and never trained. For all these outliers, GCSS–Army has an aggressive online “educational strategy and a growing https://www.gcss.army.mil. The website’s “Education Tab” offers web-based training, and there is an online user’s manual for materiel managers (Talleyrand, 2011).

**What GCSS-A Does Not Do.** There are different categories for Army classes of Supply and GCSS-A handles a mostly of all of them excluding food, major construction supply, bulk petroleum products, medical supplies and ammunition. Each of these have there own procurement method and with the exception of construction supplies, have their own ordering automations systems as well. One major aspect of logistics forecasting that GCSS-A does not manage is ammunition (Class 5). According to Army Regulation (AR) 700-19, Army ammunition is doctrinally managed by entirely different logistics automation management systems called the Worldwide Ammunition Reporting System-New Technology (WARS-NT) and the Standard Army Ammunition System – Modernization (SAAS-MOD). In fact, as of January 2017, the Army started implementing an update to its existing ammunition management system with significant improvements against cyber-attack resistance. The SAAS-MOD automation system had been used by both the active and reserve components to manage and control ammunition supply operations for years. The system just received its newest significant update around the same time GCSS-A completed its Wave II implementation. The system update is expected to be complete in July 2017, offering easier functionality for ammunition managers across the Army. “This is a great development for the ammunition community,” said Ricky Daniels, the product lead for Logistics Information Systems, which led the consolidated update effort. “It’s been roughly 20 years since this system has received an improvement of such value (Bell, 2017).” Ironically, the responsibility of forecasting Ammunition is also split between
Army logisticians and those who need the ammo. According to AR 700-19, the Deputy Chief of Staff G-4 (Logistics) is responsible for munitions reporting and distributions, while the Deputy Chief of Staff G-3/5/7 (Operations) is responsible for providing the total wartime munitions requirement. So even in the dealing with Ammunition, it’s the operations branch that is responsible for forecasting ammunition requirements.

**ERP is For Both Transparency and Forecasting.** The Army’s efforts to shed light on it’s the financial record books are part of a broader program to make the military's finances more accountable (Kenyon, 2014). After all, at the end of the day it’s the dollars and cents saved that can be objectively measured, not subjective goals and anecdotal evidence. In comes the financial aspect of GCSS-A. According to ADRP 6-0, Mission Command, accomplishing the Commanders vision requires planning, preparing, executing, and assessing. Execution is where the approval of the command’s budget and the receipt of obligation authority. The General Funds Enterprise Business System (GFEBS) provides the Army with an integrated real-time view of its core business processes, such as order processing and inventory management (Powell, 2014). GFEBS links to the Army’s other ERP systems such as GCSS-A, the Logistics Modernization Program, and the Integrated Personnel and Pay System—Army provide decision-makers with a common database of accounting, inventory, and property management information. Accurate data pulled from the Army’s ERP systems can help logisticians segment their inventory items by cost and velocity, build key facilities in the best locations, and ensure all supplies are available in the right quantities when and where required. It’s the forecasting of logistics that has the biggest impact on financial decision-making. Such decisions may even be counterintuitive.

“For example, according to an article by Warren Wynns and Fred McNitt published in the Summer 2013 edition of Armed Forces Comptroller, the U.S. Transportation Command
used budget execution data to determine that, once the total cost of transportation is added into the equation, purchasing fuel from local vendors at a cost of $9.18 per gallon costs $46,000 less per tanker than paying $3.56 per gallon in Kuwait and flying the fuel into Kandahar (Powell, 2014).”

So it’s the financial data on the back-end where assessors can measure efficiency. Since GCSS-A completed its implementation across the army in late 2018, the financial data comparing a full year of all GCSS-A uses against it’s the same organization’s legacy past is theoretical from the researchers standpoint presently. There is no public record on exact figures on exactly how much the GCSS-A system has actually saved the Military. In order to draw speculative evidence, civilian company case studies were assessed for best practices concerning efficiency.

**Civilian ERP Successes and Failures.**

**The FedEx’s ERP Implementation Success Story.** FedEx, the world’s largest express shipping company delivered more than 3.2 million packages per-day. The company had more than 138,000 employees and had over 5,000 delivery points with a fleet of 671 aircraft and 41,000 vehicles. When FedEx implemented its ERP system in 2004, it integrated people, software, asset management, accounting, general ledger management, financial management, human resources management, electronic procurement, spending report, inventory management, and project cost accounting (Modern Enterprise, 2011). FedEx wanted to minimize the risk to their customer base, have a seamless implementation to new third parties, to improve fulfillment accuracy and information flow, and manage cost. FedEx was successful because they studied their customer’s desires and demand trends. They had a clear expectation of what the ERP changeover would do and a definition of success. They also had a good plan for the implementation of the modules and of the systems they were interfacing with. FedEx also used a
third party to help with employee on-the-job training since it takes many years of experience to truly understand the new system. They did not rush employees to use the new system without all levels of management understanding the how the system worked.

**The Home Depot’s ERP Implementation success.** Founded in 1978, The Home Depot is one of the world’s largest home improvement specialty retailers in the United States. The company employed approximately 325,000 associates and had 2,200 stores in all 50 states in 2004. The ERP functions that Home Depot integrated were human resources, retail-merchandising, inventory and supply chain management, as well as the financial accountability program. This allowed real time data visibility by managers into performance. Thus improving related functions that translated into better work processes. When the ERP was implemented it allowed the managers to be empowered to create requisitions, approve routing pipelines, and self-service inquiries. Home Depot’s approach allowed the cycle times to decrease by 20% and allowed the company to see the complete process of the whole system. Home Depot switched inventory accounting methods from First in, First out (FIFO) to a weighted-average costing method giving the management full visibility of the cost of items compared to the FIFO or LIFO methods. The new SAP software system allowed Home Depot to buy items prior to the rise and fall of prices (Modern Enterprise, 2011). Home Depot used many smart and sound systems and processes to secure their changeover to an ERP based system.

**The Hershey’s ERP Implementation Failure.** In 1996, the Hershey Corporation was trying to aggressively move the candy business into the 21st century. As the year 2000 approached, the implementation of new technology systems was cutting edge and at the same time, inevitable. In an effort to move into an integrated ERP environment, Hershey seemed to be making a strong and sound decision. The failure would not come about from their initial
decision, but from the execution of their strategic initiative. Hershey’s senior management decided to decline the recommendation of taking 48 months to work out every possible glitch while testing and re-testing the system. Instead, a truncated timeline of 30 months was ordered, which would prove to eventually cost Hershey over $100 million in Kiss and Jolly Rancher sales alone (Pemeco, 2011). Cutting one and a half years from the implementation and testing of the system was not realistic. What it did was set expectations too high and forced employees to cut corners, therefore, showing the management false progress. Hershey’s lessons learned teach businesses that the transition to an ERP based system must be well planned out. It takes the effort of the entire team; senior leadership and the employees must be on board with the change and know how to use the system.

The Nike’s ERP Implementation Failure. In June 2000, the Nike Company lost over a $100 million in sales in trying to implement its Enterprise Resource Planning (ERP) software. A software glitch that cost Nike more than $100 million in lost sales, depressed its stock price by 20 percent, triggered a flurry of class-action lawsuits, and caused its chairman, president and CEO, Phil Knight, to lament famously, "This is what you get for $400 million, is a "speed bump" (Koch, 2004). Problems with the implementation of Supply Chain and CRM Software onto a single SAP platform began early with obvious glitches and bugs. Poorly trained staff, and phantom projections brought this company from ‘taking a few steps back’ to a free fall. Planners arbitrarily inserted historical sales numbers into this program in an effort to project the near future instead of using realistic data points. Nike was going to link the use of art and science, but the software did not match Nike’s business model. One key issue was that Nike did not use a third-party integrator as would have been preferred and even recommended by other SAP users. The company’s leaders allowed the team to add way too many customizations to the software.
They also tried to forecast too far out to be realistic, and they did not test pilot the program that would have identified serious issues and inconsistencies that could have been fixed prior to a full rollout. Nike could have avoided this problem if the company leadership had mapped out a strategic vision and established clear tollgates along the way to accomplish the full implementation of SAP software. Nike would also have benefited from a technologically well-equipped infrastructure and established systems with established operating procedures.

**Summary of Case Studies.** A common thread that was woven throughout the case studies was the fact that the companies that have been successful were able to integrate ERP systems not only as a management tool, but they were able to incorporate the ERP systems into their way of life. By fully integrating the systems into every aspect of the business, these companies were truly able to capitalize on what is the essence of ERP is. They were able to turn the ERP into not only a management tool but leadership enabler. This allowed the companies to utilize their middle or operational level managers as subject matter experts who were able to transform raw data into information for their senior leaders to make better and sounder decisions. Those companies that failed or missed the mark on total assimilation / adaptation to ERP systems in their business, ended up wasting valuable time and resources. These companies usually had to reinvent their practices and make another run at trying to better their organizations through bottom-up refinement.

**Summary of the Literature**

Even prior to the 1970’s, the US Army applied big data systems to their problems, attempted to master analytics in order to evaluate and interpret data in search of a competitive edge over its enemies. With each new system or process the US Army implements, several unforeseen problems emerge. Implementing new systems and process, even on a scheduled
timeline have to adjust to world emergences, training mishaps, and of course, war. Inevitably identifying and training subject matter experts at each echelon of the Army (i.e. the tactical, operational, and strategic levels) who are solely responsible for keeping up with cutting edge technology is a task unto itself. As computer systems’ software and online cloud capabilities increase, allowing users to systematically aggregate and analyze data, both personnel and training requirements will grow and/or morph. New techniques or capabilities within sections will need to be devised to ensure the Army maximizes its GCSS-A capability use in order to forecast logistical requirements at the Corp and Division level. Together with broadcasting new forecasting techniques or training available for personnel with longevity at all levels is necessary to take full advantage of the emerging capabilities and possibilities the ERP brings.

Over the past decade, the US Government, including the US military has had to do more with less. In today’s resource constrained environment the Army must make all efforts to ensure force sustainment war fighting functions are more effective and efficient than ever before. Through development of the Army’s GCSS-A system, the Army can finally do more with less. Army officials have stated that “the GCSS project is already beginning to pay for itself, primarily by avoiding the costs related to managing legacy logistics systems. Within the first years of full system deployment,” the Army expected to save at least $8 billion in avoidable costs Army officials have stated that “the GCSS project is already beginning to pay for itself, primarily by avoiding the costs related to managing legacy logistics systems. Within the first years of full system deployment,” the Army expected to save at least $8 billion in avoidable costs (McCloskey).” Leveraging the GCSS-A, gives the Army a competitive logistical edge towards mission accomplishment. Leaders at all levels of the Army have echoed this fact stating that the Army must implement a strategy for effectively analyzing its data and providing key decision-
makers with the information needed to make well informed decisions in a rapidly changing environment. Literature supports that there are many parallels that can be drawn from civilian organizations that implemented an ERP system through the modernization of integrated data management systems. If implemented successfully, some of the world’s most successful companies have leveraged ERP data analysis and shorten decision cycles, improved the reliability of those decisions, and improved success rates of those implemented decisions. The Army must emulate lessons learned from corporate counterparts in the private sector. Incorporating ERP into the operations process requires an Army-wide strategy for manipulating the large quantities of aggregated data into information that is actionable.
Chapter 3: Research Methodology

Research Approach

The following chapter presents a summary of the methodology used to conduct this research and ascertain information to answer both the primary and sub questions posed in Chapter one. Again, the purpose of this research was to determine post Global Combat Support System-Army (GCSS-A) implementation, if US Army Logistics Managers at the US Army Corps level and Army Divisional are able to forecast logistical requirements at their respective level, given their initial GCSS-A training? The GCSS-Army ERP supports the Army’s Modular Force concept in that it focus on logistics down to the tactical level. The GCSS-A Enterprise offers real-time, big data, but during the past two years of the GCSS-A’s Wave I and Wave II implementation process across the entire Army’s force, worldwide, the logistic manager’s focus may have been on implementing the new system and no so much on how to utilize all its capabilities. The initial GCSS-A training offered to logistics managers at the Corps and Division levels may have simply trained them on how to read the new GCSS-A spreadsheets, but did it train them to use the system to forecast logistical requirements for their unit? Should it have trained them at the level? Restated, managers may have primarily focused on how to understand what they were seeing from their users, rather than synthesizing the data they were getting. Under normal, steady state circumstances, this data would feed information and knowledge of the system in order to allow those same managers to forecast logistics into the future. Perhaps that was the next step in training, and the overall plan was for units to “adapt on the go” with “on-the-job-training” (OJT) as they use the system. Regardless, in order to answer the questions, the researcher employed the following mythology.
This research was designed as a qualitative analysis on the target group by administering a self-administered questionnaire/survey through Professional Social Media groups online. The research enables this study to determine if the initial GCSS-A training at the US Army Corps and Division level, allowed logistics managers to forecast logistical requirements for their respective units. The Survey was created using SurveyMonkey, an online survey tool that allowed the researchers to collect and analyze data. The data collected from survey presents answers to the research questions while also providing potential solutions for the next GCSS-A increment in the coming years, which will affect approximately 28,500 Aviation Logistic Community users (Piggee, 2017).

The assumed hypotheses options initially were that GCSS-A implementation training was sufficient enough at the Corps and Division level to forecast logistics for the respective units or there other factors that prevented logistics forecasting using GCSS. That guided the development of assumptions as follows:

**Hypothesis #1:**

H1: US Army Logistic managers at the Corps and Division level received inadequate initial GCSS-A training during implementation; as a result, Logistic managers do not have sufficient training on the GCSS-A enterprise to forecast logistics requirements for their unit’s.

H0: The US Army Logistic managers at the Corps and Division level received enough initial GCSS-A training during implementation; as a result, Logistic managers can forecast logistics for their unit.

The dependent variable for this hypothesis is the ability of Corps and Division Logistics managers to forecast Logistics at their level. Logistic Managers have always been able to
forecast logistics requirements but did GCSS-A enhance this in anyway. The independent variable is whether adequate or inadequate training.

**Hypothesis #2:**

H0: There are other factors besides GCSS-A training that inhibits Corps and Division Managers from forecasting logistics requirements at their level.

H1: There are no external factors that inhibit forecasting at the Corps and Division level that inhibit forecasting. The dependent variable is again the ability to forecast. The independent variables are things such as no existing requirement at that level, personnel shortages, etc.

**Data Collection Approach and Procedures**

**Data Collected.** The primary source of data collected was in the form of survey questions distributed anonymously thru online, logistics management groups. The primary research question for this study was to determine, after the GCSS-A implementation, if Army Logistics Managers at the US Army Corps (3-star) and the Army Divisional (2-star) level are able to forecast logistical requirements at their respective level, using GCSS-A, given their initial training. Five sub-questions were proposed to address the dimensions of this question. The researcher believed that the perceptions of how well Army Logistics managers are able to use GCSS-A to forecast logistics requirements after the implementation training offered the answer. The following paragraphs methodically discuss the data required to answer each of these sub-questions and that led to understanding the ability of Division and Corps level logistics managers to forecast logistics requirement using GCSS-A.

**Sub-Question # 1 – Do Logistics managers at the US Army Corps and Divisional level have the appropriate mix of knowledge and past experience in combat logistics to capitalize off of the GCSS-A available capabilities?** The purpose of this question was to ascertain if logistics
managers even knew how to forecast logistics requirements before the implementation of GCSS-A. It was imperative to know if Division and Corps level logistics managers were or were not able to forecast logistics at their level prior to GCSS-A being implemented. Also, the researcher inquired as to the surveyed logistics managers’ past experience levels with forecasting at the applicable levels of the study. The question centers around, if Managers had the knowledge and experience to forecast logistics before the GCSS-A implementation, with the expectation that the same experience and knowledge would help new users adapt to their new IT automations system. This question would also indicate if it were ever possible to forecast logistics at the Division and Corps level using other systems or methods.

Sub-Question # 2 – Do US Army Corps and Divisional G4 (Logistics) Sections have the appropriate number of personnel utilizing GCSS-A for day-to-day logistics operations and future logistical planning for combat operations? The purpose of this question was to determine if Division and Corps Logistics’ sections (G4) have the appropriate people to actually forecast logistics. The researched wanted to isolate the variable of a personnel issue at the respective levels. It was possible that if an inability to forecast at those levels existed, it would not be an automations issue, rather a personnel shortage issue. The ordinal data provided shows if logistics management sections at the respective levels, are lacking personnel, which directly affect the section’s ability to deliver on forecasting requirements. Survey answers indicated personnel there were shortfalls within their sections but that the sections had the authorized number of people.

Sub-Question # 3 – Do Logistics Managers at the US Army Corps and Division level feel their initial GCSS-A implementation training was sufficient enough for logical forecasting in the respective units for which they were assigned? This question was important
to determine if the initial GCSS-A implementation training (at the Division and Corps managerial level) enabled logisticians to forecast at their level using the GCSS-A System. Data gleaned from this question, rates the initial training provided to US Army Active Duty Logistics managers’ at the respective level. Due to subjectivity, a likert scale was used to rate training against the outcome of forecasting abilities, and therefore isolate initial GCSS-A training as a variable. Again, if training was sub-standard, the system may allow for forecasting, however managers would have to be trained on exactly how to use the GCSS-A system in order to forecast.

**Sub-Question # 4 – Do the appropriate people within the US Army Corps and Divisional G4 sections receive the necessary GCSS-A information / reports needed for logistical data analysis and forecasting for combat operations?** The purpose of this question determined if Division and Corps logistics management sections received correct and accurate reports from subordinate units, generated by GCSS in order to forecast logistics at their level. The reporting process is key to information and if the chain is broken, again this would not be a GCSS-A system failure; rather the reporting process would be to blame. Data collected from this question assisted with determining if the reporting chain from subordinates, up to Division and the Corps level had any affect on those respective sections’ ability to forecast logistics. As the old adage goes, “garbage in, garbage out.” The data presented how helpful the GCSS-A reports were in determining forecasting requirements.

**Sub-Question # 5 – What solutions can the US Army or AESIP, PEO EIS implement to better capitalize off of the new GCSS-A ERP in order to be more proactive rather than reactive?** The purpose of this question was to allow logistics managers to offer solutions that would improve their forecasting ability using GCSS-A. The suggested improvements were
geared towards all logistics managers, not just Division and Corps level managers because other type units or COMPOs conduct business differently. The researcher gained additional information and recommendations from professional Logistics managers (old and new) on how to improve forecasting logistics using. This quantitative data was used to determine the researchers recommendations that best improved on all variable as well as the GCSS-A system. Reactive forecasting always generates more stress. Managers would always rather be pro-active and answers from question offered the researcher outside opinions from actual users of GCSS-A ERP. Survey questions geared towards getting system and training improvement ideas as well as offered confirmation on assumptions. Furthermore, the data provided insight into the current what the system GCSS-A system is not doing related to forecasting at the Division and Corps level.

Data Collection Procedures. The data for this research was collected using a survey through SurveyMonkey and distributed through social media groups to a select group of users that the research targeted. The paragraphs below presents how data was collected, the instruments and procedures used to collect, the details of the sample, timing of the survey, as well as the validity and reliability of the survey. Finally, the research also lays out limitation of the research.

Target Population. According to Lieutenant General (LTG) Aundre Piggee (the Department of the Army’s highest G4) there are over 154,000 GCSS-A users. LTG Piggee goes on to state that the 154K GCSS-A users are comprised of every supply room, motor pool, property book, and warehouse throughout the Army (Piggee, 2017). Of note, it was also mentioned that the 154K GCSS-A users were made up of all Regular Army, National Guard and Reserve units (the entire US Army). It was also stated that the 154K total users did not include
US Army Aviation Support Soldiers. This is because the GCSS-A ERP has not extended its use to the Aviation Logistics Support Community currently. The researcher joined and administered the survey through two main Facebook Groups in order to tap into Army logistics managers who were familiar with GCSS-A: The Army Logistic Officer Network (with 809 members), the 92A GCSS-A Users (with 5165 members) and the 92Y GCSS-A Users (9106). The total of 15,080 total potential respondents was the researcher’s total target population. These groups offered the unique category of logistics Army manages who had a high propensity to be GCSS-A users. The researcher acknowledges that the Facebook groups do not catalog its members as Active Duty, National Guard, Reservist, or even retired, therefore all 15,080 may not be Active Duty. Regardless, the groups’ overall total users offered a sizable sample that would have otherwise been inaccessible to the researcher, considering one of the stipulations in the researcher’s permission letter was that all correspondence would be done outside of military communication channels. The researcher acknowledges that given the nature of the Social media groups, all members may not be US Logistics managers, be Active Duty military and/or assigned to a Corps or Division. The survey was constructed such that these key points of information were gleaned as respondents answered the survey.

**Sample Details.** The sample for this research included the members of the Social Media Groups listed above. The data for this study was collected by an online survey that was distributed through specific, professional group pages on social media. Participation in the survey by these group members was strictly voluntary and completely anonymous. The sampling methodology used in the study, ensured that the statistical conclusions resulting from the survey offered a valid representation of the population as a whole. Using the target population size of 15,080, a confidence level of 95% and a confidence level interval or margin of error of 5% was
used. The researched desired over 350 surveys returned through these open-source, online media specialized group sites, however only 32 actual surveys were returned. Based on the groups, vast array of ranks and experience received the notification of the survey through their Social Media groups connection. Group members’ log-in habits to the selected sites where the survey was distributed, group member online activity, and the willingness to participate was all unknown. In order to generate desire to fill out the survey, the research stressed in the initial post, that the survey was anonymous and there was a random drawing to win a free $5 Amazon gift card.

Although improbable, it is possible that members of the Social Media groups in the target population belong to vulnerable populations of disabled persons, young children under 18 years of age, incarcerated persons, or pregnant women. Based on the types of survey questions and the anonymity of the responses, the lack of demographic information asked in the survey, it is impossible for the researcher to know which of the respondent’s would/could belong to these vulnerable populations.

Finally, email addresses were obtained from the survey on a voluntary basis only. Email addresses were only used in the survey to send a $5 Amazon gift card as a potential prize in order to gain more responses. The email addresses in question were not actually part of the data and therefore were not used outside of sending a gift prize back to three lucky respondents. Also, all email addresses obtained in the study were discarded at the conclusion of this research and not shared publically. No other data from respondents such as phone number, location, etc. were requested or obtained in the survey.

**Instrumentation.** All data collection was done with a Survey constructed from Survey Monkey (See Appendix D). The platform is easy to use, intuitive, and practical in its simplicity. This Survey method had the potential to reach vast amounts of respondents using non-
DoD/military email address or phone calls. SurveyMonkey also provide basic analytical tools to tabulate survey responses thus eliminating human error. The researcher created all survey questions, solely for the purposes of answering the primary and sub-questions posed in the research. Each survey question runs parallel to a path that provides the necessary solutions for the research. The initial survey questions are scaled but then many of the questions after which are “likert-type-scaled” to provide quantitative analysis and variance to (such as Strongly Agree, Agree, Neither Agree nor Disagree, etc.). Only the last three questions on the survey were open ended, with the last questing asking for an email. Other than the researcher and a close following, none of the questions were been tested for validity or reliability due to time and research constraints. In order to compensate for this absence of validity and reliability formalized testing, the research administered the survey to three non-logistic, co-workers. As a result, additional terms and definitions were spelled out for clarification. Also, a timeframe of last service was added to certain questions to focus respondents on “if they had ever worked at the Corps and/or Division level.”

**Procedures.** The research gathered data using an online anonymous survey. Due to the researchers rank, and undue command influence (the negative consequence of a supervisory relationship), it is imperative the survey be administered voluntarily. Also, one of the stipulations of the researcher’s permission letter is that surveys would be administered outside of Army communications. The Survey link was distributed through specific civilian Social Media Group Sites to ensure results are completely random. This is to further ensure there is no possible coercion by the researcher. SurveyMonkey hosted the survey and provide analytics. Although one particular question requests the respondents email address, this is strictly for a random prize purpose and has nothing to do with the research. The prize of a $5 Amazon Gift Card was to
encourage more respondents to participate. SurveyMonkey tabulated the responses and assisted the researcher with the analysis of each question. The responses populated the information in Chapters 4 and 5. In this way the research has no relationship to the respondents, the answers are completely non-biased, and any relationship to respondents is coincidental.

The expected rate of return is estimated to be fewer than 1.5% due member activity. All the sites used, do not experience high amounts of posts, which indicate that members do not log into them often and post even less often still. For one site there were less than 10, mostly daily on a randomly view day. This indicates that there is not much traffic through the sights, making it difficult to gauge who saw the survey post and when. At 1.5% of 15,080, the researcher expects to receive approximately 375 surveys completed. If a respondent only partially completed a survey, all filled in answers were counted and the remainder were classified as a “No Response.” Only Survey Question 23 and 24 were skipped by any respondents and did not influence the numbers. Finally, the researcher had the obligation to secure the survey results through SurveyMonkey’s password function, in that no one had access to the overall account that was created for the purposes of this research.

**Timing.** This research was conducted throughout the Spring 2018 CMU Semester. The actual survey took place over two, seven-day workweeks in March 2018, with the conclusion at March 31st, 2018, a total of 14 days. The Survey was being distributed through social media sites on a Monday and the Monday two weeks following all Survey data was analyzed using SurveyMonkey.com. An insufficient number of Survey’s were initially collected after the first week, so a survey extension was needed. Daily posts ensued.
Data Analysis and Synthesis Approach

The completed surveys were analyzed using several descriptive statistics, statistical models (e.g. mean, ranking, frequency, and correlation). After the survey was closed, all data was converted to Microsoft Excel for manipulation and further analysis (See Chapter 4).

Methodological Limitations

The following paragraph discloses known mythological limitations to the study and potential impacts of those limitations. There are a total of over 154K GCSS-A users in the Army currently, so the 15K-targeted population in this research are merely a sample of the entire population. Members who have elected to join professional online group to collaborate ideas. Within the 154K GCSS-A users population however there are non-Soldiers and US Logistic contract managers that add to the overall total. Considering a 15K target population was identified out of the 154K, it is possible, although unlikely that results of this study do not represent the entire formation; worse yet, the study misrepresents the total 154K. There is no way to know or contact all 154K GCSS-A users to have them fill out a survey or determine their status. The active group members on Social Media who have sought out membership specific to “logistics” and/or “GCSS-A” provide the best course of action for the largest testing possibility.

The research also does not include any of the US Army Aviation Logistics Support community. Every Corps and Division has an Aviation section within its G4 makeup. These Logistic Managers are assigned to Corps and Divisions but would not use GCSS-A and therefore were omitted from the study. Not only may some of these logistic managers have great insights but also they may have received GCSS-A training pertaining to another logistics function or used GCSS-A for forecasting requirements for a different logistics function. This study misses out on
both. The Aviation Support Community are typically tracked however throughout their entire career as Aviation support so the likelihood of such occurrences is small.

Finally, the research’s likert scale take into account COMPOS outside of the Active Duty or non-Corp or Divisional GCSS-A use. This is unavoidable as there is nothing that links the questions of the survey together and conclusion have to be drawn from the data gleaned. Individual answers are used in conjunction with other survey answers. Army National Guard (ARNG) units and US Army Reserve units are not the focus of this study, as they do not train weekly and therefore have completely different day-to-day forecasting requirement needs. There are also several active non-Corps and Division units such as Expeditionary Support Commands or Sustainment Brigades that may in fact preform the function of logistical forecasting for Divisions or Corps but his would be on a case-by-case basis. Under the modularity concept, these sustainment units support their Corps or Division while in Garrison (non-deployed) but are devised to deploy to anywhere in the world and plug into support functions for larger deployed units. These types of specific examples and situations (where this actually happens) are so numerous, that no one-person study could capture all the variables. For this reason units outside of Corps and Divisions are not the focus of this study but still a limitation.
Chapter 4: Data Analysis

Introduction

The collected data from the Surveys distributed through social media using SurveyMonkey is presented in this Chapter in both visual and narrative format. The associated analysis of the data garnered from the surveys is organized and aligned with the research questions presented in previous chapters. In addition to aligning collected data with the research questions, the researcher has presented the findings in tables and charts, explaining the analysis in narrative format, and presents explanations regarding likely reasons for the responses the survey yielded. The analysis adds an extra dimension, delving into the bigger underlying issue of Army modularity and the GCSS-A automation solution associated with modularity, as it relates to the initial problem of senior leaders assuming that the ability to forecast logistics requirements at their level is declining. This assumption at the US Army Corps and Division level is in essence the basis of the research problem and applying Master of Science in Administration core and concentration course content to examine and explain the data results.

Data Presentation and Analysis

This section presents tables, charts, narrative and analysis of the data that was collected to answer the research questions. All tables and figures are included in this chapter rather than as appendices so that readers can observe the visual presentations of the data as it is discussed and analyzed. The data presentation and analysis is organized so that it discusses each research sub-question. A summary of the data analysis is included at the end of the chapter to highlight the major points developed during analysis of collected data.

There were a total of 32 responses from the survey distributed through SurveyMonkey over a two-week period. The researcher was able to link respondent’s answers together and draw
logical conclusions based on the statistics gleaned in the answers.

**Usable Surveys.** Using figures 1, 2, and 3 - Out of the 32 Surveys received back, 27 or 84% were Regular Army with only 15% outside of the studies targeted population (see Figure 3). Of the 84%, 62 were officers, 15% Warrant officers, and another 6% enlisted members. Using Figures 1 and 2, the researcher surmised that 30 total recipients had been assigned to a Division or Corps at some point in their career. Two of the 30, however were junior enlisted members and likely not within the initially targeted population the researcher was after. As assumed there were reservist who responded or responded with their accurate status. Surprisingly, however there were two National Guard Members who responded. Also, Figure 4 indicates that there were at least 20 Regular Army Manager who were not only assigned to a Division or Corps but who were assigned after the implementation of GCSS-A.

*Figure 1. Number of Division / Corps Level Logisticians*

Q1 Have you ever managed US Army Logistics at the Corps or Division level (i.e. finance, maintenance, transportation, materiel / any class of supply, ammunition, Sustainment Automation Support Management (SASMO), etc.) regardless of your Branch (e.g. LG, FI, OD, Combat Arms, etc.)?

Answered: 32  Skipped: 0

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<th>Responses</th>
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<tr>
<td>Yes</td>
<td>87.50%</td>
</tr>
<tr>
<td>No</td>
<td>12.50%</td>
</tr>
<tr>
<td>TOTAL</td>
<td></td>
</tr>
</tbody>
</table>

*Figure 2. Ranks/Grades of Logistics Managers*
Figure 3. Logistics Managers Using GCSS-A By COMPO

Q2 At what grade/rank did you serve as a Logistics Manager at the Corps or Division Level? (Please pick the most recent grade that applies)

<table>
<thead>
<tr>
<th>ANSWER CHOICES</th>
<th>RESPONSES</th>
</tr>
</thead>
<tbody>
<tr>
<td>Senior Enlisted (E7-E9)</td>
<td>6.25%</td>
</tr>
<tr>
<td>Warrant Officer (W1-W5)</td>
<td>15.63%</td>
</tr>
<tr>
<td>Officer (O1-O6)</td>
<td>62.50%</td>
</tr>
<tr>
<td>GS Employee (GS-09 - GS-14)</td>
<td>3.13%</td>
</tr>
<tr>
<td>Yes but I am/was a junior enlisted member, a GS employee below the grade of GS-09, or a contractor</td>
<td>6.25%</td>
</tr>
<tr>
<td>No – I have never managed logistics at the Corps or Division Level</td>
<td>6.25%</td>
</tr>
<tr>
<td>TOTAL</td>
<td>32</td>
</tr>
</tbody>
</table>

Q3 At what US Army COMPO Level were you assigned to when you managed Corps or Division level logistics using GCSS-A (Please choose the most recent COMPO scenario that applies)

<table>
<thead>
<tr>
<th>ANSWER CHOICES</th>
<th>RESPONSES</th>
</tr>
</thead>
<tbody>
<tr>
<td>Regular Army</td>
<td>84.38%</td>
</tr>
<tr>
<td>National Guard (Regardless if on/off Active Duty Status)</td>
<td>6.25%</td>
</tr>
<tr>
<td>US Army Reserve (Regardless if on/off Active duty Status)</td>
<td>0.00%</td>
</tr>
<tr>
<td>I was never assigned or worked as a Corps or Division level logistics manager using GCSS-A</td>
<td>0.38%</td>
</tr>
<tr>
<td>TOTAL</td>
<td>32</td>
</tr>
</tbody>
</table>
Logistics Managers Having the Right Experience. According to Table 1, 30 respondents remember having logistics requirements at the Corps or Division. Of the 30, according to both Table 1 and Figure 5 almost 65% either strongly agreed or agreed that they could forecast logistics prior to GCSS-A. Almost 16% could not forecast logistics requirements prior to GCSS-A. Also according to Figure 5, another 28% offered an indifferent response if they were able to forecast requirements prior to GCSS-A by marking “neither agree or disagree.” These individuals may have had others do the forecasting. The researcher acknowledges the world “you” may have been confusing to some in questions 11 which may be the cause of this.
Surprisingly, according to Figure 8, 21% of the respondents thought sustainment units utilized GCSS-A to forecast logistics better than Divisions or Corps. The 65% who could forecast prior to GCSS-A would indicate that respondents were logistics managers with the appropriate skills and experience to forecast logistics at the Division or Corps level.

*Table 1. The Division Corps Logistics Forecast Requirement before GCSS-A*

Survey Question #: 10 Have you or your section ever been tasked to provide forecasts for logistics requirements at the Corps or Division level prior to the implementation of GCSS-A (before the year 2012)?

<table>
<thead>
<tr>
<th>ANSWER CHOICES</th>
<th>RESPONSES</th>
</tr>
</thead>
<tbody>
<tr>
<td>My section was often required and able to provide logistical forecasts prior to GCSS-A implementation</td>
<td>50.00% 16</td>
</tr>
<tr>
<td>My section was rarely required but able to provide logistical forecasts when needed prior to GCSS-A implementation</td>
<td>0.00% 0</td>
</tr>
<tr>
<td>My section was required but could not provide logistical forecasts prior to GCSS-A implementation</td>
<td>15.63% 5</td>
</tr>
<tr>
<td>Nor my section or I were ever tasked to provide logistical forecast for my unit prior to the GCSS-A implementation</td>
<td>6.25% 2</td>
</tr>
<tr>
<td>My section or I provided logistical requirements to my unit even though there was never an existing requirement prior to GCSS-A</td>
<td>21.88% 7</td>
</tr>
<tr>
<td>I have never been assigned to a Corps or a Division unit</td>
<td>6.25% 2</td>
</tr>
<tr>
<td>TOTAL</td>
<td>32</td>
</tr>
</tbody>
</table>

*Figure 5. Logistics Managers’ Ability to Forecast Prior to GCSS-A*

Q11 Were you able to forecast logistical requirements for your unit (while assigned to a Corps or Division) prior to the implementation of GCSS-A?

<table>
<thead>
<tr>
<th>ANSWER CHOICES</th>
<th>RESPONSES</th>
</tr>
</thead>
<tbody>
<tr>
<td>Strongly Agree</td>
<td>37.50% 12</td>
</tr>
<tr>
<td>Agree</td>
<td>28.13% 9</td>
</tr>
<tr>
<td>Neither Agree or Disagree</td>
<td>28.13% 9</td>
</tr>
<tr>
<td>Disagree</td>
<td>6.25% 2</td>
</tr>
<tr>
<td>Strongly Disagree</td>
<td>0.00% 0</td>
</tr>
<tr>
<td>TOTAL</td>
<td>32</td>
</tr>
</tbody>
</table>
Figure 6. Logistics Managers Requirements to Forecast into the Future

Q19 I feel the requirements that my unit sets forth for logistics forecasting (requirements set in future timeframes) are unrealistic.

Answered: 32  Skipped: 0

<table>
<thead>
<tr>
<th>ANSWER CHOICES</th>
<th>RESPONSES</th>
</tr>
</thead>
<tbody>
<tr>
<td>Strongly Agree</td>
<td>9.38%</td>
</tr>
<tr>
<td>Agree</td>
<td>21.88%</td>
</tr>
<tr>
<td>Neither Agree or Disagree</td>
<td>34.38%</td>
</tr>
<tr>
<td>Disagree</td>
<td>28.13%</td>
</tr>
<tr>
<td>Strongly Disagree</td>
<td>6.25%</td>
</tr>
<tr>
<td>TOTAL</td>
<td></td>
</tr>
</tbody>
</table>

Figure 7. The Level of Detail Logistics Managers Are Required to Forecast

Q20 The requirements (the level of detail) that my unit sets forth for logistics forecasting are unrealistic?

Answered: 32  Skipped: 0

<table>
<thead>
<tr>
<th>ANSWER CHOICES</th>
<th>RESPONSES</th>
</tr>
</thead>
<tbody>
<tr>
<td>Strongly Agree</td>
<td>9.38%</td>
</tr>
<tr>
<td>Agree</td>
<td>6.25%</td>
</tr>
<tr>
<td>Neither Agree or Disagree</td>
<td>43.75%</td>
</tr>
<tr>
<td>Disagree</td>
<td>34.38%</td>
</tr>
<tr>
<td>Strongly Disagree</td>
<td>6.25%</td>
</tr>
<tr>
<td>TOTAL</td>
<td></td>
</tr>
</tbody>
</table>
GCSS-A Training Not As Originally Advertised. The initial training of GCSS-A appears to be insufficient according to Figure 9 with only 16 of the 32 respondents believing that they could forecast logistics requirements using GCSS-A. Only five respondents felt strongly that they were untrained. Figure 10 is the big reveal however with 58% or 19 of the respondents claiming to be unsure, barely able or unable to forecast logistics using GCSS-A which would indicate that training has less than a 50% success rate. Also in Figure 11, 34% or 11 respondents claimed to not have received training at the Division or Corps level. It can be assumed that those were not even assigned to the Division marked neither agree or disagree because the question did not apply to them. It can then be summarized that Division and/or Corps level managers (primarily officers) are not getting trained appropriately or trained at all. Logistics managers in at least two COMPOSs appear to “agree” that training was ineffective in relating the skills needed
for the interpretation of reportable GCSS-A data in reports, and the necessary knowledge of the system to forecast logistics at the respective level.

*Figure 9. Logistics Forecasting Requirements Outside of GCSS-A*

*Figure 10. Managers Individual Competence to Forecast Logistics Using GCSS-A*
Figure 11. Managers Experience with Forecasting at Division / Corps prior to GCSS-A

Q14 You have been trained to use GCSS-A to forecasted logistics at the Corps, Division or Brigade Level?

Table 2. GCSS-A Implementation Training Not Sufficient or Non-Existent

Survey Question #15 Do you think you received the appropriate level of GCSS-A training during the ERP’s implementation, allowing you to understand your unit’s data/reports enough to forecast logistics requirements (as required)?

<table>
<thead>
<tr>
<th>ANSWER CHOICES</th>
<th>RESPONSES</th>
</tr>
</thead>
<tbody>
<tr>
<td>Strongly Agree</td>
<td>3.13% 1</td>
</tr>
<tr>
<td>Agree</td>
<td>21.88% 7</td>
</tr>
<tr>
<td>Neither Agree or Disagree</td>
<td>34.38% 11</td>
</tr>
<tr>
<td>Disagree; I barely understand the system</td>
<td>6.25% 2</td>
</tr>
<tr>
<td>I have not been trained on GCSS-A</td>
<td>34.38% 11</td>
</tr>
<tr>
<td>TOTAL</td>
<td>32</td>
</tr>
</tbody>
</table>
Personnel Shortages. According to Figure 12, only 40% of respondents feel they have the appropriate number of assigned personnel to do all missions and fulfill all requirements. Table 3 indicates that most respondents felt their section had its required number of authorized personnel. Table three also indicates that 25% of the respondents believe they have less than 60% of their required personnel to perform their sections mission. This is in accordance with current Army readiness guidance in that units are manned up until a certain point if they are not deployable, typically lower in a non-wartime status. This could indicate an immerging or decline readiness shortfall. Due to Army modularity, which began around 2007, forecasting capabilities that once resided in the Division DMMCs, and Corps level G4 sections, have been pushed down to the BCT level. With those lost capabilities, so went the personnel – by design. Division and Corp G4 sections have the appropriate number of personnel needed by the Army’s modularity concept, to preform their wartime, Army designated missions. By in large, it can be concluded that G4 sections at both Division and Corps levels are not short personnel based on their respective authorization documents; however, commanders of those units, need to understand were their capabilities lie and augment or adjust as needed. The GCSS-A system cannot circumvent unauthorized personnel desires. Likewise, it was not designed to.
Figure 12. Personnel Shortages within G4 Sections

Q16 Do you have the required number of assigned personnel (for your current mission (e.g. Garrison, Deployed, etc.) within your G4 section, per the unit's TDA or MTOE authorizations?

Answered: 32  Skipped: 0

<table>
<thead>
<tr>
<th>ANSWER CHOICES</th>
<th>RESPONSES</th>
</tr>
</thead>
<tbody>
<tr>
<td>Strongly Agree</td>
<td>3.13%</td>
</tr>
<tr>
<td>Agree</td>
<td>37.50%</td>
</tr>
<tr>
<td>Neither Agree or Disagree</td>
<td>21.86%</td>
</tr>
<tr>
<td>Disagree</td>
<td>31.25%</td>
</tr>
<tr>
<td>Strongly Disagree</td>
<td>6.25%</td>
</tr>
</tbody>
</table>

TOTAL 32

Table 3. There Are Enough Personnel In G4 Sections

Survey Question #17: Do you feel that you have the appropriate number of personnel in your G4 section to manage day-to-day logistical operations, future logistics operational planning, and managing logistics data for forecasting?

<table>
<thead>
<tr>
<th>ANSWER CHOICES</th>
<th>RESPONSES</th>
</tr>
</thead>
<tbody>
<tr>
<td>Strongly Agree; all slots are filled</td>
<td>6.25%</td>
</tr>
<tr>
<td>Agree; we have at least 80% of our personnel</td>
<td>48.68%</td>
</tr>
<tr>
<td>Neither Agree or Disagree; I don't know</td>
<td>21.88%</td>
</tr>
<tr>
<td>Disagree; we have less than 60% of our personnel, barely make mission</td>
<td>25.00%</td>
</tr>
<tr>
<td>Strongly Disagree; we are extremely short personnel, cannot make mission</td>
<td>0.00%</td>
</tr>
</tbody>
</table>

TOTAL 32
Survey Question #21 Do the appropriate people within the US Army Corps and Divisional G4 sections receive the necessary GCSS-A information/reports needed for forecasting logistics for the current mission?

The GCSS-A Forecasting Requirement. As represented in Tables 5, 6, and 7 forecasting requirements at the Division and/or Corps level are more unlikely than not. Table 5 indicates there is a 50% chance of a requirement. Table 6 indicates the same 50% however an additional 21% claim to only get sporadic requirement here and there. Table 7 is also inline with Table 6’s data. Using all tables 5, 6, and 7 it is difficult to determined the requirement that does exists – its either between monthly or quarterly.

Table 5. No Requirement to Forecast Into the Future Using GCSS-A
Survey Question #6: How far in advance have you or your section been required by your Commander / Supervisor to forecast logistic requirements using GCSSA?(Choose the timeframe that applied most often)
Table 6. No Requirement to Forecast with GCSS-A at the Corps and Division Level
Survey Question #7: How often are you or your section required by your supervisor or commander to provide logistical forecast using GCSS-A (choose the timeframe that most often applies)?

<table>
<thead>
<tr>
<th>ANSWER CHOICES</th>
<th>RESPONSES</th>
</tr>
</thead>
<tbody>
<tr>
<td>I am required to provide logistics forecasts using GCSS-A weekly</td>
<td>6.25%</td>
</tr>
<tr>
<td>I am required to provide logistics forecasts using GCSS-A Monthly</td>
<td>15.63%</td>
</tr>
<tr>
<td>I am required to provide logistics forecasts using GCSS-A Annually</td>
<td>6.25%</td>
</tr>
<tr>
<td>I am required to provide logistics forecasts using GCSS-A sporadically and request vary</td>
<td>21.88%</td>
</tr>
<tr>
<td>I am not required to provide logistic forecast using GCSS-A</td>
<td>50.00%</td>
</tr>
<tr>
<td>TOTAL</td>
<td>32</td>
</tr>
</tbody>
</table>

Table 7. Only a Minor Logistics Forecast Requirement Exists
Survey Question #9: How often are/were you or your section required by your supervisor or commander to provide logistics forecast using any other program, system or method (that excludes GCSS-A) for logistical forecasting (choose the timeframe that most often applies)?

<table>
<thead>
<tr>
<th>ANSWER CHOICES</th>
<th>RESPONSES</th>
</tr>
</thead>
<tbody>
<tr>
<td>I am required to provide logistics forecasts outside of GCSS-A Scope weekly</td>
<td>15.63%</td>
</tr>
<tr>
<td>I am required to provide logistics forecasts outside of GCSS-A Monthly</td>
<td>28.13%</td>
</tr>
<tr>
<td>I am required to provide logistics forecasts outside of GCSS-A on an annual basis</td>
<td>0.00%</td>
</tr>
<tr>
<td>I am required to provide logistics forecasts outside GCSS-A sporadically and request vary</td>
<td>12.50%</td>
</tr>
<tr>
<td>I am not required to provide logistic forecast using any other system, program or method outside of GCSS-A</td>
<td>43.75%</td>
</tr>
<tr>
<td>TOTAL</td>
<td>32</td>
</tr>
</tbody>
</table>

Managers Who Forecast Using GCSS-A. According to Table 8, 38% of managers claimed to have to still use other programs to forecast Army logistics. Its important to note that this could include systems like SAAS-MOD. This 38% in table 8 does however correlate with data in Table 9 that suggests that GCSS-A reports only do not allow managers to forecast, they use a hybrid of other systems or reports to gain the information they need.
**Table 8. Logistics Managers are Using GCSS-A to Forecast Logistics**

Survey Question #8: How often do you or your section use GCSS-A to forecast logistics requirements (Choose the answer that applies most often)?

<table>
<thead>
<tr>
<th>ANSWER CHOICES</th>
<th>RESPONSES</th>
</tr>
</thead>
<tbody>
<tr>
<td>I frequently use GCSS-A for logistical forecasting for my unit</td>
<td>31.25%</td>
</tr>
<tr>
<td>I seldom use GCSS-A for logistical forecasting for my unit</td>
<td>25.00%</td>
</tr>
<tr>
<td>I never use GCSS-A for logistics forecasting; because I am not required to</td>
<td>6.25%</td>
</tr>
<tr>
<td>forecast logistical requirements</td>
<td></td>
</tr>
<tr>
<td>I do not use GCSS-A for logistic forecasting because it does not allow me to</td>
<td>3.13%</td>
</tr>
<tr>
<td>Provide the type of forecasting I am required to report on</td>
<td></td>
</tr>
<tr>
<td>I do not know how to use GCSS-A to forecast logistical requirements; I use</td>
<td>34.38%</td>
</tr>
<tr>
<td>other systems, programs, or methods</td>
<td></td>
</tr>
<tr>
<td><strong>TOTAL</strong></td>
<td><strong>32</strong></td>
</tr>
</tbody>
</table>

**Table 9. GCSS-A Reports are Not Enough to Forecast Division / Corps Logistics**

Survey Question #18: Are the reports in GCSS-A sufficient enough (by themselves) to forecast logistics requirements for your unit?

<table>
<thead>
<tr>
<th>ANSWER CHOICES</th>
<th>RESPONSES</th>
</tr>
</thead>
<tbody>
<tr>
<td>The GCSS-A reports are sufficient enough to forecast all logistical requirements I need for my unit</td>
<td>6.25%</td>
</tr>
<tr>
<td>The GCSS-A reports are not sufficient enough to forecast all the logistical requirements I need; so I use</td>
<td>37.50%</td>
</tr>
<tr>
<td>a hybrid of GCSS-A reports and other data from other systems to better forecast logistical requirements for my unit</td>
<td></td>
</tr>
<tr>
<td>The GCSS-A reports are not sufficient and I must get other outside reports to forecast logistical</td>
<td>12.50%</td>
</tr>
<tr>
<td>requirements for my unit</td>
<td></td>
</tr>
<tr>
<td>I do not use GCSS-A reports to forecast logistics for my unit because I do not have the requirement to</td>
<td>21.88%</td>
</tr>
<tr>
<td>forecast logistics</td>
<td></td>
</tr>
<tr>
<td>I do not know how to use GCSS-A reports to forecast logistics for my unit</td>
<td>21.88%</td>
</tr>
<tr>
<td><strong>TOTAL</strong></td>
<td><strong>32</strong></td>
</tr>
</tbody>
</table>

**GCSS-A’s Ability to Forecast Corps and Division Logistics.** GCSS-A is a very capable system. According to Table 10, 25% of the respondents are able to forecast out logistics requirement every quarter using GCSS-A. In the same table, 15% of the respondents are able to forecast logistics requirement for a year. This would suggest that the system is capable however due to training or personnel shortfalls, Divisions and/or Corps are unable to use the system properly. Based on open ended questions, GCSS-A also, currently lacks the ability to input historical data to augment real-time data. It also does not encompass all classes of supply and logistical functions. Due to these facts, the system is still in a nascent stage and capabilities are still being developed to assist Army logisticians. The Army’s ammunition automations system, SAAS-MOD just received a recent update and it’s been in existence for several years. Research
suggests, that the GCSS-A system allows logistics managers to forecast at the tactical level.

Some can argue that the Division is the breaking point of the tactical level into operational level, thus the system is not designed for direct forecasting at those levels. Sometimes big data can be just that – “big data that’s just too big!”

Table 10. Only GCSS-A Optimally Allows For Quarterly Forecasts

Survey Question #5: How far in advance have you or your section been able to forecast reliable logistical requirements using GCSS-A?

<table>
<thead>
<tr>
<th>ANSWER CHOICES</th>
<th>RESPONSES</th>
</tr>
</thead>
<tbody>
<tr>
<td>Can only forecast requirements into the next upcoming Week</td>
<td>9.36%</td>
</tr>
<tr>
<td>Can only forecast requirements for the upcoming Month</td>
<td>0.00%</td>
</tr>
<tr>
<td>Can only forecast requirements for the upcoming Quarter</td>
<td>25.00%</td>
</tr>
<tr>
<td>Can forecast requirements out to a Year</td>
<td>15.63%</td>
</tr>
<tr>
<td>As far out as I wish</td>
<td>0.00%</td>
</tr>
<tr>
<td>I am not able to forecast logistical requirements using GCSS-A</td>
<td>50.00%</td>
</tr>
<tr>
<td>TOTAL</td>
<td>32</td>
</tr>
</tbody>
</table>
Chapter 5: Summary Conclusions, and Recommendations

Overview

The researchers’ objective in this study was to determine if post GCSS-A implementation, US Army Logistics Managers at the US Army Corps and Division level are able to forecast logistical requirements at their respective level, given their initial GCSS-A training. The following sub-questions were:

1. Do Logistics managers at the US Army Corps and Divisional level have the appropriate mix of knowledge and past experience in combat logistics to capitalize off of the GCSS-A available capabilities?

2. Do US Army Corps and Divisional G4 (Logistics) Sections have the appropriate number of personnel utilizing GCSS-A for day-to-day logistics operations and future logistical planning for combat operations?

3. Do Logistics Managers at the US Army Corps and Division level feel their initial GCSS-A implementation training was sufficient enough for logical forecasting in the respective units for which they were assigned?

4. Do the appropriate people within the US Army Corps and Divisional G4 sections receive the necessary GCSS-A information / reports needed for logistical data analysis and forecasting for combat operations?

5. What solutions can the US Army or AESIP, PEO EIS implement to better capitalize off of the new GCSS-A ERP in order to be more proactive rather than reactive? The research
questions governed the development of two hypotheses which were:

Hypothesis #1:

The US Army Logistic managers at the Corps and Division level did not receive enough initial GCSS-A training during implementation; however, Logistic managers can forecast logistics for their unit if training is implemented and personnel are authorized.

Hypothesis #2:

There are other factors besides GCSS-A training that inhibits Corps and Division Managers from forecasting logistics requirements at their level.

This chapter summarizes the key findings of the literature review and data collected as they relate to the research questions and hypotheses followed by a discussion of conclusions and recommendations. The final section of this chapter includes suggestions for future research topics.

Summary

**Usable Survey Data.** Out of the 32 Surveys, the researcher was primarily able to draw the conclusion that the responsibility of GCSS-A forecasting at the Division and Corps is misplaced and that this requirement should not go beyond the Brigade Combat Teams (BCTs). BCT’s logistics forecasts should be determined internally to their organization, sent forward, and consolidated at the Division then Corps level.

**Logistics Managers Having the Right Experience.** Data concludes that logistics managers have the appropriate skills and experience to forecast logistics at the Division and
Corps level, however the Army is no longer set up to deploy as entire Divisions and Corps in totality. Due to the Army’s modularity concept, BCT’s are deploying as piecemealed parts of Divisional units, thus alleviating the need for personnel who forecast using GCSS-A to be assigned to Division and Corps G-4 sections. BCT S4 sections have the capability and experienced GCSS-A personnel to conduct the most accurate logistics forecasting.

**GCSS-A Training Related to Forecasting.** The initial training of GCSS-A appears to be insufficient. Logistics managers in at least two COMPOSs appear are split 50% - 50%” that training was effective in relating the skills needed for the interpretation of reportable GCSS-A data in reports. Training was unsuccessful at relaying the necessary knowledge of the system to forecast logistics at the respective level. The issue the study reveals is that the requirements to forecast logistics at the Division and Corps level using GCSS-A slightly inconsistent with the total Army’s modularity designed total concept.

**Personnel Shortages.** Due to Army modularity, which began around 2007, forecasting capabilities that once resided in the Division DMMCs, and Corps level G4 sections, have been pushed down to the BCT level. With those lost capabilities, so went the personnel – by design. Division and Corp G4 sections have the appropriate number of personnel needed by the Army’s modularity concept, to preform their wartime, Army designated missions. By in large, it can be concluded that G4 sections at both Division and Corps levels are not short personnel based on their respective authorization documents; however, commanders of those units, need to understand were their capabilities lie and augment or adjust as needed. The GCSS-A system cannot circumvent unauthorized personnel desires. Likewise, it was not designed to.

**GCSS-A’s Ability to Forecast Corps and Division Logistics.** GCSS-A is a very
capable system. It currently lacks the ability to input historical data to augment real-time data. It also does not encompass all classes of supply and logistical functions. Due to these facts, the system is still in a nascent stage and capabilities are still being developed to assist Army logisticians. The Army’s ammunition automations system, SAAS-MOD just received a recent update and it’s been in existence for several years. Research suggests, that the GCSS-A system allows logistics managers to forecast at the tactical level. Some can argue that the Division is the breaking point of the tactical level into operational level, thus the system is not designed for direct forecasting at those levels. Sometimes big data can be just that – “big data that’s just too big!”

Conclusions

The issue of forecasting logistics goes back further than just GCSS-A. With GCSS-A, the Army has developed a digital solution for an analog problem. The problem with GCSS-A forecasting at the Division and Corps level its possibly the a matter of who needs to forecast logistics using GCSS-A. The Army has diversified material management as part of its transformation into the modularity concept. There is no longer a higher material management capability beyond the brigade (BCT) level because that Army no longer deploys as a complete, homogeneous divisions and certainly not Corps; it deploys as brigades or smaller. Meaningful, logistics materiel management and forecasting within any Army divisions has now been pushed down inside of maneuver brigades (function is now within the brigade support battalions). Higher forms of command, such as Divisions and Corps, no longer have the capability to manage materiel or tactical level logistics for several reasons. The same is true of Sustainment Brigades (SBDE); US Army logistic managers above the brigade level (i.e. Divisions, Corps Sustainment Brigades and above) are not manned with the appropriate level of personnel to manage Army
materiel using GCSS-A, down at the tactical level within their specific echelon. There is just too much data which is why, brigades do this. So if brigades manage logistics at the tactical level it should be on them to forecasting logistics for the tactical level. It is the brigade combat team that fights the tactical fight, knows what it needs and when. Those reports should filter up to Division and then to Corps, but forecasting using GCSS-A real-time data should not start at the Division level, again there’s just too much data, too little people, and never enough time. A revamped and lengthy new GCSS-A training program for Division logistics mangers isn’t going to bring the logistics planers and analysts back from the BCTs. Training alone, is not the answer and will not give the Division or Corps G4 sections the ability better utilize real-time for forecasting. The modularity concept (by design) should force brigades to manage and forecast logistics using GCSS-A. Those brigades forecast reports should then be sent to Division and finally up to Corps.

The Army must now take a look at the definition of material management and what it actually means. How do logisticians management something they don’t truly know how to define. GCSS-A is a very "capable" system but units need the time and resources (manning) to use the system effectively in managing material. There is a huge training and knowledge gap that a "system" is not going to fill. The Army has a extensive road of education ahead to shift from a “rental car mentality” to effectively managing the materiel at the appropriate level that units have been authorized to carry or procured over time.

Recommendations

The following are recommendations based on the researchers conclusions. There are several aspects this study explored from personnel, to training to GCSS-A system capabilities. Below are three recommendations based upon answers and interoperations of the data from the study.
First, is education of older commanders, Soldiers, and Leaders who were in Divisional and Corps units prior to 2007. Leaders, who served in Divisions and Corps prior to 2007 or GCSS-A implementation, remember the Division Material Management Centers. In the article titled “Where’s My MMC” by LTG Stevenson (retired) touches on the fact that the MMC’s have dissolved due to modularity. The DMMC’s mission was to provide division units with centralized and integrated materiel management for Class I, II, III, IV, V, VII, and IX supplies and maintenance. With modularity, DMMC no longer exist. G4 sections have to integrate training and an educational program initially when new commanders come in. This will set the tone for G4 sections capabilities and commander expectations. If commanders expect the same DMMC capability, they need to lead the effort to consolidate BCT S4, Sustainment BDE S4, Division G4 and/or Corps G4 sections (as applicable to) to create the synergy they need.

Next, the issue of classified data could be a possible issue. As units consolidate their data at the Division and Corps level using their Unit Equipment Readiness Listing (UERL) and begin to integrate information into monthly unit status reporting, equipment readiness becomes a matter of classification. Consolidated S-Level’s at the Division and Corps levels should be considered “classified” because it directly relates to a unit’s aggregated equipment status. According to AR 525-30 and 220-1 Army Strategic Readiness and Unit Status Reporting vaguely touch on GCSS-A consolidated data. Managers at those levels need to clearly understand the security risks incurred by consolidating certain points of data. Again, education is key. The G2 (Security Manager) and G3 USR Officer need to also be educated on GCSS-A consolidated reports at the respective levels.

Finally, the Army as well as individual units, should develop reintegration GCSS-A training programs for logistics offices coming back onto Division or Corps level staffs who have
been out of the logistics field for several years. With 62% of the survey respondents acknowledging they were officers, it’s a known fact that officer move in and out of both command and various types of staff jobs – not always logistics positions (even as logisticians). A GCSS-A training plan should be developed a re-fresher course. GCSS-A forecasting should also be integrated into School of Advance Military Science Programs (SAMS). These Programs such as Advanced Strategic Planning and Policy Program (ASP3) and Advanced Military Studies Program (AMSP) are programs designed specifically for Army thinkers who will go as planners into 2, 3, and even 4 star command echelon’s. Having the concept of where and how to gather GCSS-A reports in order to forecast could prove useful, especially for LOG Planners (for enlisted members too). The researcher recommends units develop internal GCSS-A training on-boarding classes at Division and Corps levels as well.

**Senior Logistician Need to Build Their GCSS-A Knowledge Up.** The Combined Arms Support Command (CASCOM) Fort Lee, VA Sustainment Unit One Stop offers referrer training on GCSS-A from Division level positions down to the Brigade Support Battalion (BSB). Assistance can be found at: http://www.cascom.army.mil/g_staff/g3/SUOS/index.htm

CASCOM Mission is it trains, educates and grows adaptive sustainment professionals; develops and integrates innovative Army and Joint sustainment capabilities, concepts and doctrine to enable Unified Land Operations.

**Future Research Suggestions**

For future research suggests, firstly, the research would strongly recommend research into the how well GCSS-A provides financial auditability. It is easy to say the system saves thousands if not millions of dollars. It is difficult to say “this” if financial auditability was difficult to achieve before, how does one measure against something that wasn’t previous
measured or measured incorrectly. The researcher was unable to gain financial data on exactly how much the system has saved and perhaps because implementation was recently completed army wide so that would have been a moving target. Now that all units have GCSS-A, data should exist for the end of fiscal year 2018.

Next, a topic certainly worth exploring is the possible uses of GCSS-A data related to vulnerability. A study should be conducted on the cyber-security of the GCSS-A system as a whole (which may have been conducted). Additionally, as GCSS-A relates to Army readiness a study should examine vulnerabilities of consolidated GCSS-A data at the Division and Corps level considering the ERP is unclassified but for official use only and perhaps the security level should rise depending. A war-gaming scenario should be explored.

Finally, there is a need to examine if there are better ways for the sister service logistics ERPs to merge and share data for oversight and forecasting. This examination could primarily apply for GCSS-A but SAAS-MOD as well. The 2018 US Index of Military Strength Assessment points out that the demands of the war has prompted all military services to develop operations, command and control organizations, equipment, doctrine, and training to facilitate joint operations. However, while military operations and campaigning are now joint, many other aspects of military operations including logistics are often done as single-service activities or only loosely integrated (Wood, et al., 2018). How well (if at all) does GCSS-A tie into other sister services’ ERP logistics systems (i.e. the Air Force, Navy, Marines)? Table 11 references all sister services’ ERPs that manage logistics, finance, or both.
Table 11. Finance and Logistics ERP Systems within DoD (Ketrick et al., 2011)

<table>
<thead>
<tr>
<th>Service/Agency</th>
<th>Program</th>
<th>Vendor</th>
<th>Primary Focus</th>
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<td>GCSS-Army</td>
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<td>Navy ERP</td>
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<td>Other Defense Agencies</td>
<td>DAI</td>
<td>Oracle</td>
<td>Financial</td>
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</table>
Definition of Terms

The following are a list of terms of references that assists the reader in better understanding Army terminology and GCSS-A acronyms that are commonly used within the Army logistician profession but not necessarily understood in layman terms outside of the Army GCSS-A operating environment:

**Echelons Above Brigade (EAB):** An Army Unit that is above the Brigade level. Typically operates at the Operational or Strategic level of combat and is at least a 1-star general command. In this case, logistics units such as Sustainment brigades are included in the definition but this certainly includes, ESC, TSC, DLA, DCMA, ACC, ASCC, or Strategic level Depots, etc.

**Unit Equipment Readiness Listing (UERL):** Unit Equipment readiness Listing report is used to provide commanders overall equipment on hand (EOH) posture for unit readiness reporting as required by AR 220-1. Use: To provide commanders the overall equipment on hand (EOH) for unit readiness. This report can be tailored and viewed by PBIC/TAC/ERC combination. The UERL report is primarily used during USR reporting period to assist units with viewing their overall equipment posture. Users can tailor this report to view equipment shortages, excess, supply status, DoD Document number and planned ship date as needed. It can also be filtered by UIC, Authorized LIN, Substitution LIN, ERC, REQ, AUTH or assigned columns.
References


Appendices

Appendix A  Permission to Conduct Study
Appendix B  Social Media Post
Appendix C  Survey Consent Form and Cover Letter
Appendix D  GCSS-A Managers Forecasting Logistics Survey
Appendix E  Research Review Application Approval
Appendix A

Permission Letter

DEPARTMENT OF THE ARMY
Office of the Deputy Chief of Staff, G-4
3200 Army Pentagon
Washington, DC 20310-3200

March 14, 2018

Linwood Hilton
4209 Ridge Top Rd
Apt 461
Fairfax, VA 22030

Dear Linwood Hilton:

I have reviewed your request to conduct a research project involving the Global Combat System Support – Army (GCSS-A) and the Survey methodology, that will be used. I feel that this project will be beneficial to Headquarters Department of the Army G4. You have my permission to conduct this study using social media as long as you gain prior consent from those surveyed and persons survey understand this study is not for official US Army research. You are authorized to published only unclassified data and information pertaining to GCSS-A.

The following stipulations should be observed: all surveys will be conducted on your personal time, using non-DoD communication, and all participates must be aware that this research is not an official Army study but rather through Central Michigan University. Also, the results your research must be shared with this section prior to release, and possibly distributed to Army agencies for verification before publishing.

If you have any questions regarding this letter of approval, please give me a call at (703) 695-6160.

Sincerely,

[Signature]

Edward M. Starnacco
Deputy Director, Enterprise Systems
Appendix B

Social Media Post

Linwood Hilton, a graduate student in the Master of Science in Administration Program at Central Michigan University, invites you to take a survey about the training provided during the Global Combat System Support – Army (GCSS-A) implementation and how it prepared managers to forecast logistic requirements at the US Army Corps and Division level. The results of this survey will be completely anonymous as well as any demographic information that could identify participates. This survey is not apart of any official US Army research or study however overall results of the research may be shared with Headquarters Department of the Army (HQDA) or other Department of Defense Agencies to improved training and/or the GCSS-A ERP in the future. Interested participants can access the survey at: https://www.surveymonkey.com/r/9TDY7LJ

Please note that you must be age 18 or older to participate in this study. Thanks for your help with this project. (Submitted by Linwood Hilton, MSA program, phone (915)799-2877, hilto11@cmich.edu).
March 19, 2018

Dear Participant:

My name is Linwood Hilton and I am a graduate student at Central Michigan University. For my final project, I am examining if post Global Combat Support System-Army (GCSS-A) implementation of Wave I & II, logistics managers at the Army Corps level and Army Division level are able to forecast logistical requirements at their respective level, given their initial GCSS-A training. Because you are a member of the US Army logistics community, I am inviting you to participate in this research study by completing this survey.

This Survey is not being conducted by any US Army organization but rather for academia purposes however it is possible that the results may be reviewed by Army agencies for automation or training improvements. The following questionnaire will require approximately ten (10) minutes to complete. There is no compensation for responding nor is there any known risk to participating. In order to ensure that all information remains confidential, please do not include your name anywhere throughout the survey. Copies of the project will be provided to my Central Michigan University instructor and to any other interested participant. If you choose to participate in this project, please answer all questions as honestly as possible and complete the survey by clicking done after the final question. Participation is strictly voluntary and you may refuse to participate at any time.

Thank you for taking the time to assist me in my educational endeavors. Completion of the questionnaire will indicate your willingness to participate in this study. If you require additional information or have questions, please contact me at the number listed below.

Please note that if you are not satisfied with the manner in which this study is being conducted, you may report (anonymously if you choose) any complaints to the MSA Program by calling 989-774-6525 or addressing a letter to the MSA Program, Rowe 222, Central Michigan University, Mt. Pleasant, MI 48859.

Very Respectfully,
Mr. Linwood Hilton (Student) /  
Student Email: hilton1l@cmich.edu / Student Phone: (915)799-2877  
MSA Research Monitor: Dr. Patricia Kelley / Email: kelle1pa@cmich.edu
Appendix D

GCSS-A Managers Forecasting Logistics Survey

The actual survey was available at SurveyMonkey: https://www.surveymonkey.com/r/9TDY7LJ. The following instructions and questions were copied and pasted from the survey into this document. Each group of questions was listed separately and the next question was only accessible when the respondent chooses to move to the next question/screen. Respondents were be permitted to skip questions for any reason.

Survey Instructions:

For the purposes of this survey, please answer each question in accordance with your current or most recent job or duty assignment.

General Definition of Terms:
Logistics Manager: Corps or Division Level Logistics Manager is defined by anyone who has worked for or been assigned to a US Army Corps or Division G4 Section; regardless if you were assigned to a specific section with only one person and did not manage other Soldiers.

Corps or Division: Assignment to a US Army Corps for the purposes of this study constitutes an assignment to 1 of 3 currently Active, US Army Corps in which GCSS-A has been implemented. Assignment to a US Army Division for the purpose of this study constitutes an assignment to 1 of 11 Active Duty Divisions either in CONUS or OCONUS in which GCSS-A has been implemented.

Echelons Above Brigade (EAB): EAB constitutes an assignment at the Sustainment Brigade, ESC, TSC, DLA, DCMA, ACC, ASCC, Strategic, or Depot Level, etc.)

Please answer Questions (01 through 25):

1. Have you ever managed Army Logistics at the Corps or Division level (i.e. Finance, Maintenance, Transportation, Materiel /any Class of supply, Ammunition, Sustainment Automation Support (SASMO), etc.) regardless of Branch (e.g. LG, FI, OD, Combat Arms, etc.)?
   O Yes
   O No

2. At what grade/rank did you serve as a Logistics Manager at the Corps or Division Level?
   (please pick the most recent grade that applies)
   O Senior Enlisted (E7-E9)
   O Warrant Officer (W1-W5)
   O Officer (O1-O6)
   O GS Employee (GS-09 - GS-14)
   O Yes but I am/was a junior enlisted member, GS employee below the grade of GS-09, or a contractor)
O No – I have never managed logistics at the Corps or Division Level

3. At what US Army COMPO Level were you assigned to when you managed Corps or Division level logistics using GCSS-A (please choose the most recent COMPO scenario that applies)?
   O Regular Army
   O National Guard (Regardless if on/off Active Duty Status)
   O US Army Reserve (Regardless if on/off Active duty Status)
   O I was never assigned or worked as a Corps or Division level logistics manager using GCSS-A

4. At what US Army COMPO Level were you assigned when you managed Corps or Division level logistics without using GCSS-A? (choose the most recent that applies)
   O Regular Army
   O National Guard (Regardless if on/off Active Duty Status)
   O US Army Reserve (Regardless if on/off Active duty Status)
   O I was never assigned or worked as a Corps or Division level logistics manager that did not use GCSS-A

5. How far in advance have you or your section been able to forecast reliable logistical requirements using GCSS-A?
   O Can only forecast requirements into the next upcoming Week
   O Can only forecast requirements for the upcoming Month
   O Can only forecast requirements for the upcoming Quarter
   O Can forecast requirements out to a Year
   O As far out as I wish
   O I am not able to forecast logistical requirements using GCSS-A

6. How far in advance have you or your section been required by your Commander / Supervisor to forecast logistic requirements using GCSS-A? (choose the timeframe that applied most often)
   O I have been required to forecast requirements for each upcoming Week
   O I have been required to forecast requirements for the upcoming Month
   O I have been required to forecast requirements for the upcoming Quarter
   O I have been required to forecast requirements out to a Year
   O I have not been required to forecast logistical requirements with GCSS-A

7. How often are you or your section required by your supervisor or commander to provide logistical forecast using GCSS-A (choose the time frame that most often applies)?
   O I am required to provide logistics forecasts using GCSS-A weekly
   O I am required to provide logistics forecasts using GCSS-A Monthly
   O I am required to provide logistics forecasts using GCSS-A Annually
   O I am required to provide logistics forecasts using GCSS-A sporadically and request vary
   O I am not required to provide logistic forecast using GCSS-A
8. How often do you or your section use GCSS-A to forecast logistic requirements (choose the answer that applies most often)?
   - O I frequently use GCSS-A for logistical forecasting for my unit
   - O I seldom use GCSS-A for logistical forecasting for my unit
   - O I never use GCSS-A for logistics forecasting, because I am not required to forecast logistical requirements
   - O I do not use GCSS-A for logistic forecasting because it does not allow me to provide the type of forecasting I am required to report on
   - O I do not know how to use GCSS-A to forecast logistical requirements; I use other systems, programs, or methods

9. How often are/were you or your section required by your supervisor or commander to provide logistical forecast using any other program, system or method (that excludes GCSS-A) for logistical forecasting (Choose the timeframe that most often applies)?
   - O I am required to provide logistics forecasts outside of GCSS-A Scope weekly
   - O I am required to provide logistics forecasts outside of GCSS-A Monthly
   - O I am required to provide logistics forecasts outside of GCSS-A on an annual basis
   - O I am required to provide logistics forecasts outside GCSS-A sporadically and request vary
   - O I am not required to provide logistic forecast using any other system, program or method outside of GCSS-A

10. Have you or your section ever been tasked to provide forecasts for logistics requirements at the Corps or Division level prior to the implementation of GCSS-A (before the year 2012)?
    - O My section was often required and able to provide logistical forecasts prior to the GCSS-Army implementation
    - O My section was rarely required but able to provide logistical forecasts when needed, prior to GCSS-A implementation
    - O My section was required to but could not provide logistical forecasts prior to GCSS-A implementation
    - O Nor my section or I were ever tasked to provide logistical forecast for my unit prior to the GCSS-A implementation
    - O My section or I provided logistical requirements to my unit even though there was never an existing requirement prior to GCSS-A
    - O I have never been assigned to a Corps or Division Unit

11. Were you able to forecast logistical requirements for your unit (while assigned to a Corps or Division) prior to the implementation of GCSS-A?
    - O Strongly Agree
    - O Agree
    - O Neither Agree or Disagree
    - O Disagree
    - O Strongly Disagree
12. Given your current GCSS-A training, do you think you can forecast logistics requirements for your unit?
   O Strongly Agree
   O Agree
   O Neither Agree or Disagree
   O Disagree
   O Strongly Disagree

13. How well do you think you personally (without assistance) are able to forecast logistics requirements using GCSS-A?
   O Very well; there is not much I cannot forecast
   O I am average; I can forecast some things and not others
   O Not sure
   O I can barely forecast anything using GCSS-A
   O I cannot forecast logistical requirements using GCSS-A

14. You have been trained to use GCSS-A to forecasted logistics at the Corps, Division or Brigade Level?
   O Strongly Agree
   O Agree
   O Neither Agree or Disagree
   O Disagree; I barely understand the system
   O I have not been trained on GCSS-A

15. Do you think you received the appropriate level of GCSS-A training during the ERP’s implementation, allowing you to understand your unit’s data/reports enough to forecast logistics requirements (as required)?
   O Strongly Agree; training gave me a great foundation
   O Agree; there was some things I wish it I was taught
   O Neither Agree or Disagree
   O Disagree; I still barely understand the system
   O I did not receive GCSS-A training

16. Do you have the required number of assigned personnel for your current mission (e.g. Garrison, Deployed, etc.) within your G4 section, per the unit’s TDA or MTOE authorizations?
   O Strongly Agree; all slots are filled
   O Agree; we have at least 80% of our personnel
   O Neither Agree or Disagree; I don’t know
   O Disagree
   O Strongly Disagree

17. Do you feel that you have the appropriate number of personnel in your G4 section to manage day-to-day logistics operations, future logistics operational planning, and managing logistics data for forecasting?
   O Strongly Agree
   O Agree
18. Are the reports in GCSS-A sufficient enough (by themselves) to forecast logistics requirements for your unit?
   O The GCSS-A reports are sufficient enough to forecast all logistical requirements I need for my unit
   O The GCSS-A reports are not sufficient enough to forecast all the logistical requirements I need; so I use a hybrid of GCSS-A reports and other data from other systems to better forecast logistical requirements for my unit
   O The GCSS-A reports are not sufficient and I must get other outside reports to forecast logistical requirements for my unit.
   O I do not use GCSS-A reports to forecast logistics for my unit because I do not have the requirement to forecast logistics
   O I do not know

19. I feel the requirements that my unit sets forth for logistics forecasting (requirements set in future timeframes) are unrealistic.
   O Strongly Agree
   O Agree
   O Neither Agree or Disagree
   O Disagree
   O Strongly Disagree

20. The requirements (the level of detail) that my unit sets forth for logistics forecasting are unrealistic?
   O Strongly Agree
   O Agree
   O Neither Agree or Disagree
   O Disagree
   O Strongly Disagree

21. Do the appropriate people within the US Army Corps and Divisional G4 sections receive the necessary GCSS-A information / reports needed for forecasting logistics for the current mission?
   O Everyone receives the necessary GCSS-A information / reports they need to forecast logistical support
   O Only a portion of the G4 section receives the needed GCSS-A information to forecast; the rest do not
   O No one in the G4 receives the necessary GCSS-A reports or information needed to forecast logistics
   O Everyone receives GCSS-A reports but the reports do not help forecast logistics
   O My G4 Section does not forecast logistics
   O My G4 section receives GCSS-A reports but uses other methods to forecast logistics instead
   O I have never worked in a Corps or Division G4 Section after the GCSS-A
implementation

22. I have worked as a logistical manager at the Sustainment BDE, ESC, TSC, or EAB S4/G4 level and GCSS-A forecasting was much better than at the Corps or Division level by comparison.
   - O Strongly Agree
   - O Agree
   - O Neither Agree or Disagree
   - O Disagree
   - O Strongly Disagree

23. What innovative ways have you seen or heard of, at the Corps or Division level that helped improve logistical forecasting using GCSS-A?
   [Section open for open-ended comments]

24. What solutions can the US Army, your unit, or the Northrop Grumman do better to capitalize off of the new GCSS-A ERP that will allow you to be more proactive in logistical forecasting?
   [Section for open-ended comments]

25. Prize Lottery: Thank you again for taking the survey. As a token of appreciation, you have the option to enter into a prize lottery for a chance to win a free $5 Amazon gift card. A total of three gift cards will be awarded at random. Your email address will not be used for solicitation purposes and will be deleted as soon as the winning gift cards are distributed.

Please enter the email address you would prefer to be contacted on and you will be notified if you are selected: [Section for open-ended comment]
Appendix E

Research Review Application Approval

Dear Linwood,

Your Research Review Application has been reviewed and approved. You may start your data collection. This approval will not expire as long as your topic and methodology remain unchanged. If your topic or methodology changes, please submit a new Research Review Application and supporting documents to your instructor by e-mail.

Please contact your instructor if you have any questions. Also, be sure to check with your instructor concerning the due dates for your project.

Good luck with your project. This is the only notification you will receive. Please keep a copy for your records.

Kim Grabben
Assistant Director, MSA Program

WARNING: This message (including any attachment) may contain confidential information and is intended only for the individual(s) named. Please do not distribute, copy, or forward this e-mail without the permission of the sender. Please notify sender if you received this e-mail by mistake and delete it from your system. Thank you.
# MSA699 FINAL RESEARCH REPORT CHECKLIST

This checklist must be completed by every student and must accompany the submission of the final research report. The list includes detailed instructions and things to check in your report before submitting it for grading. Keep in mind that the capstone report is a culminating activity and the quality is a reflection on you as a graduate student. For that reason this extensive checklist is provided and MUST be used to verify that your report is in the best possible condition.

**Instructions:** Check each item on the list by typing your initials in the first column to verify that you have reviewed and ensured that your final research report is compliant with that item. At the end of the report include your name and your CMU identifier (e.g. kelle1pa). This indicates that you have used the checklist and are compliant with every element.

<table>
<thead>
<tr>
<th>Student Initials</th>
<th>#</th>
<th>Checklist Items</th>
</tr>
</thead>
<tbody>
<tr>
<td>LRH</td>
<td>1</td>
<td><strong>Cover Page</strong>: Ensure that the cover page is revised (from the proposal format) to match the final research report cover page example in the Student Guide to the MSA Capstone Project p. 18 (... submitted in partial fulfillment ....)</td>
</tr>
<tr>
<td>LRH</td>
<td>2</td>
<td><strong>Title</strong>: Ensure that the title of your report is all capital letters.</td>
</tr>
<tr>
<td>LRH</td>
<td>3</td>
<td><strong>Table of Contents</strong>: Update the table of contents and lists of figures and tables so that they match the page numbers for your completed project.</td>
</tr>
<tr>
<td>LRH</td>
<td>4</td>
<td><strong>Changing from Future to Past Tense</strong>: Go through the chapters and change all sentences that refer to the future to past tense. Find any &quot;will&quot; words and change them to paste tense.</td>
</tr>
<tr>
<td>LRH</td>
<td>5</td>
<td><strong>Chapter 1</strong>: In the first chapter, have you provided sufficient contextual/historical background for your issue? A single, double-spaced page is probably insufficient. Is your research issue clearly delineated?</td>
</tr>
<tr>
<td>LRH</td>
<td>6</td>
<td><strong>Chapter 2</strong>: If necessary, expand your literature review. It should be comprehensive and a minimum of 12 pages long. Have you adequately cited references? Is there a concise summary at the end of the chapter?</td>
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<tr>
<td>LRH</td>
<td>7</td>
<td><strong>Chapter 3</strong>: Modify Chapter 3 to describe the procedures that were used to collect data and what happened when those procedures were implemented (e.g., … distributed 120 surveys and 90 surveys were returned …) Change “Data to be Collected” sub-title to “Data Collected” and change “Proposed Data Analysis Approach” to “Data Analysis Approach.”</td>
</tr>
</tbody>
</table>
| LRH              | 8 | **Chapter 4**: Make sure that Chapter 4 presents and discusses your data and also includes an analysis of the data in the context of your research questions. Do not include your charts and tables as appendices – include them directly in Chapter 4. Use narrative to describe the charts and tables. Most importantly, analyze the data in terms of how it answers your research questions. Explain interest and unusual dimensions and characteristics of your data. Did you collect real data (numbers and objective facts)? Have you effectively summarized and displayed your data? Is there analysis of the data in
relation to your research questions included in Chapter 1? What does the data communicate in terms of your research problem and sub-problems? Remember that you need to have quantitative analysis of some sort to meet the MSA699 requirement.

Do not make the reader go to an appendix to see your charts, tables or other illustrations. Include them directly into Chapter 4.

For open-ended questions (which are very useful) structure the responses in a frequency table, with the topic/issue in column 1 and the number of respondents that discussed that issue in the open-ended question listed in column 2.

**LRH 9 Chapter 5:** Don't cut chapter 5 too short. When developing the Chapter imagine that you have to give a presentation to senior leadership, but they do not have access to the earlier chapters. You must lay out the entire study in this chapter – the questions, the key points from the literature and data analysis, the answers to the questions and the associated recommendations. This is very important, especially in the eyes of the second faculty reader – you must provide management with a prescription to address the problem that was laid out in your paper.

**Summary Sub-Section:** Summarize the key points from Chapter 2 Literature Review and Chapter 4 Data Analysis and indicate how those points related to the research questions.

**Conclusions Sub-Section:** Answer the research questions presented in Chapter 1.

**Recommendations Sub-Section:** Include at least 3 recommendations and ensure that they are sufficiently detailed and explain how they should be implemented.

**LRH 10 Executive Summary:** After writing Chapters 4 and 5 add an executive summary at the front of your report, behind the cover page but ahead of the Table of Contents. Make sure the executive summary includes the research questions, conclusions and recommendations. It should be comprehensive 1-to-2 page executive summary that presents the research questions and conclusions (answers) and summarizes your recommendations.

**LRH 11 References:** Ensure that the References section is located immediately after Chapter 5 and before any appendices. The references title should be centered on the first line. All references included in this section MUST be formatted as “Hanging Indentation” style. Check Google to understand this format if you are not clear about it. Double-space the references

**LRH 12 Appendices:** If you used a survey include the survey consent form and survey as an appendix. If you conducted interviews include the consent form and interview questions as an appendix. Include your RRA approval e-mail as an appendix.

**LRH 13 Writing:**
- Ensure that there are NO one-sentence paragraphs
- Ensure that there are NO one-paragraph sub-sections
- Avoid extensive use of bullet lists
- Ensure that all sub-sections have transition paragraphs
- Ensure that all sentences are complete sentences
- Address all grammatical problems and issues – absolutely have someone you trust review and edit the report. Also take advantage of the CMU Online Writing Center.

<table>
<thead>
<tr>
<th>LRH</th>
<th>14 Formatting:</th>
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<tbody>
<tr>
<td></td>
<td>• Ensure that everything in the research report is double-spaced, including the references</td>
</tr>
<tr>
<td></td>
<td>• Verify that all margins are 1” – no smaller or larger</td>
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<tr>
<td></td>
<td>• All content must be left-justified – do not include “block justify” content</td>
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<td>• All chapters must start on a new page</td>
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Motivational Note:

Keep in mind that many students do not complete this class in the allotted 16 weeks. It is difficult for me to rationalize why this would be the case since you only have to do the things I noted above, which likely do not account for more than 20-30 hours overall. I attribute the high incompletion rate to procrastination. Do not become one of my statistics. Accomplish the mission. Then you can get your MSA degree and move forward with other exciting opportunities.

Your name: Linwood Hilton
CMU ID (hilto11@cmich.edu):
Date When You Finalized this Checklist: 15 April, 2018
**MSA 699 Capstone Report Grading Criteria**

The following information is provided for you information only and should be deleted from your research final report. This is the grading criteria used by your instructor (research monitor) and the second reviewer to grade your final capstone report. Consequently, ensuring that your writing satisfies each grading element is a wise idea.

<table>
<thead>
<tr>
<th>Assessment (relationship to concentration) 10% (10 points)</th>
<th>Select the matching concentration measures from drop down menu for the first two items</th>
</tr>
</thead>
<tbody>
<tr>
<td>GA--Evaluate organizational environment</td>
<td>GA--evaluate socio-economic systems</td>
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**Chapter 1, Definition of the Problem 10% (10 points)**

- States the problem concisely and purpose of the research-with background information
- Makes connections to previous research
- Establishes the need to the field of study
- Describes limitations to the study
- Introduction: Problem Statement (Problem Formulation), Purpose of the Study, Research Objectives, Scope, Definition of Terms, Limitations/Delimitations, Appropriately defined hypothesis

**Chapter 2, Literature Review 15% (15 points)**

- Sets out a context for the research
- Evolves in an organized progression
- Builds a sequence of ideas that convey a reasonable argument
- Utilizes and synthesizes current, relevant, and credible sources
- Summarize sources well/cited properly/mix of direct quotes and paraphrase
- Sources are sufficient in number to create the context for the problem and to demonstrate understanding of the problem/issue
- Supports the purpose and direction of the research project

**Chapter 3, Methodology - 10% (10 points)**

- Detailed methods of data collection and analysis provided (if used, secondary data is appropriate and takes a fresh approach to the issue.)
- Identifies the population and selection procedures and explains why this sample was selected
- For a product, explains process for design and development specifications, including monitoring and evaluation of the product (if a product).
- Product suited the needs of the intended target population
- Includes Target Population, Sample Description, Required Resources, (Product Cost and Benefits Analysis if any)
Variables are considered for testing and hypothesis
Methodology is sufficient to adequately test and address the hypothesis

**Chapter 4, Data Analysis - 15% (15 points)**
- Addresses and explains all the data presented. Interpret data
- Provides narrative to explain graphics
- Appropriate statistics used to present/analyze data

**Subtotal**

<table>
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<th>Dimension and Percentage Weight</th>
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**Chapter 5, Summary, Conclusions, and Recommendations - 10% (10 points)**
- Makes interpretations and recommendations based on the data provided
- Integrates findings of the literature with findings of the study that relate to the research objectives
- Makes recommendation(s) to improve the finding of the study
- Draw or state conclusion(s)
- If appropriate, implements recommendation(s)

**References - 10% (10 points)**
- Reflect current scholarship on the problem/issue as well as historical scholarship
- A minimum of 20 scholarly sources utilized within document
- All sources in text of paper are properly listed on the reference page(s)

**Writing/Formatting/Executive Summary - 20% (20 points)**
- Executive summary is two pages or less and describes the entire study
- Demonstrates control of syntax and grammar coherence
- Paragraphs should be focused and connected with transitions
- Proofread for spelling, typing, punctuation
- The project included the preliminary and supplementary, pages required by the Student Guide to the MSA Capstone Project: Title page, Appendix, List of References. Recommended: Minimum of 30 pages excluding tables, graphs, and appendices and 20 References
- References in text and on reference page follow current APA Style/proper citation
- Tables and figures are labeled and numbered according to the latest edition of the APA Style Manual
- Title page, executive summary, table of contents, list of charts and graphs, headings, margins, and spacing conform to the latest edition of the APA Style Manual
- All requirements in MSA Capstone Guide are followed including research approval
- Writing reflects graduate level work