

PROPOSED REVISION TO DOD EARNED VALUE MANAGEMENT POLICY AND RATIONALE FOR CHANGES

Fitzgerald's First Law of Program Management:¹ *“There are only two phases to a big military program: Too early to tell and too late to stop. Program advocates like to keep bad news covered up until they have spent so much money that they can advance the sunk-cost argument; that it's too late to cancel the program because we've spent too much already.”*

Benefits of EVM

Although cynical, the above axiom is all too real and common, not generally because of the deliberate withholding or misrepresentation of information, but because of a simple lack of objective and accurate information on current program status and what that translates to in terms of most likely program outcomes. **Effective management control** is lost the moment accurate information on where a program is and where it will end up is unavailable.

This is simply unacceptable. Management is **accountable** for program outcomes, so it follows that they must have the necessary information that will allow them to effectively control their programs and thus fulfill their responsibility.

If implemented correctly, Earned Value Management (EVM) provides the necessary information to avoid Fitzgerald's *First Law of Program Management*.

This is because EVM is an **integrating** project management tool that **facilitates improved planning and control** of cost, schedule, and work scope. It integrates the functional stovepipes of work scope, schedule, and cost to create an **aggregate picture of performance**, thus providing management with the necessary information to ensure that day-to-day decisions keep performance consistent with program objectives.

To put it another way, EVM provides an **early warning** system for deviations from plan and **quantifies** technical and schedule problems in cost terms, providing a sound and objective basis for considering corrective actions (i.e., work arounds, tradeoffs, etc.). Thus, EVM both **mitigates the risk** of cost and schedule overruns, while also providing a **forecast** of final cost and schedule outcomes.

The following recommendations aim to simplify, improve, and increase consistency in Department of Defense (DoD) EVM policy and processes. They are a reflection of modern day EVM best practices aimed at **bringing EVM within DoD into the 21st Century**.

EVM Management Standard – Industry Standard

Recommendation 1: A contractor Earned Value Management System (EVMS) compliant with the current version of American National Standards Institute/Electronic Industries Alliance Standard 748 (ANSI/EIA-748)—a.k.a. Industry Standard (as interpreted by the Guidelines Intent document for complex high-risk projects) will be required whenever EVM is required.

The 32 EVM Guidelines in the Industry Standard do not tell the contractor how to do the work, instead they establish **minimum management control guidelines** for an EVMS. Every EVMS must comply with these guidelines; otherwise there is no **assurance** that the

¹ James P. Stevenson. *The Pentagon Paradox: The Development of the F-18 Hornet*. Naval Institute Press, Annapolis, Maryland, 1993, p. 305.

EVM data being provided and relied upon by management is valid. The Guidelines Intent document further interprets the intent of these guidelines.

The Cost/Schedule Status Report (C/SSR) and Cost Performance Report-No Criteria will be eliminated because they do not require contractor compliance with any set of minimum management control principles. Eliminating these categories standardizes EVM reporting requirements and improves the timeliness, accuracy, and reliability of the data created by the EVMS. In addition, eliminating these categories emphasises that DoD is serious about doing EVM against a verifiable standard.

EVM Reporting

Recommendation 2: A Contract Performance Report (CPR) and Integrated Master Schedule (IMS) will be required whenever EVM is required.

EVM reporting provides the customer program office **insight** into (i.e., not oversight of) contractor performance. This is vital to enable the customer to provide the specific and timely input that the contractor needs in order to succeed, and to fulfill the DoD program manager's monitoring and reporting role to higher management. It **facilitates communication** between contractor and customer because it presents an accurate quantification of project performance at whichever level of the Work Breakdown Structure (WBS) (required) and Organizational Breakdown Structure (OBS) (optional) is being reviewed. It also maximizes **project management efficiency** because EV data allows for management by exception by both the DoD customer and the contractor, while enabling the contractor team to manage the day-to-day work at the task level.

The 32 EVM Guidelines in the Industry Standard leave it to the customer to determine the details of the EV data to be reported and the level of analysis required. As a consequence, the customer reporting requirements can require a higher standard of data and analysis. A **higher minimum** standard of data and analysis will be adopted in the updated Data Item Descriptions (DIDs) to reflect **industry best practice** and enable the use of **modern EVM software tools**. These changes are aimed at ensuring contractors and DoD program offices 'use EV data to manage,' rather than merely trying to 'manage the EV data.' At an appropriate time, the Industry Standard itself may need to be updated, as industry best practice becomes the norm.

The most significant changes to the updated CPR (to be called Contract Performance Report) include:

- Reducing the time period within which EV data and analysis must be available, and strengthening the requirement for digital submission – this will improve the **timeliness** of reporting, hence increasing its management value.
- Requiring more **comprehensive data** (e.g., separating out General and Administrative (G&A), major subcontractor, material, reprogramming adjustments, and Over Target Baselines; and requiring Performance Measurement Baseline (PMB), Estimate at Completion (EAC), and staffing forecasts monthly for the next six months and monthly, quarterly, or annually to the end of the contract) – this will improve visibility of performance.
- Requiring a minimum set of requirements and more **comprehensive analysis** in Format 5 explanations – this will ensure the data is used, understood, and acted upon.

The most significant changes to the updated IMS include:

- Mandating and **integrating the IMS with the CPR** (e.g., identical contract WBS to be used, concurrent delivery, concurrent analysis) – sound scheduling with critical path analysis has always been a key part of EVM (3 EVM Guidelines deal with it specifically), yet previous policy has overlooked the IMS. Mandating and integrating the IMS with the CPR corrects this oversight.
- Requiring a fully **integrated network of discrete contract tasks/activities** – this will improve scheduling and eliminate networking of only ‘significant’ interdependencies, an approach that has serious shortcomings, which have been noted on numerous programs.

As a consequence of eliminating the C/SSR category, C/SSR reports are also eliminated.

The CPR and IMS will remain tailorable and tailoring guidance is being developed for inclusion in the Earned Value Management Implementation Guide (EVMIG). A tailored CPR for contracts under the \$50M threshold will include as a minimum Format 1 and a tailored Format 5 (Formats 2, 3, and 4 will be optional). Within the parameter of requiring a fully integrated network of discrete tasks/activities, the IMS will also be tailorable for contracts under the \$50M threshold and for low-risk mature full-rate production or sustainment contracts.

EVM Application Threshold

Recommendation 3: EVM compliant with the Industry Standard will be required on all cost or incentive contracts, subcontracts, intra-government work agreements, and other agreements greater than or equal to \$20M (optional for contracts of less than 12 months in duration and non-schedule based contracts such as time and materials, level of effort, etc.).

Recommendation 4: EVM for all cost or incentive contracts, subcontracts, intra-government work agreements, and other agreements below \$20M will be a risk-based decision (unless designated as a “major acquisition” in accordance with Office of Management and Budget (OMB) Circular A-11).

As noted above, EVM identifies cost and schedule overruns and their causes as an input to risk assessment and handling. Consequently, where the DoD program manager’s risk analysis has determined that sufficient risk exists to justify a cost or incentive contract, subcontract, or other agreement, then there is also sufficient risk to require EVM. The Research, Development, Test, and Evaluation (RDT&E) versus Procurement/Operations and Maintenance (O&M) distinction is a factor that is taken into account when deciding contract type (i.e., risk), so it is redundant to again make it a factor in determining EVM application.

The above application threshold represents a raising of the current C/SSR threshold (from \$6.3M) and a lowering of the current CPR thresholds for RDT&E (from \$73M) and Procurement/O&M (from \$315M). The \$20M threshold aligns with U.S. Department of Energy practice and Australian practice. It is a **balanced approach** that gives greater discretion to program managers at lower contract values, while also recognizing that the current thresholds are outdated.

Recommendation 5: EVM for all firm fixed price contracts, subcontracts, intra-government work agreements, and other agreements will be a risk-based decision.

Firm fixed price contracts can still expose the customer to significant schedule risk and even residual cost risk if cost overruns cause the contractor to ‘cut corners’ (e.g., reducing quality as less experienced, lower cost staff perform the work and inferior materials are used, reducing testing, increasing the cost of contract changes and follow-on support contracts to recoup the overrun). Consequently, EVM on firm fixed price contracts is a risk control option that will be available to program managers, but not mandated

(Note: Tailoring guidance for the CPR and IMS on firm fixed price contracts, subcontracts, intra-government work agreements, and other agreements will be provided in the EVMIG, along with guidance that EVM should not be required on contracts of less than 12 months in duration and non-schedule based contracts such as time and materials, level of effort, etc. Definitions of the non-schedule based kinds of contracts will be included in the guidance.)

EVM Implementation

Recommendation 6: A validation of the contractor EVMS’s compliance with the Industry Standard will be required on all cost or incentive contracts, subcontracts, and other agreements greater than or equal to \$50M. Validation for all other cost or incentive contracts, subcontracts, and other agreements and for any firm fixed price contracts, subcontracts, and other agreements for which EVM is required will be a risk-based decision.

Once a contractor’s EVMS is validated and formally accepted by DoD, acceptance will continue to be affirmed via government surveillance. Validation does impose costs. These costs should and will be borne by the government for the following reasons:

- The primary purpose of the validation is to **mitigate** the inherent performance **risk** of any supplier that undertakes a high-risk contract. This is fundamentally a customer responsibility and reflects an appropriate investment in managing taxpayer funds efficiently and effectively. This responsibility can be outsourced to third parties (although note the third bullet below), but contractors must not be allowed to self-regulate; there must be **independent review** of the contractor’s processes to ensure the **integrity** of the validation.
- High-risk contracts impose risk on the customer and this is accepted through cost or incentive type contracts, subcontracts, and other agreements. The necessity to allocate resources to manage this risk is self-evident and should be explicitly acknowledged and funded accordingly. Funding the validation process **shares some of the costs** of requiring higher standards of project management with contractors.
- DoD validation improves DoD’s ability to be an **‘informed customer’** – it is important on high-risk contracts for both the customer and contractor to have higher levels of capability, knowledge, and skills. If the customer is not informed, then contractor performance is adversely affected.
- Validation is an important means to facilitate **continuous improvement** because it brings the combined wisdom of a team of experts to provide a reality check on a contractor’s EVMS. A balance in the investment required of the customer to undertake this role can be achieved by not requiring validation at the lower value end of the scale, although compliance with the Industry Standard is still required by the contractor.

Recommendation 7: Government surveillance of the contractor's EVMS will be required whenever EVM is required.

Government surveillance is required, regardless of whether there is an upfront validation, to provide **assurance** that contractors comply with their contractual obligations and to ensure that the EV data being provided and relied upon by management is valid. The customer must monitor contractor performance in order to fulfill its obligations to the public in managing taxpayer funds. The degree of government surveillance should be based on the effectiveness of the contractor's implementation of internal management controls.

(Note: The EVMIG will mention joint government/contractor surveillance as an option and will reference the National Defense Industrial Association (NDIA) Surveillance Guide. Policy will be developed on what remedies will be available to DoD if surveillance uncovers that a contractor's EVMS is not compliant with the Industry Standard (as interpreted by the Guidelines Intent document for complex high-risk projects), or that the EV data being reported in the CPR and IMS is not compliant with what is required by the respective DIDs.)

Recommendation 8: Integrated Baseline Reviews (IBRs) will be required whenever EVM is required.

IBRs are required whenever EVM is required in order to assess that the contractor baseline for performing the work is achievable and that both the contractor and customer understand all significant risks. An IBR is simply **good practice** at the start of any project regardless of size, and it can be tailored as appropriate to the scope of the work. Further, should the contract requirements (or the contractor's approach for complying with them) change significantly, IBRs should be conducted as needed to assure that the contractor has established an executable plan with understood risks.

Implementation of Policy Changes

It is not proposed that the revised EVM policy be retroactive; however, the changes are aimed at improving DoD and industry EVM practice, so there will be no prohibition on programs adopting changes and negotiating them into existing contracts, subcontracts, or other agreements. The duration remaining on a contract and other risk factors should be considered in making the determination to modify an existing contract to require EVM. The costs associated with imposing new or different EVM requirements on existing contracts should and will be borne by the government.