



Modernization of Total Asset Visibility and Lifecycle Management Processes and Tools for Critical Items

Final Report

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Acronyms and Abbreviations

Term	Definition
ABO	Army Budget Office
AGF	Army General Fund
AMC	Army Materiel Command
AR	Army Regulation
ASA (FM&C)	Assistant Secretary of the Army (Financial Management & Comptroller)
AWCF	Army Working Capital Fund
BEM	Business Event Mapping
CIP	Capital Investment Program
CTMA	Commercial Technologies for Maintenance Activities
DFAS	Defense Finance Accounting Service
DLA	Defense Logistics Agency
DOD	Department of Defense
DON	Department of Navy
ERP	Enterprise Resource Planning
EWM	Extended Warehouse Management
GCSS-A	Global Combat Support System – Army
GFEB	General Fund Enterprise Business System
HQ	Headquarters
IM	Inventory Management
IT	Information Technology
JMC	Joint Munitions Command
LMP	Logistics Modernization Program
KPIs	Key Performance Indicators
MAC	Moving Average Cost

MDEP	Military Department
MRO	Maintenance, Repair, and Overhaul
MSCs	Major Subordinate Commands
NAICS	North American Industry Classification System
NCMS	National Center for Manufacturing Sciences
O&M	Operations and Maintenance
ODASD-MR	Office of the Deputy Assistant Secretary of Defense, Materiel Readiness
OMB	Office of Management and Budget
OPA	Other Procurement Army
OSD	Office of Secretary of Defense
PB	PowerBI
PEG	Program Evaluation Group
RDT&E	Research, Development, Test and Evaluation
RIC	Routing Identification Code
RPF	Responsible Party Framework
SAAS	Standards Army Ammunition System
SAG	Sub-activity Group
SAP	System Applications and Products
SFIS	Standard Financial Information Structure
SQL	Structured Query Language
STO	Stock Transport Order
U.S.	United States
VCE	Virtual Contracting Enterprise

1. Executive Summary

The objective of this initiative was to enhance data analytic methodologies and reporting capabilities that enable senior leadership to make more informed decisions through increased visibility into the logistics, sustainment, and readiness munitions posture of the Department of Defense (DOD). The project demonstrated that the application of these principles will lead to more accurate and relevant data, more reliable data analysis, better reporting, and ultimately, more informed decision-making, all of which can be applied in the commercial sector.

The initiative focused on the United States (U.S.) Army Materiel Command (AMC); the provider of materiel (military material and equipment) to the Army. In this capacity, AMC oversees a large, multi-faceted, fast-moving global supply chain. AMC's mission requires it to receive, repair, store, and distribute many thousands of assets, in a wide range of conditions, to support the warfighter and U.S. partners and allies. As such, the integrity of AMC's operational data is of paramount importance to its mission, and by extension, to the security of the nation and allies.

To further emphasize the need for AMC asset visibility and accountability, much of AMC's materiel is either Class V munitions, or components used to manufacture or repair munitions. Military weaponry is growing in complexity and impact each year, with broader and broader usage across the world. As such, it's becoming increasingly important for the government to ensure that munitions-related materiel data is reliable and accurate.

There was another initiative within the DOD, whose progress had a direct impact on the scope of this initiative, financial statement audit readiness. Over the past decade, the DOD has made tremendous progress in advancing the reliability of its financial statements through increased audit testing and remediation efforts. This financial data is the culmination of underlying operational and logistics data and can help the operations community identify shortcomings and risks. For example, "Miscellaneous Gains & Losses" accounting transactions should seldom be used, however, they occur more frequently within the DOD than in the commercial sector. The DOD audit community has found that these transactions are often emblematic of process gaps, that drive operational personnel to deviate from standard operating procedures. This is just one example of how audit data can identify operational risks.

The Army has also driven significant progress towards its goal of achieving positive outcomes for the audits over both of its sets of financial statements: 1) the Army General Fund (AGF) and 2) Army Working Capital Fund (AWCF). The latter financial entity, the AWCF, captures the accounting data generated by the Army's efforts to accomplish two primary objectives: 1) the maintenance, repair, and overhaul (MRO) of Army-managed assets, and 2) manufacturing of certain types of munitions. The vast majority of operations driving those missions are performed and led by AMC, its major subordinate commands (MSCs), and their depots and arsenals. As such, Guidehouse has been able to use AWCF audit-related findings to help identify shortcomings in asset visibility and accountability, then support the development of corrective action plans to remediate these risks. Additionally, Guidehouse has identified other priority risks through internal testing, observation, and recommendations from Army leadership.

This final report highlights some of the specific solutions the team has helped develop and implement, along with their impact to audit readiness objectives, and by extension, the Army and

DOD's ability to maintain high levels of asset visibility and accountability, specifically for munitions. These findings are broadly applicable within the government and commercial sectors.

Funding was secured for the collaborative initiative through the National Center for Manufacturing Sciences (NCMS) Commercial Technologies for Maintenance Activities (CTMA) Program and the Office of the Deputy Assistant Secretary of Defense, Materiel Readiness (ODASD-MR).

1.1 Results

As described in further detail in Section 3.0, Guidehouse designed and implemented numerous solutions that led to resolution of millions of dollars of audit-related data discrepancies and helped change processes and systems to avoid future discrepancies. Some specific examples include:

- Improved data categorization procedures to enable Army to assign responsibility for risk resolution to the right MSC or depot/arsenal.
- Support researching and resolving data variances for key Army inventory controls.
- Increased effectiveness of Army munitions financial reporting procedures.
- Transitioned a key munitions data reconciliation into Advana, a next-gen data analytics platform.
- Developed numerous reports and visuals to inform leadership decision-making.

1.2 Benefits

AMC benefits from the solutions Guidehouse provided which advanced both financial audit and operational goals and objectives. Further, the benefits strengthened the connections between the financial and operations communities, which will lead to improved AMC-generated solutions in the future. Additionally, AMC gained the following benefits:

- System configuration and reporting improvement efforts that can be shared with commercial entities who are utilizing a similar System Applications and Products (SAP) solution for their logistics-based businesses. This will have a broad application across numerous industrial, manufacturing and supply chain management processes that may allow for more streamlined business operations, risk mitigation, and cost reduction. Organizational savings can be passed on to the end consumer.
- Lessons learned on culture change and methods for strategic communications that other DOD entities can apply to their own enterprise.

1.3 Recommendations

AMC has established a robust AWCF Audit Readiness team, led by a group of experienced civilian audit and audit readiness professionals with knowledge of AMC's business operations, how those operations are reflected in financial and operational data, and Army's organizational structure. This team is driving tremendous progress towards Army's financial statement audit objectives, which by extension, drives tremendous projects towards the objectives of this initiative.

Guidehouse recommends that AMC tap into this knowledge to inform operational and logistical risks that arise through audit testing and remediation. Further, this same concept applies to the AGF, other military services, and commercial sector.

Specifically related to AMC, Guidehouse has the following recommendations:

- Continue to develop pipelines, analyses, and dashboards within Army’s pre-existing data analysis environments, including Advana and Vantage. Each receives enormous amounts of relevant data from Army and DOD-operated data systems, which present countless opportunities to develop data analyses that support leadership decision-making, cost savings, and many other initiatives.
- Develop and actively utilize lines of communication between the audit readiness and operational communities, to share insights gained into operations and standard operating procedures.
- Expand upon and maintain data categorization tools, including the AMC Logistics Modernization Program (LMP) Business Event Mapping (BEM) to generate reliable versions of AMC’s transactional data categorization tool across the AGF and other DOD entities. It’s foundational to the identification of the materiality of processes, and by extension, the materiality of process gaps and risks.
- Develop Advana-based visualizations that draw together all of AMC’s effective audit readiness controls to report on the overall posture of specific business processes. This will inform AMC leadership on processes and Army installations with either: 1) more risk than others, who require support and remediation, or 2) significantly less risk whose best practices can be replicated.

An overall recommendation, and as a best practice, is to standardize and review annually all AMC enterprise resource planning (ERP) processes to incorporate updates in information technology (IT) to enhance data-driven solutions. This will also support the AWCF’s audit posture going forward in the years to come.

1.4 Technology Transition

Guidehouse utilized existing Army applications and technology to avoid the need to transition solutions to the government; rather, the solutions have and will continue to remain in the government’s control and ownership. These tools include the Advana and Vantage data analysis environments, and numerous relevant data sources.

1.5 Invention Disclosure

Yes Inventions No Inventions

DD882 Invention Report sent to NCMS

1.6 Project Partners

- Army Materiel Command
- Guidehouse Inc.
- National Center for Manufacturing Sciences (NCMS)

2. Introduction

The management of DOD and Army's munitions lifecycle is costly and complex. The government needs to continue to evolve its analytical tools to match the growing complexity of its munitions and the processes it performs to manufacture, store, and utilize them. Guidehouse, in support of AMC, assisted in the development of improved munitions lifecycle management tools that help promote better data-driven decision-making.

2.1 Background

The U.S. industrial base has spent billions of dollars on IT that would enable logistics management, maintenance and sustainment, financial operations, and numerous other operational processes used for both internal and external supplier systems. Investment in these technologies is intended to improve and streamline business decision-making by giving stakeholders access to more relevant data on which to base their decisions. With the rapid innovation that exists in the IT marketplace, businesses often struggle with investing in and implementing technological upgrades that can work with their current, sometimes dated, systems.

The Army utilizes the LMP, a SAP ERP system that builds, sustains, and generates warfighting capabilities. The system is one of the largest, fully integrated supply chain systems, as well as the largest MRO and IT solutions in the world. LMP sustains, monitors, measures, and improves the national-level logistics production baseline, delivers new and expanded capabilities, and supports DOD and Army ERP integration efforts. LMP is critical to providing an integrated enterprise solution that enables materiel readiness, maintenance and sustainment efforts, asset management and accountability, and provides architecture and acquisition compliancy. The LMP is deployed to more than 50 locations around the world with approximately 23,000 users throughout and related to major subordinate commands, depots and arsenals, as well as the Defense Finance and Accounting Service (DFAS). LMP supports shop floor automation, automatic identification technology, expanded ammunition requirements, strategic Army business transformation goals, and specific DOD directives, such as item-unique identification. Streamlining, innovating and upgrading just a fraction of these IT infrastructure processes would have an impact throughout all AMC functions, and was used to demonstrate applicability of IT technology and process improvement across a wide variety of commercial applications facing similar issues. The Army also utilizes the General Fund Enterprise Business System (GFEBS), which develops, acquires, integrates, deploys and sustains enterprise-wide financial and procurement management capabilities to support the Army's current and future missions. It was the first ERP structure to fully deploy within the Army and is as critical as LMP in AMC's continuous improvement and growth.

Program management expertise integrated users of both GFEBS and LMP to identify problem areas with the current system configuration, reporting capabilities, data reliability, internal controls, system workflow, and business processes that surround the systems. The team then applied analytical tools to catch up outdated systems to practical real-time scenarios that require information to make decisions.

Additionally, the DOD and Army have made significant investments in their data analysis platforms in recent years. Extensive work in the two following platforms was included in this initiative:

- **Advana:** An Office of the Secretary of Defense (OSD) initiative that combines dozens of data load, analysis, and visualization software tools into a cohesive environment that helps DOD entities gather, analyze, and act upon a wide range of financial and operation datasets.
- **Vantage:** An Army tool built upon commercial sector data analysis software that aggregates Army data for analysis and visualization.

2.2 Purpose

The objective was to identify and share insights about data analysis and visualization best practices that organizations can deploy to further improve their asset visibility and accountability. This was accomplished by leveraging organizational knowledge and analytics subject matter expertise, with a focus on the integration of process development with IT and data systems.

2.3 Scope/Approach

Guidehouse employed a collaborative approach, drawing on both government and industry experts, approaches, and best practices. The government provided overall transformation vision, functional knowledge, and information about existing systems, data and business processes and industry participants provided knowledge of innovative business transformation processes and technologies, regulatory requirements, and commercial sustainment, financial, logistics, and maintenance best practices. The approach included initial assessments performed through walkthroughs and discovery with AMC and Army stakeholders. The approach also included the deployment of tools to provide AMC reporting capabilities based on information gained during the tasks.

The scope was focused on AMC's financial and operational data, as key indicators to potential asset visibility and accountability risks.

3. Project Narrative

Guidehouse leveraged Army and DOD’s existing data platforms to build new analysis and visualization tools that help improve total asset visibility and accountability for munitions and other controlled critical items and systems. As an outcome, the team identified and resolved both erroneous balances, and the business process and system logic that drove many of the errors. The efforts that the team worked on centered around the following tasks from the initiative’s Statement of Work.

3.1 Task 1 – Project Management Support

Case Study 1: AMC Responsible Party Framework

Guidehouse leveraged its knowledge of AMC financial and inventory data to develop a Responsible Party Framework (RPF) to enhance its existing inventory controls. When executing monitoring controls for inventory, responsibility for performing research and resolution of discrepancies was not clear due to a variety of factors, such as differences between an asset’s custodian and owner. As a result, certain portions of inventory were not being reviewed in inventory control procedures. To address this gap, Guidehouse performed an assessment of relevant data elements, such as plant, owner routing identification code (RIC), and profit center, to define responsibilities based on a set of criteria. The team performed this in collaboration with subject matter experts across all key AMC MSCs and their underlying depots and arsenals, to develop increased stakeholder buy-in, and to gather the widest range of opinions and subject matter expertise.

As a result, RPF allows AMC to identify a responsible party for any inventory risk or discrepancy within AMC’s robust inventory control framework, improving control effectiveness and reliability. Implementation of the RPF resulted in a significant decrease in discrepancies across controls. Prior to implementation of the control, there were over 1,000 Zero Value Moving Average Cost (MAC) discrepancies within the MAC Monitoring Control, 99% of which were “unassigned” or unreviewed discrepancies. This means that either inconsistent processes or system logic failed to assign and/or calculate a reliable value for these materials, potentially signaling other erroneous data as well.

Since implementing the RPF, the overall number of Zero Value MAC discrepancies has decreased to approximately 250, 71 of which are still considered “unassigned.” The remaining population of unassigned material was submitted via an LMP mass ticket for closure. As Figure 1 depicts, the RPF has led to the resolution of over \$3.5 million dollars of erroneous inventory asset values.

In addition to its RFP, Guidehouse developed and implemented a Plant Management review process to identify inventory balances by warehouse management system, custodian, location, and other criteria used in performance of the audit. Besides providing more visibility of inventory balances, the monitoring procedure also provides more accurate information about on-hand inventory quantities across the AWCF to aide in demand planning and also identifies inventory at decommissioned and virtual plants which may require further action by AMCs MSCs.

UNASSIGNED Population Decrease		
	Prior RP Implementation	After RP Implementation
STOs	2,974	51
MAC	1,126	71
MOD	\$334,933.23	\$0
Plant Management	\$3,254,949.62	\$0

Figure 1. Improvement to MAC Metrics Driven by Better Data Categorization

3.2 Task 2 – Baseline Munitions and Other Controlled Critical Items and Systems Lifecycle Logistics Support

Case Study 2: Munitions Audit Readiness

Guidehouse partnered with stakeholders in the munitions community to support Army in its munitions audit readiness journey implementing improvements that benefit both the audit and ensure the accountability of munitions. The major efforts supported by this initiative relate to financial reporting and physical inventory counts.

The financial reporting of munitions is essential to building a munitions strategy that monitors and can accurately reflect the location, condition, and ownership of munitions. Careful, precise, and accurate accounting and management over long lifecycles is done through financial reporting. When Army can verify that data behind the financial reporting is accurate, it confirms the valuation, location, ownership and condition of the asset. Army munitions is held in two ERP systems, Standard Army Ammunition System (SAAS) and LMP, that do not communicate with each other. To holistically report munitions, Guidehouse worked with the Assistant Secretary of the Army (Financial Management & Comptroller) (ASA (FM&C)), Department of Army G-4, and Army Joint Munitions Command (JMC) to build a financial reporting tool that takes transactions from LMP and SAAS, identifies the financial impact, and ties the transactions that impact the munitions and the stock on-hand together in two systems that previously did not communicate. Through the work Guidehouse supported, Army was able to financially report Army munitions transaction activity instead of just the balances in Fiscal Year 2023 for the first time. With the implementation of the financial reporting process, it allowed the Army's financial statement auditors to test controls using real-time transactions to validate the data being reported, giving Army more accountability for receipt of munitions, munitions turn-ins, condition code changes, physical inventory counts and adjustments, account code changes, and shipments.

Another major focus Guidehouse supported related to the performance of munitions physical inventory counts. Physical inventory count controls verify the existence of assets and should be performed annually. JMC holds munitions for other Services including the Navy, Air Force, and Marines. These munitions can sit decades comingled with Army munitions. Because munitions can stay stagnate for long periods, JMC implemented a sealed site program which allows sites to submit locations that had no activity to be locked and not included in the annual physical inventory count process. In order to continually validate the existence of these munitions, Guidehouse improved the physical inventory count process by implementing an annual sealed site assessment. It gives JMC the tools to validate the movement at locations to make sure sites are actually submitting locations with no activity and meeting the definition of "sealed" and implemented sampling when needed. Enhancing the physical inventory process provides further accountability for munitions.

3.3 Task 3 – Improve Munitions, Other Controlled Critical Items and Systems Lifecycle Sustainment Support

Case Study 3: Army Inventory Transfer and Inventory Count Monitoring

As a part of Guidehouse's efforts, the team performed an assessment over the Stock Transport Order (STO) Monitoring Control. Guidehouse utilized LMP data to determine the average time a STO remained open and compared this to the Army Regulation (AR) 710-2 thresholds. As a result of the assessment, AMC adjusted the monitoring control to align to regulation thresholds. As a result, AMC can identify and close STOs in a timely manner, resulting in less write-offs of material.

The team also performed an assessment over the Physical Inventory Count Monitoring Control. Guidehouse utilized both LMP data and MSC-provided data to document and evaluate the current coverage of the monitoring control which currently only monitors cycle count procedures at depots. As a result of this assessment, AMC has established a working group and remediation plan to implement additional monitoring controls as well as make updates to the comprehensive operating procedure to ensure proper documentation of all count procedures in all warehouse management systems.

Case Study 4: Army Munitions Data reconciliation

Guidehouse supported the development and transition of a reconciliation between the LMP module that reports inventory balances and the module that reports the physical location of munitions, LMP Extended Warehouse Management (EWM), into Advana. This migration involved establishing data pipelines within Advana, building logic to trace from LMP EWM to LMP Inventory Management (IM) for completeness and accuracy, development of automated Structured Query Language (SQL) scripts to establish a repeatable monthly process, and publication of reconciliation metrics to Advana for Army users to perform variance root-cause analysis. Over the course of the following three subsequent periods of reconciliation control execution, the LMP EWM to LMP IM Advana reconciliation control supported the over data integrity improvement by increasing the record match rate from 92.8% to 99.8% by increasing the total number of matched records by 120,268.

3.4 Task 4 – Demonstrate Munitions and Other Controlled Critical Items and Systems Lifecycle Readiness Process Improvements

Case Study 5: Army Data Analytics and Visualizations

Guidehouse supported AMC in analyzing and visualizing data first through development of robust data pipelines that incorporated various ERP systems such as General Fund Enterprise Business System (GFEBs), Global Combat Support System – Army (GCSS-A), LMP, and Virtual Contracting Enterprise (VCE) as the base of the data pipeline. These data pipelines were further enhanced by incorporating stakeholder business rules and data such as crosswalk tables and submission sheets to inject data that was not immediately available in the ERP systems. Figure 2 represents an example of a submission sheet, leveraging Vantage’s Fusion application to capture the spend plans of the various sections of AMC to infuse with the ERP data (blurred, to redact the report).

Guidehouse built these robust data pipelines using PySpark, SQL, TypeScript, Fusion Sheets, and code repositories within Army Vantage. As part of the data governance plan, over 250 health checks throughout the pipeline were implemented to maintain visibility on the schemes, build times, build

Figure 2. Example of “Spend Plan” Submission Sheet

frequencies, and overall health of the data. Varying levels of permissions were used to maintain security and visibility of the datasets in the environment. Additionally, build schedules were applied to the data pipeline to ensure all data referenced the most up-to-date information from the ERP systems and allows for dashboards developed from this data environment to be as close to real-time as possible.

Figure 3 highlights a portion of the data pipeline where GFEBS and GCSSA ERP files were used with crosswalk tables to build several intermediate datasets and eventually joined together to build the initial status of funds dataset. Figures 3 and 4 show how Guidehouse used stakeholder provided spend plans and transformed the provided information to compare the plans against the true execution data in the status of funds datasets.

With automated data pipelines in-place, Guidehouse developed a suite of dashboards and analytics to assist the AMC stakeholders more effectively understand the wholistic picture of their data. Guidehouse used PowerBI and Army Vantage’s Workshop application to build the suite of

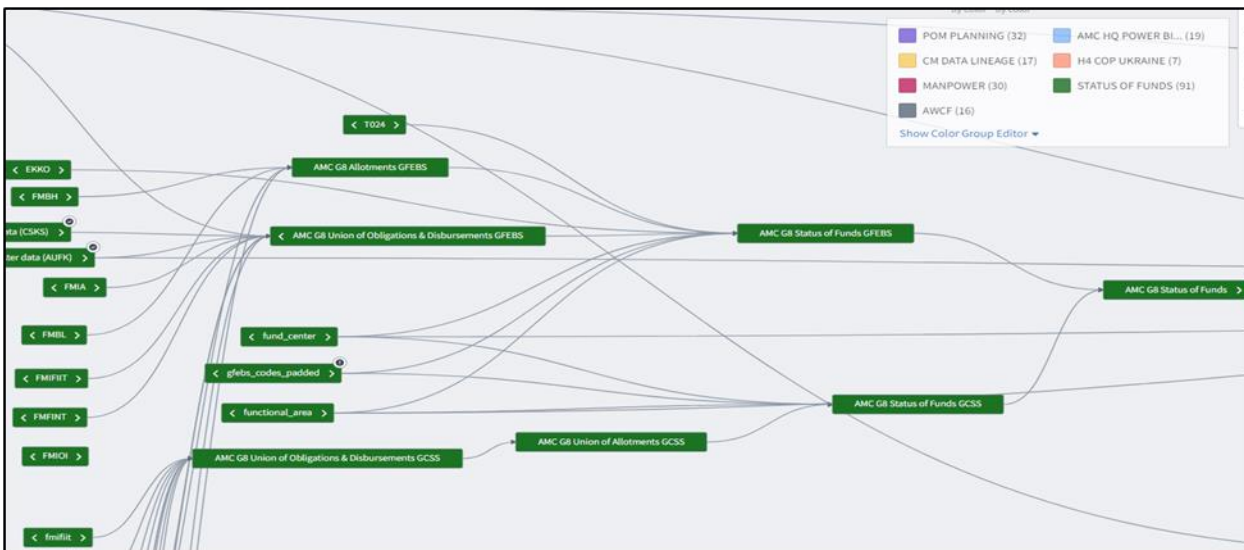


Figure 3. Union of GFEBS and GCSSA ERP Files to Create AMC G8 Status of Funds Dataset

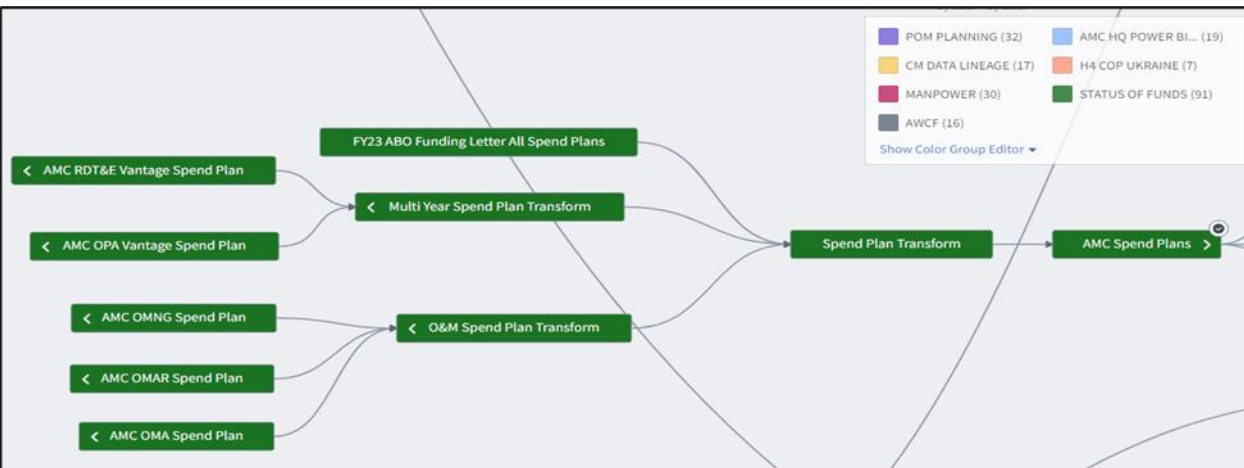


Figure 4. Data Lineage for AMC Spend Plans to Join AMC Status of Funds Data

dashboards, consisting of various types of displays, graphs, charts, and pivot tables according to the AMC business requirements.

Figure 5 displays the PowerBI dashboard developed for HQ-AMC to track the status of funds for staff sections and the progress against their respective spend plans (blurred, to redact). Key metrics are dynamically color coded to quickly identify the progress of the staff sections to focus on.

Figure 6 is a redacted, blurred visual from a budget planning dashboard developed to integrate historical target, execution and budget cycle data to assist AMC when gathering for future requirement planning.

Lastly, Figure 7 shows a redacted, blurred page from the AMC Manpower dashboard to track the authorized, on-hand, and required manpower amounts for each of the respective MSCs and overall key performance indicators (KPIs).

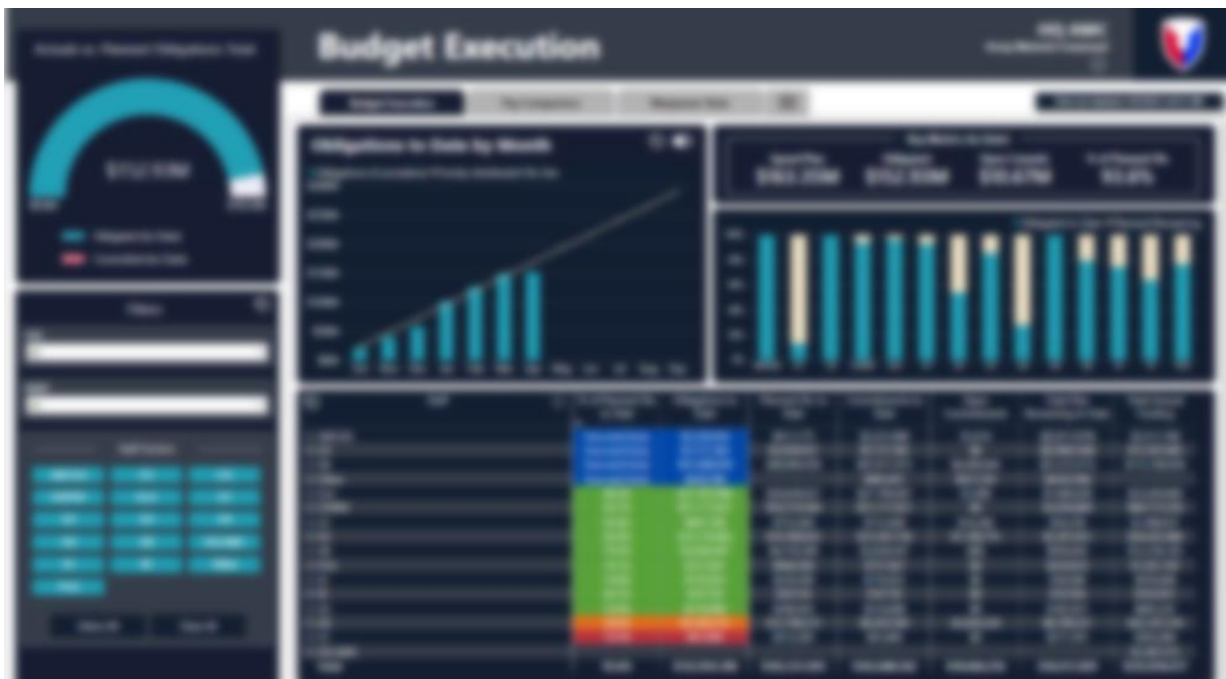


Figure 5. HQ-AMC Status of Funds PowerBI Dashboard

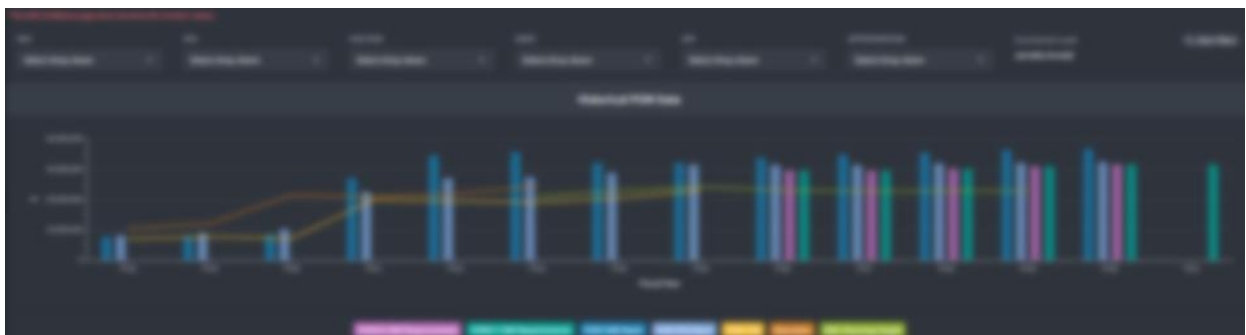


Figure 6. Visual from AIR3 Tool to Display Historical Data with Current Gathered POM Data

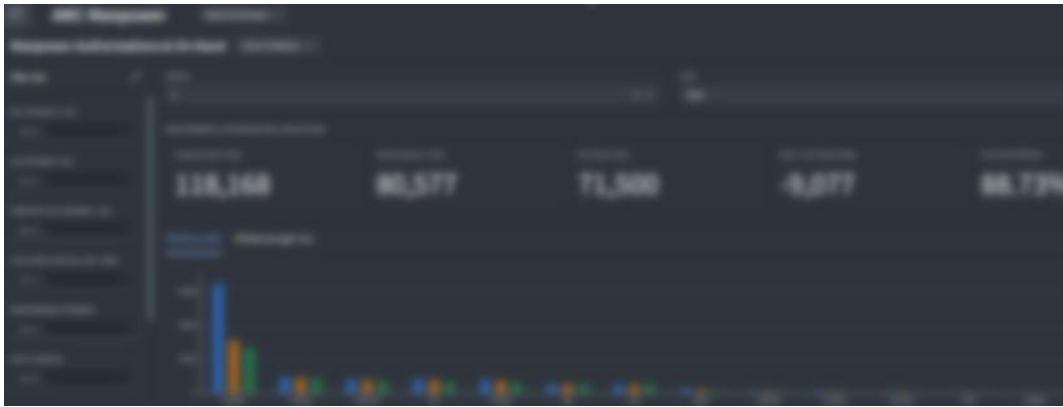


Figure 7. Manpower Dashboard with Authorized, On-Hand, and Required Metrics by MSC

In total, Guidehouse developed and published over 16 reports that aggregate disparate data, then provide leadership with meaningful insights to inform decision-making. Table 1 lists an excerpt of the reports, which the team built by leveraging data from AMC’s SAP-based ERP systems.

Table 1. Dashboard Overview

PROJECTS	OVERVIEW
AMC Resource Summit Dashboard	Analysis of the AMC, MSC data. Using the Army Vantage Analytics Platform, Workshop Tool, various visualizations are developed to identify for each MSC its funding level, shortfalls in spending by Appropriation, Requirement Risk levels, and by dollar type. Also, for Executive oversight a visualization is designed to show the level of risk exposure and visualize an Audit Details Table to evaluate at the MSC, Appropriation and other various levels.
AMC Status of Funds Dashboard	Processing of Army AMC’s Budget data and developing different Visualizations. Data is visualized by Obligations by Staff Section showing the target budget, monthly plan, funds commitment, the amount of the Funds are over Committed and the Funds that are obligated. It is tracking and evaluating the budget by target year.
AMC Operations and Maintenance Army (OMA) Spend Plan Dashboard	Tracks data for the fiscal years of expiring. Various visualizations are developed for analyzed Historical Execution spending of funds. Data is displayed by MSCs for each Historical Execution and Spend Plans Fiscal Year of Expiring funds.
AMC Leadership Dashboard	A Visualization of the Fiscal Year Status of Funds, the total of funds obligated, the percentage of funds target and planned. The Cash is visualized into the 5 Cash positions and how they are distributed into the various spending areas.
AMC All Things Money Dashboard	Visualizations of Fiscal Year Projected Funding for the AMC 10 Categories based on the Funds Target and the % executed. It identifies the percentage of funds by Fiscal Year for Operations and Maintenance(O&M), Research, Development, Test and Evaluation (RDT&E), Other Procurement Army (OPA), Contract Authority (CA) and Capital Investment Program (CIP). The analysis utilizes the Army’s standard, GFEBS data.
AMC Contract Pre-Award Dashboard	Visualizations are developed to track the Contracts by Pre-Award for all of the AMC Major Subordinate Commands. Some of the Visualizations display AMC Open Commitments on Contract Purchase Request and Virtual Contracting Enterprise (VCE) Forecasted Obligations. Also, a Metrics is displayed to show, all of AMC Open Commitments, AMC Open Purchase Request, AMC VCE Forecasted Obligations and AMC VCE Forecasted Actions. Also, there are Visualizations for showing Projected Awards, Purchase Request and Acquisition Milestone View.
AMC Category Management Dashboard	The Visualizations display the Training Status by MSC, for each employee. Also, displayed are the employee’s job function, classes required, classes taken, and other critical fields for training management. There are visualizations that display data by Contract Number, Fund Center, Vendor State Code, North American Industry Classification System (NAICS), award Command, Army Program Element, and the Office of Management and Budget (OMB) Category.

Table 1. Dashboard Overview (continued)

AMC Army Food Program Dashboard	Visualizations are created to display the Army Food Program Warrior Restaurant Center data for the 18 Military Warrior Restaurant locations and the number of Military personnel at the Military Base location that most likely a percentage will eat out of these restaurants on the military base. Displays the amount of funds the restaurant will bring in Daily, Monthly and Annually. The money is display by Appropriation, Category, and other relevant fields. The money is also displayed by Military Personnel, Army (MPA), OMA or both together.
AMC Historical Integration Dashboard	Develop the Visualizations that visualized Historical data with one year money spending over the past five years and visualize in tables and graphs the funds and spending types for each. Use the Historical Spending for all Programs over the past five fiscal years to show how the funds were managed. Data is visualized by Program Evaluation Group (PEG), Power BI (PB), Enact. Display the amount of funds executed and the delta for Execute – Enact.
AMC AWCF FY25 Budget Estimate Submission (BES)	Migrate the Army Budget Office (ABO), FY24 BES Worksheet from Excel into Vantage Fusion to facilitate automated aggregation and ensure replication of functionality. The conversion allows the Budget data to visualize the data using the Vantage Workshop. The data is the financial data from the 20 Army installations.
AMC Manpower and On Hand Dashboard	Visualizations developed to show the breakdown of the equipment funding and how it distributed. Identify the personnel by MSC, category, grade level, by GS type or other and other personnel data. Some visualizations consist of the Requirement Total, Authorization Type, On-Hand Total.
AMC G8 MOBILE Views Dashboard	On the Senior and Executive Leaders cell phones, mobile views of selected Dashboards are design and executed on the mobile.
AMC Planning Targets Audit Details Dashboard	Take the Financial Data to create Visualizations for Auditable Data. Data is visualized by Fiscal Year, Appropriation, Fund and cycle MSC.
AMC CIVPAY Execution Dashboard	Data for Civilian Employees are visualized by MSCs, Payments, Fiscal Year, Sub-activity Group (SAG) and Military Department (MDEP) Obligations and Civilian Spend Plan by MSC. Funds that are committed, not committed, and disbursed.
AMC G8 H4 Ukraine Common Operational Picture (COP) Dashboard	Developed Visualizations for the management of the funds for Ukraine. Visualizations display data by the funded program and by the different Installations and by the type of funding. Also visualize funds committed and obligations for transfer.
HQ AMC Status of Funds Dashboard	Developed a Microsoft PowerBI dashboard to visualize funding levels for the different staff sections for HQ-AMC and their progress against planned spending. Additional pages include pay specific visuals and manpower on-hand quantities for the various staff sections.

3.5 Conclusions

Guidehouse developed tools that consolidated wide ranges of seemingly disparate financial and operational data sources into the government’s existing analysis tools to build solutions that generated key insights. Additionally, the team coordinated with AMC leaders to identify audit risks that could help inform the team on which datasets, systems, and processes to analyze to identify risks and other opportunities for asset visibility and accountability improvement. This initiative confirmed the understanding that automation allows resource managers to spend more time focused on high-value tasks, improving support to the warfighter. Guidehouse automated data processing from four financial ERPs, cleaning, transforming, and joining data from the siloed systems. Guidehouse then displayed the resulting data objects on Army Vantage dashboards and mobile phone views that provided processed data that was more current than the data available in ERP business intelligence systems. The result was more accurate, timely, and relevant information for decision-makers while reducing resource managers’ time manually processing the data and producing static slides to inform senior leaders.

4. Project Benefits

OSD and Army's advanced data analytics platforms, such as Advana and Vantage, provide the government and its teaming partners with immense potential to design and deliver analytical tools with more capabilities than ever before. These solutions are crucial to the DOD's ability to both maintain high levels of total asset visibility, and to meet its audit objectives. This initiative helped AMC push those objectives further, through the following key benefits:

- Guidehouse's solution leverages existing DOD and Army investments into Advana and Army Vantage as the Service's big data analytic platforms to provide significantly enhanced data analytics capability without purchasing additional software and cloud-hosting resources.
- Staff and leaders can access dynamically updated information on-demand on Army Vantage dashboards or mobile phone displays.
- Army asset postures, specifically those related to sensitive materials and munitions, have improved materially. Valuation, count, and location data accuracy for these assets have all increased in the past year, driven in part by the solutions Guidehouse developed.

4.1 Benefits for the General Public

This initiative continues to lead to the development of innovative system improvements, reporting capabilities and business environments for a complex logistics enterprise like AMC which can be directly applied to commercial organizations focused on maintenance and logistics operations in the global marketplace and will identify methods that reduce costs for their customers through improved efficiencies. Additionally, the general public are among the intended viewers of Army and DOD financial statements, which are becoming materially more accurate, due to the efforts of DOD and Army audit readiness initiatives.

4.2 Benefits for DOD

In addition to the benefits to the general public, this initiative continues to provide the following benefits to the DOD:

- Army developed new and novel Advana solutions, which OSD can share across the DOD.
- System configuration and reporting improvement efforts that can be shared with other government entities, such as the Department of the Navy (DON), who are utilizing a similar SAP solution for their Navy Working Capital logistics-based businesses.
- IT internal controls improvements and monitoring activities to be used by other government entities who are utilizing a similar SAP solution for complex logistics and industrial operations enterprises such as workflow configuration and system interface design. Several of these internal controls may involve shared Service providers, such as the DFAS or the Defense Logistics Agency (DLA), who provide shared services for many government entities. By designing these activities and sharing them with other government entities, the design costs are minimized, and shared Service providers can easily replicate their support to other customers.
- Business process standardization documentation and data/technology standardization strategies, templates and prototype results that can be applied to by other government entities

who are utilizing a similar SAP solution. The DOD utilizes Standard Financial Information Structure (SFIS), which requires a standard Line of Accounting/Accounting Classification for all DOD ERP systems that contain accounting information. Other SAP based DOD ERP systems, such as Navy's system ("Navy ERP") can utilize the strategies, templates and prototypes with minimal customization to their own environments, therefore producing significant cost savings.

- Lessons learned on culture change and methods for strategic communications that other DOD entities can apply to their own enterprise. Despite the military service, the DOD shares fundamental concepts in their culture and business environment. Thereby, other entities can leverage lessons learned as they embark on their own strategic communications and change management endeavors.