

Towards the Next Generation Army IT Procurement System

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In 2013, the Army purchased over \$1.6 billion dollars in information technology equipment from sources other than enterprise procurement vehicles through the Army Chief Information Officer/G6 Goal 1 Waiver system. Of these requests, \$1.1 billion were unable to be categorized in any way, and the remaining \$500 million that could be generically sorted did not provide enough information to reprogram any requests back into an EPV. As the number of waivers continues to grow each year, the Army CIO/G6 seeks to transform the Goal 1 Waiver system to meet the accountability needs of the Army while providing high quality service to the Warfighter.

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(Continued on page 64)

(Continued from page 63)

In this article, we present the preliminary findings of our research into the strengths and weaknesses of the existing Goal 1 Waiver program. We then propose a short term method to prioritize requests, discuss the benefits of a unified taxonomy, and explore an automated collaboration solution to streamline the process. This central tool would manage the request process from submission to formal accounting, deliver information to stakeholders, manage digital signatures, and provide decision makers with relevant metrics and analysis.

Background

Technology is the cornerstone of battle space superiority in the information age, and a decade at war has given the Army a ravenous appetite for IT. In 2010, the U.S. Army spent in excess of \$15 billion on IT related products, programs, and services. We knew the money was spent, but what did we buy? Did our purchases meet Information Assurance requirements? Did we make smart purchases? Are we being good stewards of tax payer dollars? The urgency of war clouded the answers to these questions, and in the years following Fiscal Year 2010 the annual IT budget began to decline. The Army is now trying to maintain the level of IT support it has come to expect at a fraction of the budget. To this end, we study the evolution of the Army IT procurement process, why it isn't working, and propose phased changes that improve mission support while enabling the accountability and visibility required by decision makers and those who will be held fiscally responsible.

Maintaining an IT acquisition system for the US Army is not an easy task. A decade of wartime urgency has made the IT needs of the Army mirror those of a tech giant in the growth phase of its life cycle. Tactical units require tools that show them real time battle space in a package small enough for them to carry. The network enterprise needs constant hardware and software upgrades to feed the growing array of bandwidth hungry end user applications

IT Request	Total Requests	Uncategorized	Uncategorized \$ Requested
Hardware	4171	2448 (59%)	\$129,251,062 (35%)
Software	2738	1683 (61%)	\$62,033,088 (47%)
Services	1727	1135 (66%)	\$916,988,660 (81%)
Testing	38	20 (53%)	\$176,553 (14%)
Total	8674	5286 (61%)	\$1,108,449,363 (68%)

Table 1. Goal 1 Waiver Requests for 2013 (Goal 1 Query as of 2/7/2014)

while continuing to meeting security requirements. As a consequence, the gatekeepers of this system are over tasked and live in reaction mode.

The Army turned to a 'decentralized planning' and 'decentralized execution' model to keep pace with the IT centric needs of diverse and dynamic wartime missions. This model comes with risks. Processes that were once quantitatively managed devolved to barely meeting the Capability Maturity Model base criteria for managed processes.

The regression is most visible in use of EPVs such as Computer Hardware Enterprise Software and Solutions. A unit commander is mandated to use CHES for Commercial-Off-the-Shelf IT needs. When CHES is out of stock, does not support exact requirements, or cannot meet operational timelines, the commander can contract with another vendor. However, these products haven't been vetted through security channels and may not meet Certification and Accreditation standards. This bypass also removes the automated purchasing record that enables budgeting and accounting to easily keep track of the money. For the time, commanders accepted this loss of accountability in order to meet critical mission needs.

In 2010, the Army shifted to a postwar outlook on funding and tried to mend this process to improve accountability and transparency. The CIO/G6 took approval control of local and non-IT budgeted funds through the Goal 1 Waiver system. Since then, Goal 1 Waiver has become the hub for special approval requests, and anything that the EPVs cannot accommodate. Approved Goal 1 requests have grown exponentially since 2010, surging over \$1.6 billion by 2013. A web interface meant to validate a few non-budgeted requests by a small staff is now used to process, analyze, and automate the IT needs of the entire Army.

Goal 1 Waiver Analysis

In an effort to redirect requests back to the EPVs, we analyzed the waivers in the Goal 1 system from 2013. Upon review of the nearly 9000 IT requests, we found it difficult to conduct a useful analysis due

to the lack of standardization in the information provided for each request. Of the \$1.6 billion in total requests, \$1.1 billion was unable to be categorized in any meaningful way and the remaining \$500 million that could be sorted generically did not provide enough information

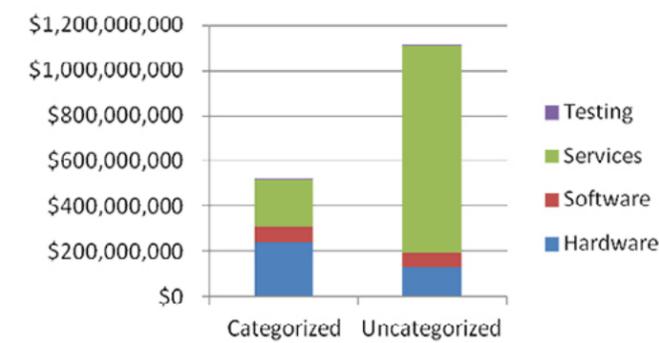


Figure 1. Total 2013 requested IT dollars by 'Item' Criteria (Goal 1 Query as of 2/7/2014)

to be able to reprogram the requests back into an EPV. While the Goal 1 system excels at its primary function of verifying and validating user requests, the automated system is not currently designed to collect decision quality information needed to expedite requests.

The Request Packages that cannot be handled by Army CHES are by their nature varied and unique. The existing Goal 1 menus are built in a way that a request may meet multiple criteria. For example, funding for a system administrator to perform upkeep on an existing SQL server meets three 'Item' criteria and is marked as 'Other.' The requestor then explains the details at great length in the Description field. While the Description field provides the means for the requestor to provide clarification of the need for request, the unstructured nature of the data results in great difficulty when trying to compare competing requests.

In order to understand the magnitude of the problem, Table 1 below shows that in 61% of all 2013 submissions 'Item Type' were marked as 'Other' or left blank. Figure 1 shows that this lack of fidelity resulted in \$1,108,449,363 of non-standard Army IT requests which cannot be sorted at all.

It is clear the Army needs a new system to manage IT requests. In the remainder of this article, we identify the short term needs of IT acquisition

stakeholders, propose near term changes, and propose an automated and sustainable solution.

Short Term Reform Proposal

In order to remain flexible to new software platforms, we will focus on the general elements necessary for a sustainable IT acquisition process. The scope of this proposal will focus on collaboration for processing requests, and will not address governance issues such as policy, roles, and enforcement. The objectives of this proposal are to:

- Reduce average total processing time for all IT requests to less than 10 days.
- Accurately account for all IT funds spent throughout the Army.
- Reduce the amount of funds being placed on higher cost non-enterprise contracts.
- Maximize cost-effectiveness by empowering EPVs to remain relevant to the customer.
- Enable trend analysis, projections, and dynamic reporting for cost and procurement decision making.
- Minimize the use of non-standard equipment.

Figure 2 shows a modified Joint Capability Area Capability View to illustrate what Capabilities this process uses to enable Enterprise Services, how they align with Army Objectives, and the Activities required to support them. The JCA goal of this process is, "The ability to provide to all

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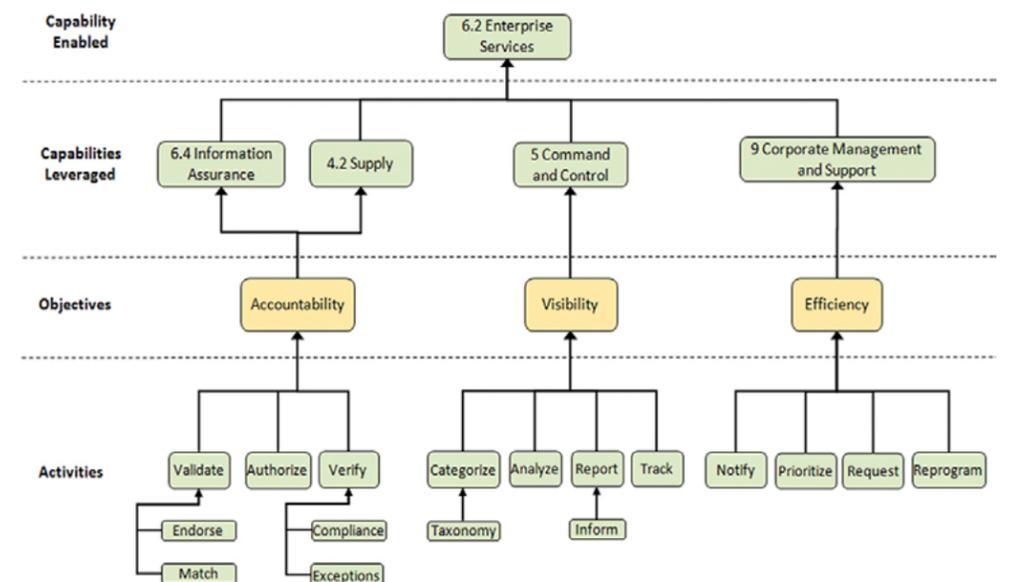


Figure 2. Modified Joint Capability Area (JCA) Capability, Objectives, and Activities View

(Continued from page 65)

authorized users awareness of, and access to, all DOD information and DOD-wide information services.” To accomplish this task, the process must provide Accountability and Visibility using the standards set by Information Assurance, and Army Supply and Acquisition Regulations, while improving acquisition efficiency for the Warfighter.

Prioritization

The existing Goal 1 Waiver interface is a simple, home grown platform. The database receives user input and employs a First-In-First-Out presentation of Request Packages for approval. It does not consider what is in the package or who submitted it. Much like a SharePoint portal, it functions as a repository that requires the user to decide what is important. Before we consider a long term solution the CIO/G6 must be able to sort and address requests in order of their value to the Army. Criteria must be chosen and weighted to score all Request Packages. Based upon a review of Army doctrine, instructions, and policies, we identified the following policy directed criteria as significant:

Army Mission Support

The priorities published in the Army Resource Priority List by the Force Management Directorate tell units how to provide the greatest benefit to the Army. The four ARPL categories are: Expeditionary, Critical, Essential, and Enhancing. These categories would serve as an Army level update and replacement to the Risk Analysis for Army Property guidance.

Unit Mission Criticality

The Army G8 equipping guidance and the annual unit IT transformation plan will drive unit purchasing priorities. These guidelines shape unit level focus, and can be easily categorized in evaluation factors for loss. However, instead of loss, the unit will categorize purchases as: Critical, Essential, Significant, Moderate, and Minor to evaluate the risks of non-acquisition.

Asset Replaceability

Time required to replace an asset is a strong metric when evaluating services that are “Always on.” DA PAM 190-51 uses cut offs of 5, 30, 90, and 180 days, but could be adjusted to meet Service Level Requirements for the broad spectrum of services.

Total Cost of Ownership

Purchase price, lifetime operations and maintenance, and disposal all factor into this value. Current price breaks of \$25,000, \$100,000, \$250,000, \$500,000 and \$1 million appear to be arbitrary round values, but do serve as relevant divisions when evaluated against budgets.

We have identified the following mission relevant prioritization criteria as significant:

System State

This attribute defines the disposition of the IT need: New Acquisition, Life Cycle Replacement, IT Support, Upgrade, Maintenance, and Moratorium. This field would be applicable to all IT purchases, but may not provide priority value in all cases, or could be given temporary value depending on guidance.

O&M

As funding decreases, the Army seeks to outsource Operations and Maintenance of certain functions, in order to focus on our core competencies. The IT contribution to this effort is to shift from purchasing hardware and software we maintain, to purchasing the services of hardware and software. In this vein, the Army can manage the level at which Army owned and operated purchases are favored.

Time Sensitivity

This attribute would carry a sliding weight based on the mission need date. There is risk involved with adding a weight based on user perceived time requirement. However, AR 25-1 directs units to create annual IT transformation plans, which this system would eventually support as an annual unit IT procurement planning tool. The potential for abuse of this field would be mitigated by each of the following fields.

Time in Queue

This attribute would be calculated in the same way as Time Sensitivity, and act as a balance for abuse of the previous field. The longer a request sits in the queue the more weight it receives. When added to the Time Sensitivity date these fields enable low priority requests that wait patiently at the bottom of the queue to be purchased in time. This is an incentive for commands to plan their purchases early, as they are more likely to have their requests approved by the time they need their equipment.

Scope

Scope addresses the breadth of Soldiers, and civilians,

impacted by the Request Package by considering who benefits from the purchase: Single Organization, Multi Command, Multi Installation, Army Wide, Joint, or Multinational. Scope accounts for technology such as ‘Big Voice’ which has a broad user base, but might not score highly on Army Mission Support.

Command

All commands in the Army are not created equal. The CIO/G6 would weight commands based on senior leader guidance. Much like Scope, the greater area of influence will be taken into account.

Commander’s Flag

The current FIFO system has created a condition by which General Officers are calling the CIO looking to advance their critical purchases through the line of requests. If analyzed and weighted correctly, the above criteria should eliminate the need to bypass the system. However, the Commander’s Flag acts as a mechanism for the GO to push a request to the front of the line by digitally signing this field. The Flag would hold an additive value equal for each command, meaning two requests with Commander’s Flags would move to the front of the line in order of their original weight. GOs would not be able to delegate this request signature authority, and be held accountable to the CIO/G6 for each use, giving this field a low potential for abuse.

The list above could be weighted in many different ways to yield a single prioritized list. While our proposed formula this beyond the scope of this paper, stakeholders in this process must determine the category weights for this system to work.

Unified IT Acquisition Taxonomy

Once prioritization is in place, the terms should serve as a starting point for the development of a Unified IT Acquisition Taxonomy for fixed, concise, and relevant fields. These fields will enable visibility through analysis, trend projections, grouping, and seamlessly transfer data to budget and finance systems. Common language decreases processing time and accelerates long term collaboration. A Unified Taxonomy requires input from Army elements beyond the scope and authority of this research. Below are recommendations for starting points.

Business Function Attributes

Business Functions are fixed “big picture” fields, not directly related to the IT need. These fields focus

on administration: Requesting Command, Scope, Purpose, Management Decision Packages, and Army Program Elements, etc. If an IT Asset doesn’t have its own discrete selection within the larger Request Package the CIO/G6 must determine a way to separate them, or accept the multiple selection criteria for the given field. These values should aim to be discrete, “pick one” drop-down menus.

IT Need Attributes

IT Needs should be “pick one” in broad IT categories and “pick all that apply” for Bins dealing with the specific equipment. For example, Tier One may consist of: Tactical, Data Center, Office, or Infrastructure. Tier Two may be a short list of device types. Tier Three, where unit requirements become unique, provides check boxes of all unique fields previously requests. Tier Four will provide a short answer ‘Other’ section to allow growth in Tier Three. In a short time the CIO/G6 could build a relevant and accurate Third Tier comprehensive enough to only see ‘Other’ with emerging technologies.

Finance Centric Taxonomy

During this research, we examined the Air Force and Navy IT procurement systems. The Air Force currently operates in a similar decentralized system to the Army. The Navy, however, has consolidated their ‘non-weapon system’ IT procurement into the Navy Information Dominance Approval System.

The intent and scope of this contracted system are similar to those of the Army. NAV-IDAS functions as intended, but does not account for naval financial systems. The Navy currently faces the challenge of tying requests to funding. The Army has an opportunity to learn from this challenge by integrating the Army Portfolio Management Solution and the General Fund Enterprise Business System into the early stages of process restructure.

By building an IT procurement tool with budgeting and accounting at its core, the Army would maximize its ability to build a fully integrated collaboration tool, while priming it for migration and consolidation into the financial core at any point in the future.

Long Term Collaboration and Automation

Once the restructuring of the existing waiver system is complete, the focus would turn towards modifying the system implementation in order to

(Continued on page 68)

(Continued from page 67)

improve the overall efficiency of the process. Figure 3 shows the existing “as is” and the proposed “to be” architecture for the Goal 1 Waiver system. Army IT procurement is currently a cumbersome process. Requests are processed via email in changing formats depending on the destination, and tracking is done by phone.

By building an automated collaboration dashboard units could track their request from start to finish in one place. The dashboard would provide real time tracking updates for all Request Packages, to include individual IT Asset progress through the system.

When a stakeholder finishes their action the dashboard would route the request to the next stakeholder and generate an email notification for action.

Units would be able to see the current action owner, for how long, what actions others have taken, and comments in a format

that could be briefed directly from the interface. Finally, stakeholders could customize their interface options, allowing them to arrange and display data in a way that best suits their needs.

Formatting changes would be transparent between stakeholders, allowing the DOD CIO to query and review a request without the Army investing man hours in document conversion.

Army Service Broker

To further improve the efficiency the Army would be best served by consolidating all IT service contracting. The Army Service Broker would be responsible for all existing contracts and become the negotiator for any new services with agencies such as the EPVs and the Defense Information Systems Agency. Army level management is not required for all service requests, but an Army Service Broker should evaluate and consolidate Army level contracts when

possible.

Software Platform

The most efficient software solution would be to contract with a provider that has experience with this need and to build the dashboard into an existing Army funded platform. The robust infrastructure of the Army financial platforms would be ideal. As we saw with NAV-IDAS, integrating IT acquisition into Army financial processes at the start will improve efficiency, and mitigate future integration issues.

Streamlined Purchase Process

In this section, we walk through the general use of this system from submission to acquisition. First, we address the stakeholders in the “Happy Path,” which is a Request Package and associated IT Assets that require no intervention and moves directly to purchase. Then, we discuss stakeholders that become involved in the exception process.

The full work flow diagram for this process is included in a proposed CONOPS document, but contains too many scenarios and routing activities for inclusion in this article. This process is the intended end state for this stage of the system and looks to field no less than 90% of the IT requests submitted by the Army.

Request Packages

Each submission is considered a Request Package that may contain a variety of IT Assets needed to accomplish the mission. The Request Package as a whole must be approved prior

to the purchase of any IT Assets contained within.

This dashboard would help units meet the Army standard of submitting their annual IT transformation plan by loading projected purchases into the system.

Units would be rewarded for long term planning through the priority weighting criteria. Though pricing and availability fields may become stale over the year, they offer reference for planning and eventual purchase. Once mature, the submission menu should provide units with an exhaustive selection tool that eliminates the need for external document attachment.

Army Portfolio Management Solution

APMS provides value to this system by integrating resource planning data. Units can use their own projections to guide their requests and determine how much money they should spend, and through which funding streams, all in the interface they use to submit requests. APMS authorization will be a largely automated process. APMS will not have the authority to reject a submitted Request Package from being processed.

If a request is not associated with a funding code APMS will merely annotate the unfunded requirement for stakeholders in the unit’s chain of command to make a determination.

Enterprise Procurement Vehicle

Relevant EPVs would review the IT Assets in the package and determine what they can and cannot provide, and at what price. The disposition of each IT

Asset would then be annotated within the Request Package in the Dashboard. Like AMPS, the EPV will not stop a request whose requirements it cannot fill. Rather, it will send the IT Asset back to the requestor for an addendum of vendor quotes to be added to the request. The dashboard will only forward the total Request Package on to the Command once all required IT Asset information has been added.

Command

Once all budgeting and availability details are gathered, the requesting unit’s command would decide whether or not to approve the request. If the Command rejects the Request Package the request would remain in the system as a value added data point with the reason for rejection. The rejected request is available in the database for analysis, and if the Command wishes to approve the request at a later date the process can easily resume.

Higher Command

The request then goes to the higher Army Command, Army Service Component Command, or Direct Reporting Unit for approval. If the Request Package and its IT Assets are fully funded the command would digitally sign and forward to GFEBS. If unfunded exceptions exist, this will be the first level of divergent action in the Exceptions sections below.

General Fund Enterprise Business Systems

Once all IT Assets in the Request Package are approved GFEBS commits and obligates funds, then routes the request

to the appropriate contracting office.

Exceptions

In this section, we discuss Request Package gatekeepers and IT Asset sorting for exceptions. This section represents a direct change to the existing Goal 1 Waiver process, which will now become a component of the larger request management system. Figure 4 depicts the proposed workflow for the process.

CIO/G6

The primary function of the CIO/G6 is to review exceptions for IA compliance, and conduct analysis on IT Asset exceptions that aren’t being addressed through EPVs. At full system maturity the CIO/G6 should focus primarily on trends, projections, and contract forming with the Army Service Broker.

DOD CIO

The DOD CIO only enters this process for IT Asset requests that require DOD approval, such as moratoriums and specified purchase restrictions.

Hardware

The hardware approval process will remain unchanged. Request specifications will be reviewed and annotated for unique requirements that are not being met by EPVs, then approved if there are no compliance issues. Hardware may prove to be the hardest IT Asset category to standardize, and could maintain a long term place in the Exception process.

Software

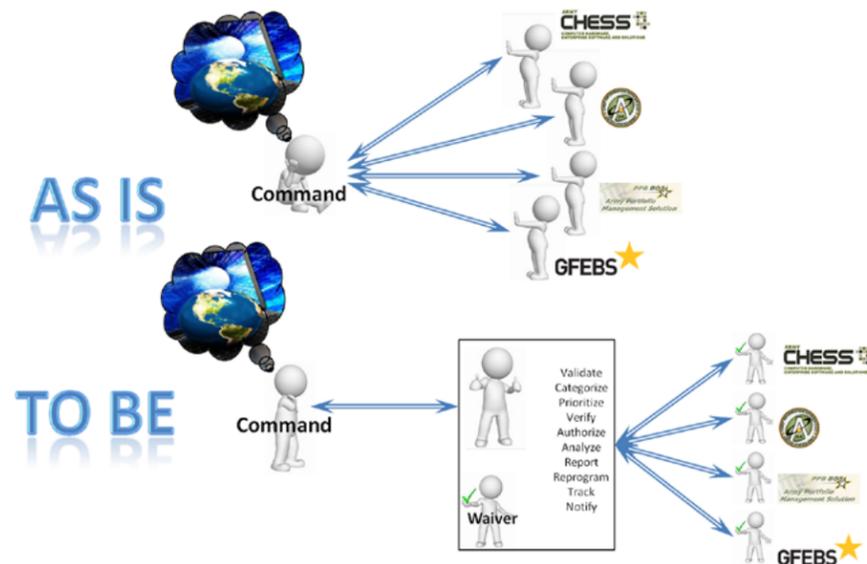


Figure 3. Process Concept Change

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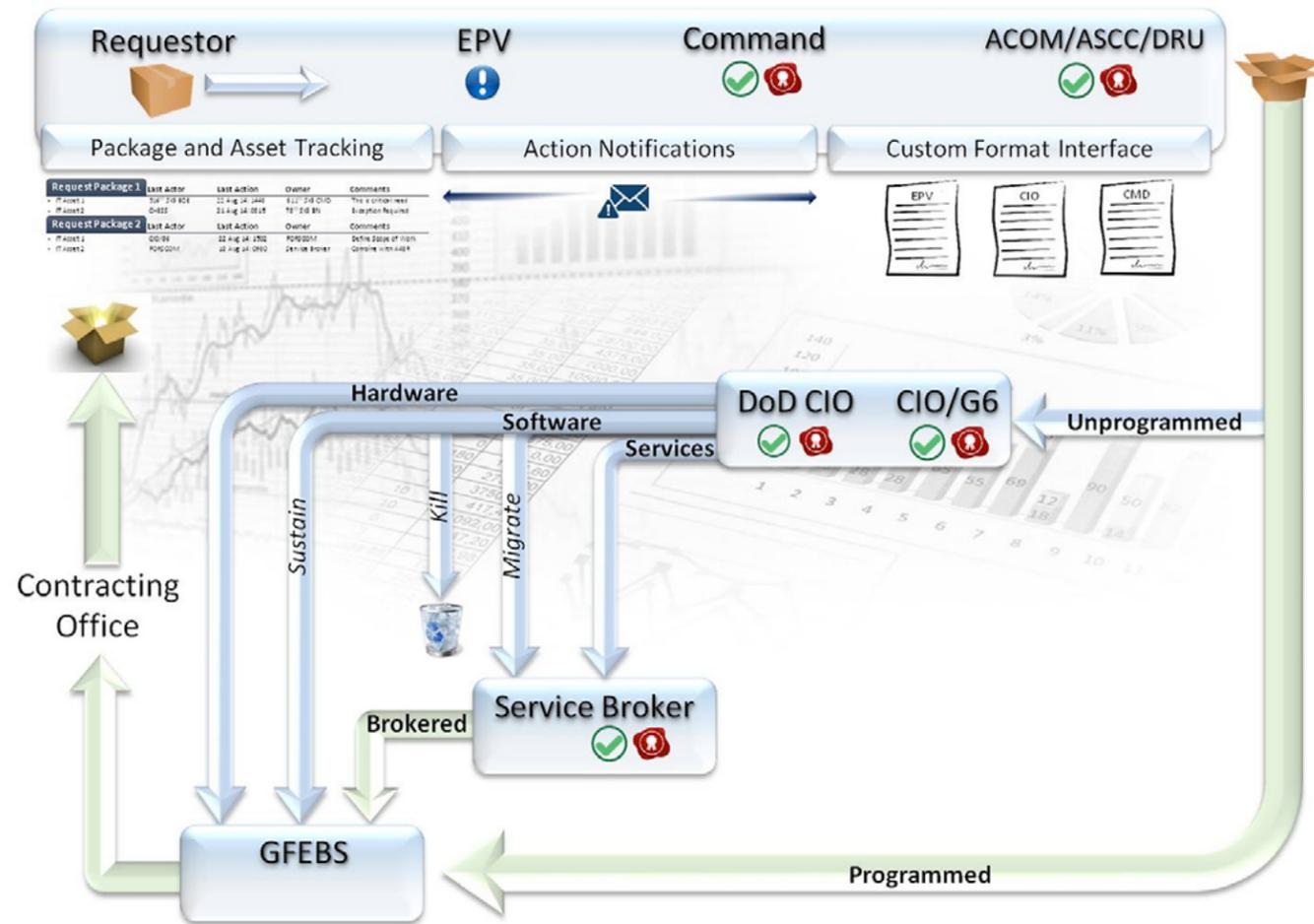


Figure 4. Proposed Work Flow

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The Software Exception process would be subject to the Army Applications/Systems Migration – Rationalization and Disposition Process. If the software meets the requirements of the modernization checklist it will be forwarded to the Army Service Broker for processing. If the software is determined to be temporarily sustained, short term licenses may be issued. If the software meets no requirements, the Request Package will be rejected until the software is removed or modified.

Army Service Broker

The Army Service Broker would become the gatekeeper for contract services which would accelerate the Army’s intended migration into the cloud. The Army Service Broker would work closely with the CIO/G6 to determine what contract modifications would be of the most benefit to the acquisition process.

General Fund Enterprise Business Systems

Once all exceptions in the Request Package are addressed the Request Package is approved. GFEBs commits and obligates funds, then routes the request to the appropriate contracting office.

Analysis and Reporting

This consolidated process provides its greatest value to the Army in the form of IT metrics. Through real-time analysis the Army will be able to customize and automate financial accountability, trend analysis, program threshold triggers, value mapping, and any other analysis requirement that may arise in the future.

Financial Accountability

This system would serve as the connecting interface between APMS budgeting and the GFEBs spending until a long term integration solution

could be agreed upon.

Decision Analysis Tools

The CIO/G6 would be responsible for analyzing the database, but they would not have to build their tools from scratch. The Armament Analytics Multiple Objective Decision Analysis Tool is Value Based Analysis tool designed for weapon procurement that could serve as a model for finding further efficiencies in IT procurement process.

Trend Analysis

Trend analysis would enable the CIO/G6 and the Army Service Broker to make data driven decisions when negotiating EPV contracts. With enough trend data the CIO/G6 would be able to project when a program would need to be established, and set threshold triggers in the system that would provide an alert when criteria is met. In addition to common metrics, the CIO/G6 could to easily combine fields to generate new information without any modification to the

system.

Value Mapping

As the database grows, priority factors will begin to trend in correlation to their total cost. This would eventually yield “soft” upper and lower limit bands for normal purchases. This value map could provide a guide to determine the cost effectiveness of any given request. This would not be hard cut off, but rather additional information for decision makers to consider when presented with a Request Package. Figure 5 shows a value mapping example which provides a cost versus priority view of requests. Such a figure provides decision makers with a visual understanding of requests to support decision making.

Total Integration

The development of IT procurement tools based on collaboration, automation, and consolidation has long term implications for how the Army allocates funds, spends, and balances its budget.

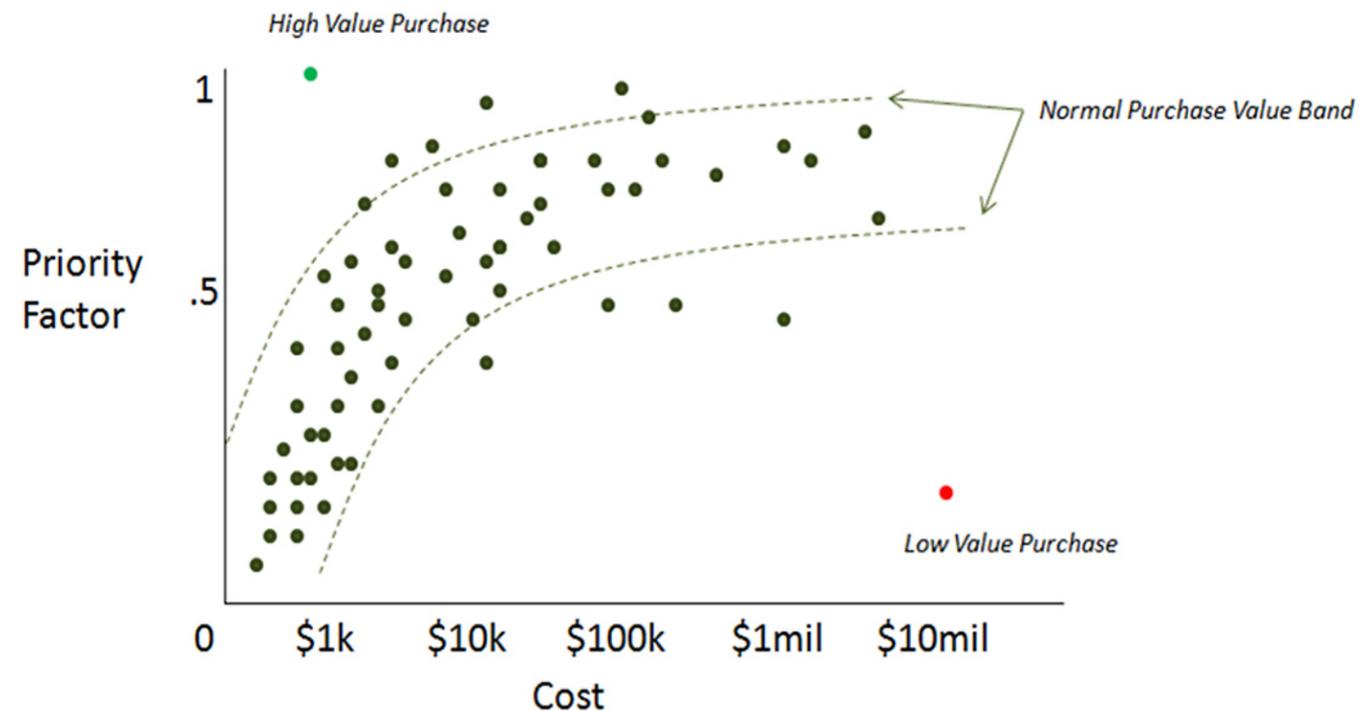


Figure 5. Value Mapping Example

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By continuing to integrate the Army purchasing and funding process becomes a Wiki of information, giving stakeholders access to all mission relevant content through a single interface.

Conclusion

In this article, we discussed the IT Acquisitions challenges facing the Army brought on by a decade of war. We proposed a possible course of action for prioritization and a Unified IT Acquisition Taxonomy. This course of action would lay a foundation for the Goal 1 Waiver system to migrate into an automated collaborative dashboard. This dashboard

would provide the Army warfighter with a streamlined IT acquisition process from submission to delivery. Beneath the dashboard, the central repository would allow the CIO/G6 to track requests, manage digital signatures, conduct analysis on purchasing trends, establish thresholds and projections, automate financial reporting, and provide decision makers with relevant metrics in real time. By building these tools into the Army financial platforms and working back towards the IT needs of the warfighter, the Army can realize a sustainable solution for efficient, accountable, and visible IT procurement.

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ACRONYM QuickScan

APMS - Army Portfolio Management Solution
ARPL - Army Resource Priority List
ARFIT - Army Request for Information Technology
CIO - Chief Information Officer
CHESS - Computer Hardware Enterprise Software and Solutions
DOD - Department of Defense
FIFO - First-In-First-Out
GFEBs - General Fund Enterprise Business System

GO - General Officer
EPV - Enterprise Procurement Vehicle
FY - Fiscal Year
FIFO - First In First Out
IA - Information Assurance
IT - Information Technology
JCA - Joint Capability Area
NAV-IDAS - Navy Information Dominance Approval System