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Rethinking Integrated Program Management in Incremental Acquisitions – Third-Party EVMS Compliance Assessment Study

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Abstract

The Department of Defense is mandating and implementing acquisition practices grounded in Agile methods to include DevSecOps. This approach allows for the incremental implementation of a system instead of fully specifying the performance. Managing complex systems requires an integrated approach that balances the technical, cost, and schedule with the end-user need. A program management team can use various tools to plan, track progress, forecast, and replan to keep the project moving forward. Earned Value Management is one of the many tools that support the program manager. It defines a disciplined set of steps for integrated planning and technical, cost, and schedule analyses. When Agile methods are implemented correctly, they meet earned value management’s intent and give the program manager a continuous planning and execution process to communicate project health and status transparently in real-time. One of the aspects of earned value management is that a contractor must have an Earned Value Management System (EVMS) that meets all the requirements of EIA- STD-748D, “Earned Value Management Systems (EVMS)” (n.d.). This paper discusses an approach for an independent Third Party to assess a contractor’s compliance with this standard.

What is an EVMS?

An EVMS integrates a contractor’s internal business systems, processes, procedures, and tools to create a baseline plan that forms the basis for tracking progress. The business systems and processes related to EVMS consist of the Cost Accounting System (CAS), the Material Management and Accounting System (MMAS), the Cost Estimating System, the Purchasing System, the program management, and engineering cost and schedule planning processes. Figure 1 shows a simplified representation of the EVMS data integration of the planning, financial, technical, and reporting processes.

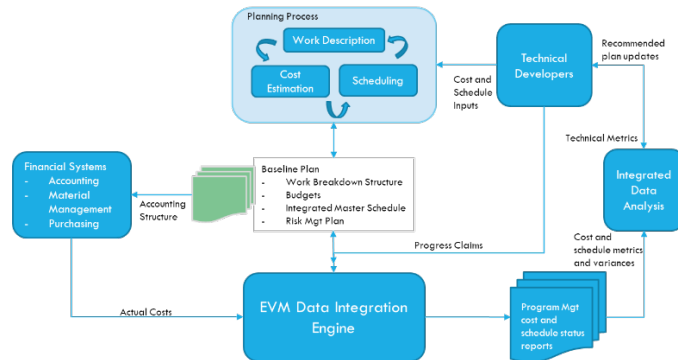


Figure 1. Simplified EVMS Representation

As one can imagine, integrating these activities into a cohesive strategy can be difficult if pre-established governance is not documented and followed. Thus, the government performs a compliance assessment to approve or disapprove a business system to ensure EVMS principles are met.



The Compliance Process

The compliance process assesses how the contractor's EVMS will integrate with various business systems and procedures to help manage the program. In addition, the compliance process will determine how the contractor will develop the technical plan, provide objective measures for monitoring progress against the plan, and report and analyze the project to support program forecasting and program management decision making.

Figure 2 provides an overview of the current DoD EVMS compliance process. The diagram shows that the EVMS requirements are manifest in many regulations, standards, and guidelines; a list of a few of those requirements follows:

- 1) The EIA-STD-748D Earned Value Management System Standard describes 32 guidelines that define the features of an EVMS ("Earned Value Management Systems [EIA-STD-748D]," n.d.). As with any standard, additional clarification is necessary for implementation.

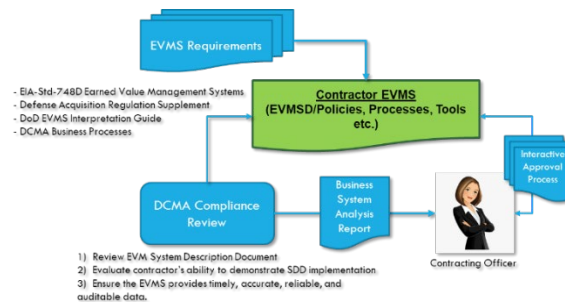


Figure 2. Overview of Current EVMS Compliance Process

- 2) The Department of Defense Earned Value Management System Interpretation Guide (EVMSIG; n.d.).
- 3) The Defense Federal Acquisition Regulation Supplement (DFARS) 252.234-7001, Notice of Earned Value Management System (n.d.); DFARS 252.234-7002, Earned Value Management System (n.d.); DFARS 252.242-7005, Contractor Business Systems (n.d.).
- 4) DCMA Business Processes (n.d.).

The EVMSIG is the DoD policy for EVMS and is used by the Defense Contract Management Agency's (DCMA) Earned Value Management Center to assess compliance. The compliance assessment is documented in a Business System Analysis Report (BSAS) and provided to the contracting officer, who has the authority to approve the EVMS. The initial report may note material weaknesses of the system, and if so, the contracting officer works with the contractor to resolve these deficiencies. Once the contractor addresses all the material weaknesses, the contracting officer approves the EVMS for life. However, the DCMA still conducts annual compliance surveillance to monitor the contractor's EVMS to ensure it stays compliant. For example, suppose the DCMA EVMS Center finds any material weaknesses during this yearly process. Then they can recommend to the contracting officer a review for cause or disapproval of the system. In either case, the contracting officer can require a compliance review.



The Law

On January 7, 2011, the Ike Skelton National Defense Authorization Act (NDAA) for Fiscal Year (FY) 2011 was signed into law (Pub. L. 111–383). As per the NDAA (n.d.),

“Sec. 893 Directs the Secretary to develop a program for the improvement of contractor business systems to ensure that such systems provide timely, reliable information for the management of DOD programs by the contractor and by DOD. Provides for DOD approval or disapproval of such a business system, with appropriate corrective action for disapproved systems.”

There are six business systems: the Cost Accounting System (CAS), the Purchasing System, the Estimating System, the Material Management and Accounting System (MMAS), the Property Management System, and the Earned Value Management System (EVMS). To do business with the government, all contractors must have all business systems in place and approved by the government, except for EVMS. A contractor EVMS is only audited if it is performing on a development program with a cost-type contract that exceeds \$100 million over the acquisition life cycle, thus significantly reducing the number of contractors who must be audited for a compliant EVMS. EVMS is also unique from the other business systems because it is primarily used to facilitate program management and less so on the auditable financial accuracy of the other methods. Keep in mind that a significant amount of taxpayers’ money is being spent to execute development programs less than \$100 million over the acquisition life cycle.

The FY2017 NDAA (Sec. 893) was updated and, as summarized by the NDAA (n.d.), “Requires DOD to identify and make public clear business system requirements, allow contractors to submit certifications from their third-party independent auditors (Specifically Registered Public Accounting Firms (RPAF)) that their business systems conform to DOD’s business system requirements,” without further review by the secretary of defense. However, the law “allows a milestone decision authority to require further auditing of business systems to manage contractual risk.”

We believe the impetus of the law is primarily to have third-party auditors help the DCAA workforce get through the business system approval process. Although the DCMA is not in the same understaffed situation as the DCAA for EVMS reviews, they are not able to work with program offices to help them understand how to use the EVM data for predictive analysis. In addition, due to policy, the DCMA only reviews systems that contractors are using for development contracts over \$100 million.

The Study

The (acting) deputy assistant secretary of defense for acquisition enablers and the U.S. Space Force jointly sponsored a study investigating the 2017 NDAA Section 893 concerning the earned value management business system. The investigation started in September 2021 and has a period of performance of 10 months.

The study is being done by the Systems Engineering Research Center (SERC) from Stevens University, Hoboken, NJ, as part of the Acquisition Innovation Research Center (AIRC). Key participants in the study include earned value management experts at DCMA, the Air Force, the Navy, the Space Force, the National Reconnaissance Office (NRO), NASA, and the Missile Defense Agency (MDA). Other key stakeholders helping to guide the direction of the study include OSD/ADA, OSD/DPC, the U.S. Space Force, and the Office of Management and Budget (OMB).



The technical approach of the study is to use research, interviews, and outreach for data gathering and feedback on emerging concepts.

The study's objective is to identify a model for Third-Party Assessment to increase the efficiency of EVMS approval processes and maximize the level of oversight and adherence to the specified EVMS standard.

Current Status

After agreeing on the problem description and the study objectives with the core team, we identified three types of organizations we needed to include in our conversations:

- 1) Consulting Firms doing EVMS compliance gap analysis
- 2) Defense contractors who are currently using EVMS on their programs
- 3) Registered Public Accounting Firms

Consulting Firms (Vendors)

We interviewed several consulting firms that defense contractors hire to conduct EVMS requirements or gap analysis as part of the contractor's preparation for a DCMA compliance review. These discussions were limited to one hour and focused on three areas: a) What EVMS requirements do you use to assess compliance against? b) What EVM(S) expertise do you use for these reviews? c) What is the scope of your reviews?

EVMS Requirements Response Summary

- All those interviewed ground their reviews with the EIA-Std-748D and the publicly available government requirements.
- Although the requirements are precise for organizations familiar with EVMS, that is not the case for contractors just getting acquainted with EVMS.
- EVMS is a unique skill set that seems to be fading across government and industry; this issue poses a challenge when performing compliance assessments.
- All vendors have standard processes and reports they provide their customers.
- During their review, a few vendors emphasized how the Integrated Master Schedule (IMS) is constructed and used the NDIA Planning & Scheduling Guide (PASEG) as a basis for their review.

Team EVM Expertise Response Summary

- None of the firms interviewed were registered public accounting firms.
- Expertise of the people doing the reviews includes those with EVMS compliance and surveillance experience, those with experience using EVM on programs, and those who have scheduling experience.
- None of the vendors required any specific EVM certification. Still, all did internal training of EVM, and most had internal testing done to assess employees' skill levels in EVM and scheduling.

Scope of the Review Response Summary

- All vendors, as a minimum, use the three basic steps of compliance: 1) Review the contractor's EVMS System Description (SDD), which should document how a company uses its internal processes to meet the EVMS requirements. 2) Assess the contractor's ability to demonstrate the use of the processes and procedures documented in the SDD, including tools. 3) Review the ability of the contractor to produce timely, reliable, and accurate data from their



EVMS, which entails reviewing a sampling of actual data from programs using EVM and generating EVM reports.

Study Observation

Companies exist that would be able to perform compliance assessments to the level of detail required for a government contracting officer to decide on the approval of a contractor's EVMS. However, further investigation is necessary to ensure the review provides the level of detail required by contracting officers.

The EVMS requirements should (could) be augmented to specify what level of detail the contracting officer requires to make a final determination.

The requirement for an RPAF to perform the compliance assessment is a problem; these companies would need to either become an RPAF or partner with one.

Large Defense Contractors

The interviews with large contractors were with companies that currently have approved systems and perform on \$100 million or larger government development contracts.

The purpose of the discussions was to get their opinions on the law and whether they see the EVMS compliance process changing for them.

Contractor Interview Results Summary

- 1) It is not clear that having the ability to go through a third party to get a compliance assessment would benefit large companies; they all have internal organizations that do independent auditing of their business systems, including EVMS.
- 2) These companies expressed concern about how the interaction between the third-party assessors and DCMA might be done.
- 3) Large companies were also concerned about whether a third-party audit's costs would be allowable.

Study Observation

The study will need to address the concerns raised by the defense contractors and the consulting firms. For now, we offer a few considerations.

- A) Consider that third-party assessment as per the law would not apply to contractors currently working with an approved EVMS.
- B) The study should look for opportunities to apply the law that addresses contractors not currently covered by the \$100 million threshold.

Interviews of RPAFs

The study has not held any interviews with RPAFs as of early April 2022. However, plans are to conduct those interviews by the end of April.

The Model

Based on the results of the weekly meetings, the monthly stakeholder reviews, and the interviews, the team has a Draft proposed third-party assessment model that can be used to guide the continued maturation of the concept.

Figure 3 contains a process model for addressing the update to Section 893 in the 2017 NDAA. The diagram shows a defense contractor providing certified documentation stating that it attests that the contractor's business system meets the published government requirements.



The process is identical to the current compliance process except for who does the compliance assessment.

The remainder of this study will be to refine this model supported by a detailed model description and to identify the following steps to include a possible pilot.

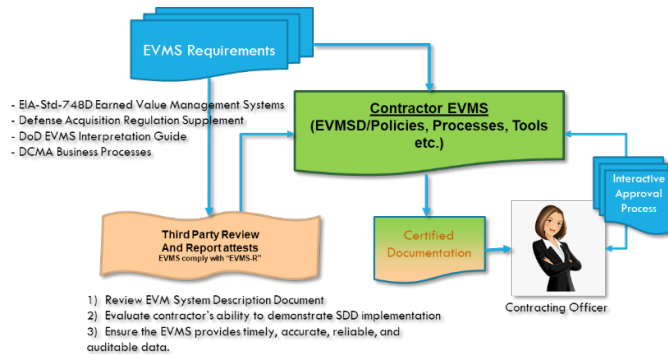


Figure 3. Proposed Third Party Assessment Model

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