EFCOG Best Practice #257

Best Practice Title: Implementation and Roll-out of the Integrated Project/Program Management (IP2M) Maturity and Environment Total Risk Rating (METRR) using EVMS.

Facility: Tank Operations Contractor Washington River Protection Solutions (WRPS), Hanford Site, Richland Washington

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Brief Description of Best Practice: This best practice is based on the Department of Energy (DOE) Office of Project Management (PM) Project Controls Division, Earned Value Management Systems Compliance Review Standard Procedure (ECRSOP), Appendix A Compliance Assessment Governance (CAG) requirements (below) and identifies a useful approach to the establishment of an effective, and scalable implementation and roll-out of the IP2M METRR process.

WRPS agreed to serve as the pilot program for DOE-PM's IP2M METRR approach developed through the Arizona State University Study, commissioned by PM-30. While PM-30 has and continues to develop a Project Assessment and Reporting System (PARs) based tool platform, WRPS moved forward with this approach to begin assessing its EVMS health posthaste. See attached illustrations.

This best practice encompasses the incorporation of the IP2M METRR verbatim characteristics (Maturity, Environmental Factors, Attributes, Effectiveness Criteria, Weighting and Scoring) into an Excel based platform, facilitating immediate and effective use by any contractor wishing or required to assess the health of their Earned Value Management System (EVMS).

In addition to the development of the Excel based platform, this best practice demonstrates the efforts to roll-out the implementation of the IP2M METRR through example and presentation to industry. See attached presentations.

IP2M METRR Requirements:

A uniform approach to evaluate the contractor's EVMS helps to safeguard the fairness and transparency of the EVMS compliance assessment process. The examination of management sub-process groups and maturity attributes facilitates the correct interpretation of the Electronic Industries Alliance Standard 748 (EIA-748) standard. This systematic approach leads to a consistent determination of the maturity and effectiveness of the contractor's EVMS vice just a burdensome costly routine to document compliance as contractually required.

Consistent with the ECRSOP/CAG, compliance reviews assess, document, and report instances of EVMS compliance utilizing ten project management sub-process groups that are further defined by 56 maturity attributes. The ten sub-processes are:

A. Organizing
B. Planning and scheduling
C. Budgeting and work authorization
D. Accounting considerations
E. Indirect budget and cost management

F. Analysis and management reporting
G. Change control
H. Material management
I. Subcontract management
J. Risk management

The determination of EIA-748 compliance for a management sub-process and maturity attribute is accomplished by assessing associated data and information over a specified time to determine how well it meets a set of capability limits or thresholds.

The review examines the effectiveness of the EVMS and its compliance with the intent and requirements of EIA-748. This is accomplished via the combined analyses of EVMS data, artifacts, and information; the EVM system description and supporting operating procedures review; and discussions with contractor and government personnel. Contractors are also expected to perform self-governance (SG).

SG refers to the capacity of a project/program to govern autonomously and, as such, is an important approach to overseeing the effective implementation of the EVMS. When projects/programs instill an integrated project management methodology using the EVMS in a way that benefits both the customer and contractor, the results can often lead to improved execution and the optimal performance of the project/program team. EIA-748 compliance is accomplished through SG where both the customer and contractor hold themselves accountable for the oversight and validation of EVMS-generated data. Customer, contractor, and stakeholder active involvement in encouraging and establishing a culture of SG is essential to an effective EVMS. SG is a repeatable process in which the contractor (as the EVMS owner) oversees itself and controls its affairs. When a project/program instills an integrated project management methodology and promotes a culture of SG and compliance, it positions itself for success.

An objective SG approach ensures the long-term sustainability of a continuously improving EVMS and is visible, structured, and genuinely endorsed by customer and contractor organizations. Key characteristics and features include:

- Leadership engagement which encourages continuous improvement and defines and enforces a culture of compliance;
- A chartered authority structure with cross-organizational engagement (e.g., financial office, procurement, quality assurance, etc.) which reports to and interacts routinely with institutional leadership;
- A methodology to routinely assess system health via clearly defined and independently positioned oversight that has a clear line to senior management;
- Effective, consistent, and defined processes that are repeatable and enduring;
- A learning organization capable of maintaining and improving workforce skills via proven techniques such as peer-to-peer mentoring; and
- Above all and incorporated throughout are transparency and openness to feedback.

The PM EVMS ECRSOP contains this CAG based on the EIA-748 EVMS standard and expanded to include the use of an EVMS when the EIA-748 EVMS standard is not required. This promotes the use of performance-based management systems to reduce the risk of cost escalation and failure to achieve

schedule, budget, and performance goals. It ensures that DOE projects consistently implement and continuously assess the effectiveness of the EVMS.

Using IP2M METRR, projects can gauge the efficacy of their management methods and practices in achieving optimum performance and desired outcomes. IP2M METRR helps projects identify the various ways the environment and implementation maturity interact and interdepend to facilitate decision-making, problem-solving, and continuous process improvements.

By comparing implementation maturity and environment using a matrix diagram, for example, a reviewer can easily depict the relationship of the project's environment to the maturity of the EVMS side by side.

In November 2018, PM initiated a government-industry joint research study, led by Arizona State University (ASU), to develop a method for improving the relevance and reliability of EVMS implementation.

The study found that a common set of EVMS processes and attributes are a necessity. It devised a sliding maturity scale to define the optimum (right size) for EVMS implementation. The results showed that projects implementing an effective EVMS had more reliable data with deeper insight into performance issues, which can lead to rational decisions and better outcomes.

Maturity Subprocesses and 56 Attributes of EVMS

A. ORGANIZING
- A.1. Product-Oriented Work Breakdown Structure (WBS)
- A.2. Work Breakdown Structure (WBS) Hierarchy
- A.3. Organizational Breakdown Structure (OBS)
- A.4. Integrated System with Common Structures
- A.5. Control Account (CA) to Organizational Element

B. PLANNING AND SCHEDULING
- B.1. Authorized, Time-Phased Work Scope
- B.2. Schedule Provides Current Status
- B.3. Horizontal Integration
- B.4. Vertical Integration
- B.5. Integrated Master Schedule (IMS) Resources
- B.6. Schedule Detail
- B.7. Critical Path and Float
- B.8. Schedule Margin (SM)
- B.9. Progress Measures and Indicators
- B.10. Time-Phased Performance Measurement Baseline (PMB)

C. BUDGETING AND WORK AUTHORIZATION
- C.1. Scope, Schedule and Budget Alignment
- C.2. Over-Target Baseline (OTB) Authorization
- C.3. Summary Level Planning Packages (SLPPs)
- C.4. Work Authorization Documents (WADs)
- C.5. Work Authorization Prior to Performance
- C.6. Elements of Cost (EOC)
- C.7. Work Package Planning, Distinguishability, and Duration
- C.8. Measurable Units and Budget Substantiation
- C.9. Appropriate Assignment of Earned Value Techniques (EVTs)
- C.10. Identify and Control Level of Effort (LOE) Work Scope
- C.11. Identify Management Reserve (MR) Budget
- C.12. Undistributed Budget (UB)
- C.13. Reconcile to Target Cost Goal

D. ACCOUNTING CONSIDERATIONS
- D.1. Direct Costs
- D.2. Actual Cost Reconciliation
- D.3. Recording Direct Costs to Control Accounts (CAs) and/or Work Packages (WPs)
- D.4. Direct Cost Breakdown Summary

E. INDIRECT BUDGET AND COST MANAGEMENT
- E.1. Indirect Account Organization Structure
- E.2. Indirect Budget Management
- E.3. Record/Allocate Indirect Costs
- E.4. Indirect Variance Analysis

F. ANALYSIS AND MANAGEMENT REPORTING
- F.1. Calculating Variances
- F.2. Variances to Control Accounts (CAs)
- F.3. Performance Measurement Information
- F.4. Management Analysis and Corrective Actions
- F.5. Estimates at Completion (EAC)

G. CHANGE CONTROL
- G.1. Controlling Management Reserve (MR) and Undistributed Budget (UB)
- G.2. Incorporate Customer Directed Changes in a Timely Manner
- G.3. Baseline Changes Reconcilable
- G.4. Control of Retroactive Changes
- G.5. Preventing Unauthorized Revisions to the Contract Budget Base (CBB)

H. MATERIAL MANAGEMENT
- H.1. Recording Actual Material Costs
- H.2. Material Performance
- H.3. Residual Material
- H.4. Material Price/Usage Variance
- H.5. Identification of Unit Costs and Lot Costs

I. SUBCONTRACT MANAGEMENT
- I.1. Subcontract Identification and Requirements Flow Down
- I.2. Subcontractor Integration and Analysis
- I.3. Subcontract Oversight

J. RISK MANAGEMENT
- J.1. Identify, Analyze and Manage Risk
- J.2. Risk Integration

IP2M METRR consists of four environmental categories, each of which is further divided into a total of 27 factors necessary for the effective implementation of the EVMS. The reviewer evaluates environment factors on a scale from “not acceptable” and “needs improvement” to “meets some,” “meets most,” and “high performing.” Environment factors that fully meet the criteria defined in the factor descriptions receive a high-performing rating, while those that meet some of the criteria receive a “meets some” rating, and so on.

Each environmental factor has an associated relative weight; all factor scores sum to 1,000 points. A point scale helps gauge the environment within which a project is being managed. The study shows that the higher the environment score is, the better chance a project has of achieving desirable schedule and budget outcomes.

Environmental Factors – Cultural (partial)

Description	Checkpoint
1A The contractor organization supports and is committed to EVMS implementation, including making the necessary investments for regular maintenance and self-governance.	a) The contractor integrated project team (IPT)—including corporate leadership, execution and operations personnel, oversight personnel, and support staff—is in place, and it has a demonstrated belief in the intrinsic value of the EVMS to position the project for success. b) The project follows an integrated project management strategy to identify and manage risks using the EVMS that would otherwise impair a well-formed baseline plan. c) The project has committed resources, including funding, to ensure that effective implementation of the EVMS is a priority, assuring continuous improvement and accountability at every level of the contractor organization. This commitment ensures the availability of key individuals who contribute to implementing the EVMS. Typically, this includes the availability and commitment of other personnel with specialized skills and knowledge of the EVMS, who may or may not be “dedicated” to the project. d) Contractor leadership and team member attitude and discipline, at the corporate office and project levels, lead to the correct use, application, and acceptance of EVMS as an integrated project management tool used in the definition of work scope, planning and scheduling, budgeting and work authorization, managerial analysis, reporting, forecasting, and risk management. e) Contractor leadership actively revisits the most effective ways to evaluate EVMS metrics that support decision-making. f) The contractor organization’s policies include incentives and education to foster support and commitment to implementing the EVMS. g) The contractor team does not choose convenience over following the EVMS regulations and procedures that apply to the project. h) Project decision-making, which ultimately drives project results, is collaborative and effectively relies on EVMS-generated data and metrics. i) Governance is enforced and effective at dealing with the project challenges. Self-governance refers to the capacity of a contractor to govern autonomously, an important approach in overseeing effective EVMS implementation. When a contractor instills integrated project management principles using the EVMS in a way that benefits all levels of the organization, the results can guide management decisions, lead to improved project execution, and optimize the performance of the project team.

Why the Best Practice was used: To align with the requirements of the DOE ECRSOP/CAG in performing SG assessments of the WRPS EVMS data and information. This best practice is also intended to forge a path forward for others (with or without an EVMS certification requirement) to assess the health of their EVMS for continuous improvement.

What are the benefits of the best practice: Implementation of this IP2M METRR based best practice consistently provides the most efficient, and compliant approach to SG of the EVMS health and continuous improvement. In addition, evaluation is performed at the "effectiveness criteria" level, versus attribute. Other benefits include the ability to demonstrate SG performance, data and information is available for trending, lessons learned, and continuous improvement.

What problems/issues were associated with the best practice: The primary challenge of this best practice was the development of an Excel version of both the maturity and environmental factors that translated directly from the IP2M METRR in structure and scoring.

How the success of the Best Practice was measured: Success is measured in the assessment performance with minimal resources (versus a full review team), while covering all the attributes, effectiveness criteria, with the IP2M METRR as an industry recognized basis for the rating/scoring.

Description of process experience using the best practice:

The first action by the contractor is to develop a platform to organize, execute, score, and otherwise document the EVMS assessed health, consistent with the IP2M METRR maturity and environmental attributes and effectiveness criteria if not using the DOE PARs tool. The process should be established in the contractor's SG policy, procedure, and guide. The frequency of performance should be established upfront in the SG governing document(s).

The second action is to perform the assessment/review, documenting individual effectiveness criteria/attribute scores and narrative basis for the scores in the review platform.

The third action is to compile and summarize the results into a presentation format for communicating to staff, leadership, Self-Governance Board (SGB) if applicable, stakeholders, and the EVMS certifying authority, if applicable. The following Maturity and Environment artifacts reflect the WRPS SG approach to assessing EVMS health for continuous improvement:

Maturity

A - Organization

Group	Criteria #	Effectiveness Criteria	Rating	Comment/Recommedation
Process	A.1 1	The process to establish a singular, product-oriented WBS that accurately reflects the products, services, and deliverables required to complete the project/program has been developed, documented and approved.		
Process	A.1 2	Internal checks are in place to validate that the WBS meets project/program requirements. Checks may be outside the WBS process flow. The project/program ensures that the WBS is verified as product-oriented, with corrections performed as required during project/program start-up. Products fulfill all project/program requirements. If required, WBS descriptive documents such as a WBS dictionary, index, or similar document(s) have been developed.		
Process	A.1 3	The WBS is fully integrated with the Planning and Scheduling sub-process, Budgeting and Work Authorization sub-process, Change Control sub-process, Accounting Considerations sub-process, and Analysis and Management Reporting sub- process.		
Process	A.2 1	The process to develop and maintain a logically grouped WBS has been defined, documented, and approved.		
Implement	A.2 2	The logic is consistent, and groupings of work scope are arranged with vertical integration throughout the WBS hierarchy. Any issues are minor, not repetitive, and can be quickly and easily corrected. Problems are identified, logged, tracked, mitigated, corrected and closed, providing management with insight to make timely decisions.		
Implement	A.2 3	WBS descriptive documents such as a WBS dictionary, index, or similar document(s) have been developed.		
Implement	A.2 4	Products meet all project/ program requirements.		
Process	A.2 5	The WBS Hierarchy is consistently and fully integrated with the Analysis and Management Reporting sub-process, the Accounting Considerations sub-process, and the Subcontract Management sub-process.		
Process	A.3 1	The process to develop and maintain an OBS is defined, documented, reviewed and approved.		
Process	A.3 2	The OBS is decomposed to the appropriate organizational levels including all major subcontractors. The required OBS is routinely validated through internal checks per approved processes.		
Implement	A.3 3	Products meet all project/ program requirements.		
Process	A.3 4	The OBS is fully integrated with the Analysis and Management Reporting sub-process and Subcontract Management sub-process.		
Process	A.4 1	All WBS and OBS elements are clearly defined and traceable through all project/program documentation and systems. All key data is aligned across sub-systems.		
Process	A.4 2	All CAs clearly map to one WBS and one OBS. Management reports are traceable to the planning, scheduling, budgeting, work authorization and cost accumulation documents and representative systems.		
Implement	A.4 3	Integration is rigorously monitored by management. Any issues are minor and easily correctable with no impact to the project/ program. Problems are identified, logged, tracked, mitigated, corrected and closed, providing management with insight to make timely decisions		
Process	A.4 4	The Integrated System requirement is fully integrated with the Planning and Scheduling sub-process, Budgeting and Work Authorization sub-process and Accounting Considerations sub-process.		
Process	A.5 1	The process to designate CAs to WBS/OBS is approved and accurately reflects the products, services, and deliverables required to complete the project/program.		
Process	A.5 2	The process is monitored and updated as needed. Problems are identified, logged, tracked, mitigated, corrected and closed, providing management with insight to make timely decisions.		
Implement	A.5 3	All CAs are clearly aligned to a single WBS and OBS, with appropriate documentation (e.g., RAM).		
Process	A.5 4	The CA and CAM assignments are fully integrated with the Budgeting and Work Authorization sub-process, Analysis and Management Reporting sub-process and Change Control sub-process.		

B – Planning and Scheduling

Owner	Group	Criteria #	Effectiveness Criteria	Rating	Comment/Recommendation
Contractor	Implement	B.1 1	The IMS is fully defined, with a few minor exceptions, and all of the activities and authorized work scope are traceable to the contract, WBS, PEP, SOW/SOO, IMP, or similar documents.		
Contractor	Process	B.1 2	A defined and approved process and structure is in place to provide mapping and traceability of all activities to the contract, WBS, PEP, SOW/SOO, IMP or similar documents. Problems are identified, logged, tracked, mitigated, corrected and closed, providing management with insight to make timely decisions.		
Contractor	Implement	B.1 3	Segregation of internal and subcontract or procurement work scope has occurred.		
Contractor	Implement	B.1 4	Subcontractors or procurements designated as HDV/CI are separately identified and assigned to the appropriate WBS elements.		
Contractor	Implement	B.1 5	Subcontractor and procurement work scope are integrated into the project/program's single IMS at a level to provide for accurate reporting and performance measurement.		
Contractor	Process	B.1 6	The Time-Phased Work Scope is fully integrated with the Material Management sub-process and the Subcontract Management sub-process.		
Contractor	Process	B.2 1	The "Time Now" status date is in alignment with accounting period information and updated monthly.		
Contractor	Implement	B.2 2	Schedule forecasts consider the SRA. Activity duration estimates represent the most likely time the work should take.		
Contractor	Process	B.2 3	Schedule updates are reviewed monthly with schedule stakeholders, and changes are effectively communicated in order to inform management decision-making. Schedule status is monitored and tested to assess system health and integrity. Problems are identified, logged, tracked, mitigated, corrected and closed.		
Contractor	Process	B.2 4	Scheduling assessment may occur more frequently than monthly and results in the schedule providing current status, and related data used in project/program planning, re-planning, and decision-making.		
Contractor	Process	B.2 5	Schedule forecasting is fully integrated with the Risk Management sub-process.		
Contractor	Implement	B.3 1	No standalone activities are in the schedule (i.e., all activities have at least one predecessor and one successor).		
Contractor	Implement	B.3 2	Logic links, including external links, are maintained and are explainable. Activities follow a logical relational sequence (i.e., Design, Procure, Construct). Out-of-sequence logic does not exist.		
Contractor	Implement	B.3 3	The IMS only includes use of constraints, leads and/or lags that have appropriate justifications and are documented. A valid critical path can be produced for the network. The logic and critical path are continuously maintained, providing management with insight to make timely decisions.		
Contractor	Process	B.3 4	The IMS reflects any changes (contractual or other), and this process is repeatable from month to month.		
Contractor	Implement	B.3 5	LOE activities are not on the IMS critical or driving path and are not linked to discrete activities.		
Contractor	Process	B.3 6	The Horizontal Integration process is fully integrated with the Subcontract Management sub-process.		
Contractor	Process	B.4 1	Schedules with various levels of detail can be produced and alignment of scopes and dates within each level can be demonstrated. Activities can be rolled up to align to dates of parent WPs; WPs can be rolled up to align to dates of parent CAs. Vertical integration reflects any changes (contractual or other), and this process is repeatable from month to month.		
Contractor	Implement	B.4 2	The schedule hierarchy and vertical integration is continuously maintained, providing management with insight to make timely decisions.		
Contractor	Process	B.4 3	Regardless of whether the schedule levels exist within a single schedule tool or a variety of toolsets, supplemental schedules, such as subcontractor schedules and Material Requirements Planning (MRP) or like systems are consistent with the IMS at the aggregated level.		
Contractor	Process	B.4 4	Vertical Integration fully incorporates the Subcontract Management sub-process.		
Contractor	Implement	B.5 1	There is an understanding of the resource requirements and limitations needed to develop a time-phased baseline plan and to complete the planned scope within the contract period of performance.		
Contractor	Implement	B.5 2	For all activities there is alignment between resource needs and activity durations (e.g., 2 hours/day for 10 days as compared to 10 hours/day for 2 days). Problems are identified, logged, tracked, mitigated, corrected and closed, providing management with insight to make timely decisions.		
Contractor	Process	B.5 3	The resource-loaded IMS is traceable to all labor, material and equipment costs to include unit prices and quantities, and both discrete and Level of Effort (LOE) work packages.		
Contractor	Process	B.5 4	The IMS is integrated with the Authorization and Budgeting sub-process, the Material Management sub-process, the Subcontract Management sub-process, and the Risk Management sub-process.		
Contractor	Implement	B.6 1	The level of schedule detail depicts all of the project/program work scope, as required.		

B – Planning and Scheduling – cont'd

Contractor	Implement	B.6 2	The schedule flows in a logical manner and is reflective of the work to be accomplished. Milestones are clearly linked and logically relate to relevant activities. Problems are identified, logged, tracked, mitigated, corrected and closed, providing management with insight to make timely decisions.		
Contractor	Implement	B.6 3	Activities have sufficient granularity and detail and are indicative of the way work scope will be accomplished and managed. There is a high level of confidence in the project delivery dates and associated costs.		
Contractor	Process	B.6 4	Project/program constraints, calendar(s) rationale and activity durations are documented, justified and supported by logical resource/cost allocations. The schedule links key detail WPs and PPs (or lower-level activities) with summary activities and milestones. The project/program adheres to a documented "rolling wave" or event/planning horizon process.		
Joint	Implement	B.6 5	The schedule has successfully completed an external review, such as an Integrated Baseline Review (IBR) to ensure all scope is captured at a level of detail commiserate with the scope of the project.		
Contractor	Process	B.6 6	Schedule Detail is fully integrated with the Budgeting and Work Authorization sub-process and the Analysis and Management Reporting sub-process.		
Contractor	Implement	B.7 1	The critical/driving paths are logical and comprised of the longest sequence of activities and milestone to achieve the project/program completion objective. The critical path follows a logical relational sequence (i.e., plan, develop, design, procure, execute or other). Near-critical paths are also identified and assessed.		
Contractor	Implement	B.7 2	Monthly performance and progress evaluation of the schedule is in place and provides management with continuing insight. Float values are managed to optimize the schedule. Problems are identified, logged, tracked, mitigated, corrected and closed, providing management with insight to make timely decisions.		
Contractor	Process	B.7 3	The schedule is designed for effective integrated project management purposes and contains a calculated critical path for the entire contractual period of performance.		
Contractor	Implement	B.7 4	Baseline critical path activities and milestones report no negative float values with few float values deemed excessive.		
Contractor	Implement	B.7 5	Control Account Manager(s) (CAMs) and project/program manager(s) can clearly and logically explain the critical path and float details. They manage float to result in an optimized schedule at all levels.		
Contractor	Implement	B.8 1	The schedule is informed by all risk factors from the risk register for establishing the SM.		
Contractor	Process	B.8 2	Project /Program has established schedule margin by inserting an activity(s) to represent the time necessary to account for estimated schedule risks/uncertainties.		
Contractor	Process	B.8 3	The SM duration is fully justifiable, and traceable to its source, and fully integrated with the Risk Management sub-process.		
Contractor	Implement	B.9 1	The schedule is event-based and considers all milestones and events traceable to the contract and project execution plan. Anomalies are identified and informed corrective actions.		
Contractor	Implement	B.9 2	Performance and progress evaluation occur, at a minimum, in alignment with the reporting of actual costs.		
Contractor	Implement	B.9 3	Key project milestones are logically linked within the schedule. The schedule integrates directly from the master plan and supplements it with additional levels of detail.		
Contractor	Implement	B.9 4	A sufficient number of interim measures are defined to ensure performance is measured as accurately as possible.		
Contractor	Implement	B.9 5	Adequate numbers of milestones and goals are established to measure the progress of the project.		
Contractor	Implement	B.9 6	Documented interim measures are based on the completion criteria developed for each increment of work used to assess the physical and technical completion of work.		
Contractor	Implement	B.10 1	All technical requirements and key performance parameters are aligned to work scope and the time-phased resource plan. Problems are identified, logged, tracked, mitigated, corrected and closed, providing management with insight to make timely decisions.		
Joint	Implement	B.10 2	The project/program has completed an external review, such as an Integrated Baseline Review (IBR), to ensure that the time-phased PMB and resource plan meets all work scope and technical requirements within cost and schedule constraints.		
Contractor	Implement	B.10 3	The time-phased resource plan and subsequent resource levels are optimized for accomplishing the work scope.		
Contractor	Process	B.10 4	The Time-Phased PMB is fully integrated with the Budgeting and Work Authorization sub-process.		

C – Budget and Work Authorization

Criteria #	Effectiveness Criteria	Rating	Comment/Recommedation
C.1 1	The time-phasing of the budget data aligns with the authorized scope, the IMS and the CAP at both the CA and WP/PP levels.		
C.1 2	The Scope, Schedule and Budget Alignment for PMB development is fully integrated with the Organizing, Planning and Scheduling, Analysis and Management Reporting, Material Management, and Subcontract Management sub-processes.		
C.2 1	SLPPs contain scope that cannot be practically identified to a CA and is held at the project/program management level until further defined.		
C.2 2	Existing SLPPs are routinely evaluated for scope, schedule and budget to the end of the project/program, and when converted to CAs, SLPPs are assigned to a CAM and reconciled in budget logs.		
C.2 3	The SLPPs are represented in the IMS and time-phased into the existing schedule.		
C.2 4	The project / program team ensures that the responsible engineer (or functional manager) assigned responsibility for the SLPP has properly planned the SLPP for the authorized scope, schedule and budget.		
C.2 5	The SLPPs are fully integrated with the Planning and Scheduling sub-process and Change Control sub-process.		
C.3 1	WAD policies and procedures are approved and implemented across the applicable scope for all CAs.		
C.3 2	WAD data sources are fully developed, approved for use, and under configuration control. CAPs are budgeted by EOC as an extension of the WADs. WADs are fully traceable to time-phasing in the baseline schedule and planned according to the manner in which work will be executed.		
C.3 3	All project/program work scope, schedule, and budget (including hours, as applicable) identified in the WADs are realistic and reconcilable with the associated BOE based on past performance of similar nature, documented or proven estimating practices, or similar methods. Problems are identified, logged, tracked, mitigated, corrected and closed, providing management with insight to make timely decisions. WADs provide the basis for a mutually agreed-to scope, schedule, and budget that serves as the basis for measuring performance, forecasting budgets, schedules, and managing work.		
C.3 4	Differences between BOE and WAD values are understood, reconcilable to material, procurements and subcontracts, and used as a basis for identification of risks and opportunities.		
C.3 5	Work Authorization is fully integrated with the Organizing sub-process and the Planning and Scheduling sub-process.		
C.4 1	WAD policies, procedures, processes identifying roles and responsibilities (signature approvals) align with governing requirements and are approved and implemented for use. WADS are authorized prior to work performance for all applicable scope.		
C.4 2	A dollarized RAM or similar document identifying intersection of the WBS and the OBS at the CA/CAM level is reconciled, validated, approved and implemented for use.		
C.4 3	All necessary change control documentation has been generated including cost account charge numbers unique to the CA (for cost accumulation and reporting) are established, reconciled and validated.		
C.4 4	The Work Authorization Prior to Performance process is fully integrated with the Planning and Scheduling sub-process and Accounting Considerations sub-process.		
C.5 1	Policies, procedures, processes establishing segregation by EOC reviewed for alignment with the governing requirements and approved for implementation.		
C.5 2	System structure and resource coding for cost element segregation are reconciled and validated for implementation and use. Problems are identified, logged, tracked, mitigated, corrected and closed, providing management with insight to make timely decisions.		
C.5 3	EOCs are integrated in the EVMS, traceable, reconciled, and validated for use.		
C.5 4	The EOCs are fully integrated with the Indirect Budget and Cost Management sub-process and the Material Management sub-process.		
C.6 1	The processes to establish WPs have been developed, documented and approved.		

C – Budget and Work Authorization – cont'd

C.6 2	WPs are planned as far in advance as practicable, reflecting the actual way the work will be executed. WPs are based on the most current definition of work and contain authorized scope and budgets that include specific time-phased resource requirements in dollars, hours, or other measurable units. Progress is objectively measured using the appropriate EVT and QBD.		
C.6 3	WPs have realistic durations that are supportable by a technical or other realistic basis of estimate with relatively short durations (e.g., 1 to 2 months), with longer duration work packages having objective intermediate measures of performance and QBDs.		
C.6 4	WP Planning is fully integrated with the Planning and Scheduling sub-process.		
C.7 1	A documented and approved process to establish measurable units and substantiate WP/PP budgets exists. Problems are identified, logged, tracked, mitigated, corrected and closed, providing management with insight to make timely decisions.		
C.7 2	Measurable units are used by management as the basis for planning and performance measurement, with minor exceptions.		
C.7 3	WP/PP budgets are established in terms of dollars, hours, or other measurable units.		
C.7 4	WP/PPs are consistent with detailed engineering, manufacturing, construction, or other schedules.		
C.7 5	WP/PP budgets are consistent with subcontractor baseline plans and are integrated and traceable.		
C.7 6	All of the WP and PP budgets when added together equal the value of the CAs.		
C.8 1	A documented and approved process to appropriately assign EVTs to WPs is established.		
C.8 2	WPs contain an EVT that is appropriate for the duration and type of work, resulting in accurate and objective performance measurement assessment. To the extent possible, WPs maximize use of discrete EVTs. Problems are identified, logged, tracked, mitigated, corrected and closed, providing management with insight to make timely decisions.		
C.8 3	Where EVTs are assigned below the WP level, there is a documented process of how the Budgeted Cost for Work Performed (BCWP) is summarized to the WP. Each WP can demonstrate an absence of co-mingling of various EVTs. Control Accounts (CAs) that co-mingle discrete and LOE techniques have proper controls to limit distortion of performance measurement and variance analysis.		
C.8 4	The Assignment of EVTs is fully integrated with the Organizing sub-process and the Planning and Scheduling sub-process.		
C.9 1	Documented processes explaining the appropriate use of LOE for measuring work performance are fully in place and consistently applied.		
C.9 2	With a few minor exceptions, work scope that is general or supportive in nature or has no product, cannot be measured or is impractical to measure, is coded as LOE.		
C.9 3	Discernable effort has been taken to minimize the use of LOE for measuring the performance of work scope. The co-mingling of LOE and discrete effort within a CA is minimized; and if co-mingled, LOE and discrete have unique codes to minimize any potential distortion of CA performance. Problems are identified, logged, tracked, mitigated, corrected and closed.		
C.9 4	Identifying and Controlling LOE Work Scope is fully integrated with the Planning and Scheduling sub-process and the Analysis and Management Reporting sub-process.		
C.10 1	An MR budget is established based on prime contractor's estimated risk values for the project/program, and further defined through a comprehensive probabilistic event-based analysis.		
C.10 2	The MR budget is not tied to a specific PMB work scope. Any problems are identified, logged, tracked, mitigated, corrected and closed.		
C.10 3	The establishment of the MR Budget is fully integrated with the Risk Management sub-process and the Subcontract Management sub-process as applicable.		
C.11 1	The project/program has an approved process for the establishment and control of UB, and follows the process monthly while maintaining a UB log.		
C.11 2	UB accounts are distributed/dispositioned in a timely manner as work scope is finalized and distributed/ dispositioned to CAs, summary level planning packages, or for removal from the contract. If not possible to disposition UB in a timely manner (i.e., three months), documentation has been completed inclusive of an explanation and a plan to disposition UB.		

C – Budget and Work Authorization – cont'd

C.11 3	All transactions to/from UB are managed by the Change Control Board (CCB), and they are always documented through formal change control.		
C.11 4	UB Identification is fully integrated with the Analysis and Management Reporting sub-process and Change Control sub-process.		
C.12 1	The project/program control log contains all of the following data: MR, UB, PMB, CBB/PBB, TAB.		
C.12 2	A complete reconciliation of the project/program control log occurs monthly and is reconciled to the TAB.		
C.12 3	Monthly performance and progress evaluation is in place and provides management with continuing insight into effective closed-loop corrective actions and the ability to adjust in a timely fashion through closure.		
C.12 4	The CBB/PBB reconciliation is fully integrated with the Analysis and Management Reporting sub-process.		

D – Accounting

Criteria #	Effectiveness Criteria	Rating	Comment/Recommedation
D.1 1	Anomalies (labor cost transfers, material and subcontractor estimated actuals) between the accounting system and Earned Value Management System (EVMS) are documented regularly		
D.1 2	Corrective actions are tracked to closure.		
D.1 3	Adjustments to recorded costs are performed to correct accounting errors.		
D.1 4	All cost data and direct costs collected by CA provide a valid comparison to budgets and performance. Direct Costs are consistent with CAS disclosure statement. EOC and accounting cost elements are reconciled and consistent.		
D.1 5	Direct Costs are fully integrated with the Subcontractor Management sub-process ensuring accurate recording and reporting of direct cost data. Direct Costs are fully integrated with the Analysis and Management Reporting sub-process producing timely analysis of performance, development of forecasts, and decision-making.		
D.2 1	The project/program has documented processes designed to ensure ACWP reported in the EVMS is reconciled by Element of Cost for total cost to the accounting system, and implements those processes on a monthly basis.		
D.2 2	During the reconciliation process the project/program can determine if anomalies are due to timing differences or errors. Both are documented and tracked to closure.		
D.2 3	Issues identified during reconciliation are documented and corrected expeditiously to minimize impacts on the reported cost variance and associated performance measurement.		
D.2 4	Actual Cost Reconciliation is fully integrated with the Subcontractor Management sub-process.		
D.3 1	The project/program implements documented and approved processes each month to ensure charge numbers associated with CAs and/or WPs are opened/closed for cost collection consistent with the start/completion of work.		
D.3 2	The direct costs recorded in the EVMS are fully integrated with the direct costs in the accounting system. Charge numbers assigned to CAs and/or WPs are consistently opened/closed based on the start/completion of work. Identification of anomalies are investigated monthly and their corrective action documented to closure.		
D.3 3	The process of Recording Direct Costs to CAs and/or WPs is fully integrated with the Analysis and Management Reporting sub-process.		
D.4 1	The organization implements documented and approved processes each month.		
D.4 2	The project/program charge numbering system ensures that no CAs are distributed to two or more higher-level WBS and OBS elements.		
D.4 3	The project/program monitors direct cost distribution by WBS and OBS monthly. Anomalies are identified, tracked and corrected no later than the following accounting period, ensuring accurate performance assessment reported to the customer each month.		
D.4 4	The Direct Cost Breakdown Summary is fully integrated with the Organizing sub-process.		

E – Indirects

Group	Criteria #	Effectiveness Criteria	Rating	Comment/Recommedatior
Process	E.1 1	Processes for the management and control of indirect rates are documented, approved, consistently implemented, and aligned with the accounting calendar. Problems are identified, logged, tracked, mitigated, corrected and closed, providing management with insight to make timely decisions.		
Implement	E.1 2	An approved indirect account organization structure exists with those responsible for the management of indirect rates identified.		
Process	E.1 3	The approved accounting documents such as the CAS Board disclosure statement identify each of the indirect cost pools used by the project/program.		
Process	E.2 1	The project/program implements documented and approved processes defining the indirect budgeting process on a monthly basis.		
Implement	E.2 2	At the end of the accounting year, all indirect expenses are allocated. Indirect budgets and/or indirect rates are forecasted for the entire project/program period of performance ensuring the PMB represents a realistic baseline plan. Problems are identified, logged, tracked, mitigated, corrected and closed, providing management with insight to make timely decisions.		
Implement	E.2 3	Indirect budgets are managed by regular reviews ensuring each project/program receives its fair share of indirect costs. The most current indirect rates are used to develop and update the baseline (e.g., approved, provisional, proposed).		
Implement	E.2 4	Indirect budgets are established annually by cost element and consistent with pools.		
Process	E.2 5	Indirect Budget Management is fully integrated with the Change Control and Analysis sub-process and the Management Reporting sub-process.		
Implement	E.3 1	The project/program implements documented and approved processes designed to ensure indirect costs are properly and correctly recorded and allocated to the project/program. Management responsibility and authority are clearly defined in the processes.		
Implement	E.3 2	Misapplied and unallocated indirect costs are identified, tracked and corrected immediately, no later than the following accounting period, providing management with insight to make timely decisions.		
Implement	E.3 3	All indirect costs are charged to the appropriate indirect cost pool and correctly allocated to the applicable project/program. Indirect costs are monitored each month ensuring they are consistent with the budgets. Any mischarges corrected immediately, no later than the following month. This allows accurate variance analysis and EAC projections.		
Process	E.4 1	The project/program has documented and approved processes to ensure thresholds are established and indirect variance analysis and corrective actions are developed regularly. Indirect organization provides pending rate changes on a quarterly basis.		
Implement	E.4 2	All of the indirect cost thresholds are reviewed regularly by indirect category, and variances and corrective actions identified and reviewed for insight into their root-cause and impact on overall cost performance. This facilitates management's ability to forecast future indirect cost performance as well as develop corrective action plans intended to regain project/program objectives. Indirect corrective action plans, which may include rate adjustments, are implemented, tracked, and resolved expeditiously.		
Implement	E.4 3	The impact of indirect variances is identified and addressed at the project/program level and within control account variance analyses and EACs. Problems are identified, logged, tracked, mitigated, corrected and closed, providing management with insight to make timely decisions.		
Process	E.4 4	The Indirect Variance Analysis is fully integrated with the Analysis and Management Reporting sub-process.		

F – Analysis and Reporting

Group	Effectiveness Criteria	Rating	Comment/Recommedation
Process	The process of CV and SV calculation requires accurate, traceable and reconcilable source inputs from EVMS and accounting system into control account level cost and schedule variance calculations, resulting in timely and reliable information.		
Process	EVMS formulas are consistent with data produced by the accounting system.		
Process	In conjunctions with updated EACs, VAC calculations are provided to support reports in terms of trends and the overall impact on cost to the project/program.		
Implement	For incomplete discrete work packages, BCWP is consistent with the method used to plan and resource the associated work (i.e., BCWS).		
Process	Calculation of variances is fully integrated with the Budgeting and Work Authorization sub-process.		
Process	The processes needed to identify cost and schedule variances have been documented and approved.		
Implement	The variance analysis report identifies root causes influencing variance along with corrective actions and potential impacts to the project/program.		
Implement	Labor cost variance analysis is substantiated from source records evaluating rate and quantity variances. Material cost variance analysis is substantiated from source records evaluating price and usage variances.		
Process	Variance thresholds are established and used to define the meaning of "significant", consistent with project/program procedures.		
Implement	Timely analysis of cost and schedule variances is available to support resource decisions. The cost and schedule variances are linked back to the baseline, as well as to IMS activities and any resulting impacts to the critical path, near-critical paths, and driving paths.		
Implement	The monthly corrective action management process is a closed-loop process. Corrective actions/mitigation plans are all identified. Variance analysis correctly identifies the problem, its cause(s), planned or possible corrective actions, and impacts to the project/program (cost, schedule, and technical).		
Process	All of the performance data elements (BCWS, BCWP, ACWP, BAC, and EAC) are calculated at or below the CA level and summarized from the CA level up through the WBS and across the OBS to the total project/program level.		
Process	The calculation and summarization processes provide accurate management insight, and enables budget integrity, reconciliation, and customer reporting, in accordance with the business rhythm. This evaluation provides management with continuing insight into root causes and effective closed-loop corrective actions.		
Process	Summarized analysis and management reporting information reported to the customer(s) is from the same source as used by internal contractor management.		
Process	The data elements reconcile between internal and external reports. Performance data correctly represents the current condition of the project/program.		
Process	Monthly management analysis is in place with continuing insight into corrective actions and the ability to adjust in a timely fashion through closure. Problems are identified, logged, tracked, mitigated, corrected and closed, providing management with insight to make timely decisions.		
Implement	Strategies and plans are in place to manage threats (uncertainties with negative consequences) and opportunities (uncertain future states with benefits) to the project/program.		
Process	Management Analysis and Corrective Actions are fully integrated with the Organizing sub-process, the Planning and Scheduling sub-process, and the Risk Management sub-process.		
Implement	EACs are evaluated monthly and adjusted to reflect actual project/program progress and performance, scope and schedule changes and the cost of completing all remaining authorized work. EACs are integrated with the project/program risk register and based on identified and emerging risks and opportunities. The PM explains differences between the most likely EACs and the CAM's EACs.		
Process	EAC realism is assessed based on comparisons between the Cost Performance Index (CPI) and To Complete Performance Index (TCPI), and comparison to generated Independent EACs (IEAC). EACs are reconciled with funding, inform funding profile changes, and are communicated to the customer in internal reports and funding documents.		
Process	EACs include accurate and timely incorporation of subcontractor estimates. Direct/indirect rates are up-to-date and used to value ETC resources based on updated rate tables. Problems are identified, logged, tracked, mitigated, corrected and closed. A CEAC is conducted annually and is fully documented and justified.		
Process	The EACs are fully integrated with the Planning and Scheduling, Accounting Considerations, Indirect Budget and Cost Management, Risk Management and Subcontract Management sub-processes.		

G – Change Control

Group	Criteria #	Effectiveness Criteria	Rating	Comment/Recommedatio
Implement	G.1 1	All MR and UB changes are documented monthly in logs showing at a minimum the date and title of the change action, associated work package, CA, descriptive title, and reference numbers as needed for tracing back to the originating change documentation.		
Implement	G.1 2	Risk mitigation and/or realization activities are identified with all MR transactions. These transactions are coordinated with the risk management process for re-evaluation of residual risk.		
Implement	G.1 3	MR is used per contractual documentation. New contractual work scope is not budgeted with MR; but instead comes from contingency and is documented via the formal contract change modification process and approved accordingly.		
Implement	G.1 4	UB has defined scope and has been appropriately distributed to the PMB in a timely and effective manner.		
Process	G.1 5	MR and UB changes are fully integrated with the Analysis and Management Reporting sub-process.		
Implement	G.2 1	All of the authorized scope, schedule and budget changes are integrated into the PMB in a documented, disciplined and timely manner. Change documents are updated in a timely and appropriate manner or as soon as practical, but no later than two accounting periods.		
Implement	G.2 2	Problems are identified, logged, tracked, mitigated, corrected and closed, providing management with insight to make timely decisions.		
Implement	G.2 3	For unpriced change orders, detailed planning and budgeting documents are maintained for near-term work. After definitization, any budget remaining in UB is planned and budgeted within CA, SLPP or MR.		
Process	G.2 4	Changes to the PMB are fully integrated with the Planning and Scheduling sub-process, Budgeting and Work Authorization sub-process and Analysis and Management Reporting sub-process.		
Implement	G.3 1	All baseline changes are reconcilable to the CBB/PBB and the PMB through the use of budget logs and baseline change documentation.		
Implement	G.3 2	Work authorization documents exist for new work scope, schedule, budget. When adjusting the CBB/PBB and the PMB, traceability from original CA values to current values is possible. Budget authorizations accurately reflect the modified scope of work. Problems are identified, logged, tracked, mitigated, corrected and closed, providing management with insight.		
Implement	G.3 3	Contractual change documents transmit and authorize all changes or addition of work, schedule, and budget to the CBB/PBB. Change control logs track the distribution of all additional budgets.		
Implement	G.3 4	The PMB is controlled in the freeze period to prevent unnecessary adjustments, with few immaterial exceptions.		
Process	G.3 5	Reconciliation of baseline changes is fully integrated with the Budgeting and Work Authorization sub-process, the Planning and Scheduling sub-process, and Analysis and Management Reporting sub-process.		
Process	G.4 1	Change control processes clearly and fully define policy regarding retroactive changes including conditions for use such as prohibitions, approvals, and justifications. Change control logs record all change activities.		
Implement	G.4 2	A disciplined approach is in place to identify, manage and incorporate retroactive budget and performance adjustments to the PMB. Adjusted and previously reported data is documented and reconciled. Budget, earned value, and actual cost adjustments are documented in a timely manner. Problems are identified, logged, tracked, mitigated, corrected and closed, providing management with insight to make timely decisions.		
Implement	G.4 3	Retroactive changes are limited to correction of errors, routine accounting adjustments, effects of customer or management directed changes, or to improve the baseline integrity and accuracy of performance measurement data.		
Process	G.4 4	Control of retroactive changes is fully integrated with the Accounting Considerations sub-process, Indirect Budget and Cost Management sub-process and Analysis and Management Reporting sub-process.		
Implement	G.5 1	The CBB/PBB to contract value relationship is continuously monitored. Change control logs reflect all changes to the PMB and CBB/PBB and fully reconcile.		
Implement	G.5 2	Problems related to the CBB/PBB and TAB are identified, logged, tracked, mitigated, corrected and closed, providing management with insight to make timely decisions.		
Process	G.5 3	The Preventing Unauthorized Revisions to the CBB/PBB process is fully integrated with the Budgeting and Work Authorization sub-process and Analysis and Management Reporting sub-process.		
Implement	G.6 1	Prior approval (if required) of OTB/OTS is occurring between the customer and contractor. The TAB, CBB/PBB and PMB are updated to reflect OTB/OTS.		
Implement	G.6 2	Problems related to the OTB/OTS process implementation, and their root causes, are identified, logged, tracked, mitigated, corrected and closed, providing management with insight to make timely decisions.		
Process	G.6 3	OTB/OTS Authorization is fully integrated with the Budgeting and Work Authorization sub-process, the Planning and Scheduling sub-process, and the Analysis and Management Reporting sub-process.		

H – Material Control

Criteria #	Effectiveness Criteria	Rating	Comment/Recommedation
H.1 1	Incurred cost reports comparing the EVMS material ACWP to the accounting system (general ledger) are available each month. Estimated ACWP or accounting accruals are used, if needed. This allows the project/program to determine whether material actuals/performance differences are due to timing (estimated ACWP) or errors.		
H.1 2	Issues identified during reconciliation are documented, tracked to closure, accurately reported, and corrected expeditiously, typically within two accounting periods.		
H.1 3	Recording Actual Material Costs is fully integrated with the Accounting Considerations sub-process and Analysis and Management Reporting sub-process.		
H.2 1	The project/program has documented, and approved processes designed to ensure how material, and if applicable HDV and/or CI material, is identified, segregated, planned, and performance is measured and implements those processes on a monthly basis.		
H.2 2	The EVMS material BCWP, including HDV and/or CI material if applicable, is not recorded prior to delivery, issuance from inventory, or consumption.		
H.2 3	Material BCWP differences are tracked to closure end-to-end, and corrected expeditiously, typically within two accounting periods. The impact to material cost variances, EAC, and associated performance measurement is minimized and limited to one accounting period.		
H.2 4	Material Performance is fully integrated with the Planning and Scheduling sub-process and Budgeting and Work Authorization sub-process.		
H.3 1	The project/program material control system and EVMS have documented and approved processes designed to ensure how residual material is identified, costs established, tracked, and dispositioned. Opportunities for other uses of residual material are identified expeditiously; this could result in impacts to the EAC and funding requirements.		
H.3 2	Residual material is reconciled between the EVMS and the material control system each month. Potential residual material is identified and documented monthly. Since the true material cost is known each month, the impact to material cost variances, EAC, funding requirements, and associated performance measurement is minimized, providing management and the customer real-time data enhancing decision-making.		
H.3 3	Problems with residual material tracking are identified and logged.		
H.3 4	Residual Material is fully integrated with the Accounting Considerations sub-process.		
H.4 1	The project/program uses material price/usage analysis to predict future performance. The EAC reported to the customer is updated each month reflecting corrective actions. Material price/usage problems are identified, logged, tracked, mitigated, corrected and closed.		
H.4 2	The accounting system and EVMS consistently identify material as an EOC. A BOM is available in the material control system documenting the material baseline and is integrated with the EVMS. Each month, the BOM is compared to current conditions to conduct material price/usage variance analysis. The project/program can determine if material variances are driven by price or usage. The cause and impact of variances are evaluated monthly and corrective action implemented expeditiously.		
H.4 3	Material price/usage variance analysis is fully integrated with the Analysis and Management Reporting sub-process.		
H.5 1	The project/program's accounting system and M/ERP system are integrated and can identify unit costs, equivalent unit, lot costs, recurring, and nonrecurring costs by EOC. Accounting system or M/ERP system anomalies are identified and corrected, typically within two accounting periods.		
H.5 2	Although visibility into the factors driving project/ program cost growth is provided to management, customer notification may be delayed.		
H.5 3	Problems with unit costs and recurring/nonrecurring costs are identified, logged, tracked, mitigated, corrected and closed, providing management with insight to make timely decisions.		
H.5 4	The Unit Costs and Recurring/Nonrecurring Costs are fully integrated with the Accounting Considerations sub-process.		

I – Subcontract Management

Criteria #	Effectiveness Criteria	Rating	Comment/Recommedation
I.1 1	The prime contractor has identified all major and minor subcontract work scope, and has applied appropriate EVMS flow down and data reporting requirements. The prime contractor remains responsible for EVMS data for management and reporting of minor subcontractors.		
I.1 2	A feedback or communication loop has been established by the prime contractor to notify subcontractors to address any issues (scope, schedule, budget, etc.).		
I.1 3	Major subcontractors have a documented plan to resolve EVMS flow down requirement issues which are identified, tracked, and corrected, and closed upon successful implementation of the EVMS. In the interim, the prime contractor remains responsible for EVMS data needed for management and reporting.		
I.1 4	Subcontract Identification and EVMS Flow Down Requirements are fully integrated with the other EVMS sub-processes.		
I.2 1	The prime contractor integrates subcontractor work scope at the level needed to support development and maintenance of the critical path. All subcontractor work scope, schedule, and budget data are fully integrated within the prime contractor's Performance Measurement Baseline (PMB) at the appropriate levels.		
I.2 2	The prime contractor conducts monthly end-to-end analysis of subcontractor cost and schedule performance data and variances to verify they are current, accurate, complete, repeatable, auditable and consistent with actual conditions of performance and progress, and whether the subcontractor is deviating from the baseline plan. Any needed corrective actions to achieve objectives are implemented.		
I.2 3	Management Reserve (MR) and Undistributed Budget (UB) belonging to a subcontractor are incorporated with the prime contractor's EVMS and traceable to the subcontractor's reported MR/UB values.		
I.2 4	Subcontractor Integration and Analysis are fully integrated with the Organizing sub-process, Planning and Scheduling sub-process, Budgeting and Work Authorization sub-process, Analysis and Management Reporting sub-process, Change Control sub-process, and Risk Management sub-process.		
I.3 1	The prime contractor conducts regular surveillance of the subcontractor's management processes and EVMS to ensure that timely, reliable and accurate data are produced. These data are reflective of actual conditions for subcontract cost, schedule and technical performance.		
I.3 2	Results from subcontract oversight are fully integrated with the prime contractor's decision-making process.		
I.3 3	Necessary corrective actions are implemented, completed, and recurring issues tracked to resolution.		
I.3 4	Subcontract Oversight contract requirements are fully integrated with the Organizing sub-process, Planning and Scheduling sub-process, Budgeting and Work Authorization sub-process, Analysis and Management Reporting sub-process, Change Control sub-process, and Risk Management sub-process.		

J – Risk Management

Group	Criteria #	Effectiveness Criteria	Rating	Comment/Recommedation
Implement	J.1 1	The risk management plan is developed, documented, and in use. A risk register is actively used. Periodic meetings of the risk committee or project/program team members occur and are documented to update risks and ensure teams work to take advantage of opportunities and to avoid threats. A risk manager has been identified for the project/program.		
Implement	J.1 2	Risk owners are identified and documented; and actively follow through on mitigation actions. Surveillance occurs as part of the risk management plan to look for the realization of risks at the appropriate times, and to encourage realization of opportunities.		
Process	J.1 3	An SRA is used as an integral part of the overall risk process. The SRA validates the sufficiency of schedule margin duration and MR budget.		
Process	J.1 4	The range of EACs and schedule forecasts are informed by the risk register and SRA.		
Implement	J.1 5	Both schedule and cost reflect risk mitigation activities identifiable to the risk register, as appropriate, and with few immaterial exceptions.		
Process	J.2 1	The processes in the risk management plan are in use to exercise day-to-day control of risks. Risk management is auditable and transparent with mitigation plans. Realized risk impacts are integrated into the EVMS to include the schedule and budget implications during establishment and maintenance of the PMB, EACs and schedule forecasts.		
Implement	J.2 2	Owners of specific risks are identified in plans and are actively managing these risks with mitigation steps identified where appropriate. Mitigation steps are executed and communicated.		
Implement	J.2 3	Threats and opportunities are continually evaluated, updated, and tracked throughout the entire project/program lifecycle. This covers both known and emerging risks. A surveillance plan is in place and active monitoring of risks is evident during appropriate time windows.		
Process	J.2 4	Necessary corrective actions are implemented, completed, and recurring issues resolved.		
Implement	J.2 5	Retirement of risks as recommended by the risk committee/team is to the Project Manager (PM) and customer. These recommendations are acted upon and documented when the retirement is approved.		

Environmental Factors

Culture

Category	Factor Title	Owner	Checkpoint #	Checkpoint/Criteria	Rating	Comment/Recommendation
1-Culture	**1a. Contractor organization is supportive and committed**	**Contractor**	1a. 1	a) The contractor integrated project team (IPT)—including corporate leadership, execution and operations personnel, oversight personnel, and support staff—is in place, and it has a demonstrated belief in the intrinsic value of the EVMS to position the project for success.		
1-Culture	1a. Contractor organization is supportive and committed	Contractor	1a. 2	b) The project follows an integrated project management strategy to identify and manage risks using the EVMS that would otherwise impair a well-formed baseline plan.		
1-Culture	1a. Contractor organization is supportive and committed	Contractor	1a. 3	c) The project has committed resources, including funding, to ensure that effective implementation of the EVMS is a priority, assuring continuous improvement and accountability at every level of the contractor organization. This commitment ensures the availability of key individuals who contribute to implementing the EVMS. Typically, this includes the availability and commitment of other personnel with specialized skills and knowledge of the EVMS, who may or may not be "dedicated" to the project.		
1-Culture	1a. Contractor organization is supportive and committed	Contractor	1a. 4	d) Contractor leadership and team member attitude and discipline, at the corporate office and project levels, lead to the correct use, application, and acceptance of EVMS as an integrated project management tool used in the definition of work scope, planning and scheduling, budgeting and work authorization, managerial analysis, reporting, forecasting, and risk management.		
1-Culture	1a. Contractor organization is supportive and committed	Contractor	1a. 5	e) Contractor leadership actively revisits the most effective ways to evaluate EVMS metrics that support decision-making.		
1-Culture	1a. Contractor organization is supportive and committed	Contractor	1a. 6	f) The contractor organization's policies include incentives and education to foster support and commitment to implementing the EVMS.		
1-Culture	1a. Contractor organization is supportive and committed	Contractor	1a. 7	g) The contractor team does not choose convenience over following the EVMS regulations and procedures that apply to the project.		
1-Culture	1a. Contractor organization is supportive and committed	Contractor	1a. 8	h) Project decision-making, which ultimately drives project results, is collaborative and effectively relies on EVMS-generated data and metrics.		
1-Culture	1a. Contractor organization is supportive and committed	Contractor	1a. 9	i) Governance is enforced and effective at dealing with the project challenges. Self-governance refers to the capacity of a contractor to govern autonomously, an important approach in overseeing effective EVMS implementation. When a contractor instills integrated project management principles using the EVMS in a way that benefits all levels of the organization, the results can guide management decisions, lead to improved project execution, and optimize the performance of the project team.		
1-Culture	**1b. Culture fosters trust, honesty, transparency, communication, and shared values**	**Contractor**	1b. 1	a) Through open communication, the project culture fosters trust, honesty, and shared values, including a realistic portrayal of performance and acceptance of data transparency. Project leadership forms a team culture of trust and honesty, where members can maintain open, synergistic relationships. Open communication enables the team to be more engaged and understand that what they do with the EVMS matters in project success.		
1-Culture	1b. Culture fosters trust, honesty, transparency, communication, and shared values	Contractor	1b. 2	b) The project culture is a system of common assumptions, values, and beliefs, which governs team member behavior.		
1-Culture	1b. Culture fosters trust, honesty, transparency, communication, and shared values	Contractor	1b. 3	c) The values and beliefs displayed in the project align with the implementation of the EVMS and project outcomes.		
1-Culture	1b. Culture fosters trust, honesty, transparency, communication, and shared values	Joint	1b. 4	d) A shared EVMS implementation plan helps form a common understanding between the customer and contractor, fostering a culture of trust by laying out how things should work.		
1-Culture	1b. Culture fosters trust, honesty, transparency, communication, and shared values	Contractor	1b. 5	e) The culture is supported by appropriate rewards or incentives for implementation of the EVMS and the execution of EVM (managing with data) for proactive management decision-making. Rewards or incentives are tied to maintaining the integrity of the EVMS as well as meeting project goals.		
1-Culture	1b. Culture fosters trust, honesty, transparency, communication, and shared values	Joint	1b. 6	f) The project culture is heavily influenced by the external organizational cultures with which it interacts. If these cultures align, establishing a team culture is much easier than if they are unaligned (where creating shared values may require more effort). For example, the contractor PM and customer FPD can create bilateral rules of engagement (ROEs) to set expectations up-front. These leaders are visible and accessible.		
1-Culture	1b. Culture fosters trust, honesty, transparency, communication, and shared values	Joint	1b. 7	g) Project leadership, and specifically government FPDs and contractor project managers (PMs), ensure trust and honesty are fostered in the project culture, which helps integrate programmatic and technical information across functional areas. This includes sharing accurate data, positive and negative, within and across customer and contractor organizations, with little fear of retribution.		
1-Culture	1b. Culture fosters trust, honesty, transparency, communication, and shared values	Contractor	1b. 8	h) Realistic status and estimates at completion (EACs) are communicated at all levels and externally. Clear, consistent communication is key.		
1-Culture	**1c. Customer organization is supportive and committed**	**Customer**	1c. 1	a) The customer organization and its project team have a singular view of and a demonstrated belief in the intrinsic value of EVM and managing with EVMS data to position the project for success.		
1-Culture	1c. Customer organization is supportive and committed	Customer	1c. 2	b) The customer supports the project by establishing the topline expectations for EVMS implementation, tailored project size and complexity.		
1-Culture	1c. Customer organization is supportive and committed	Customer	1c. 3	c) The customer has committed resources, including funding and personnel, to ensure effective EVMS implementation is a priority.		
1-Culture	1c. Customer organization is supportive and committed	Customer	1c. 4	d) Customer commitment ensures guidance, advocacy, and accountability by the PM and functional leadership. This commitment includes a willingness to remove roadblocks that would hinder EVMS implementation and actual work performance. Customer commitment ensures consistent use of and management action from EVMS data and information.		
1-Culture	1c. Customer organization is supportive and committed	Customer	1c. 5	e) EVMS knowledge, attitudes, and discipline, at the project office and customer oversight organizations, lead to the correct use, application, and acceptance of the EVMS as a management control tool, including change control, forecasting, and risk management.		
1-Culture	1c. Customer organization is supportive and committed	Customer	1c. 6	f) Customer leadership actively revisits the most effective ways to evaluate EVMS metrics that support decision-making and system corrective actions and improvements. The customer institutes a learning organization that actively creates, acquires, and transfers knowledge internally and can modify its behavior to reflect its new knowledge.		
1-Culture	1c. Customer organization is supportive and committed	Customer	1c. 7	g) Customer leadership does not choose convenience or preference over following EVMS regulations and procedures. It balances the need to design, produce, and deliver safe and high-quality products and services with the requirement to maintain due diligence using EVM for proactive management action.		
1-Culture	1c. Customer organization is supportive and committed	Customer	1c. 8	h) Customer organization policies incentivize and educate to foster continuous support and commitment.		
1-Culture	1c. Customer organization is supportive and committed	Customer	1c. 9	i) Formal and timely examination, assessment, and acceptance of EVMS generated data, metrics, and reports enable the project to initiate change, where and when needed.		
1-Culture	1c. Customer organization is supportive and committed	Customer	1c. 10	j) If the project has multiple customers or sponsors, they are consistent in their assessment of the contractor's EVMS.		
1-Culture	1d. Timely and transparent decisions	Joint	1d. 1	a) The contractor and customer consistently demonstrate timely, transparent decisions critical in project success.		
1-Culture	1d. Timely and transparent decisions	Contractor	1d. 2	b) Project leadership and team members have situational awareness of the progress made on programmatic (such as technical, schedule, and budget) objectives that lead to timely, effective decisions.		
1-Culture	1d. Timely and transparent decisions	Contractor	1d. 3	c) The project adequately emphasizes EVMS importance as the means to develop and integrate scope, schedules, and budgets, as well as understand risk and uncertainty.		
1-Culture	1d. Timely and transparent decisions	Contractor	1d. 4	d) The project uses the EVMS to predict and positively influence schedule and cost outcomes using generated data, metrics, and reports in prescribed formats that assist effective management and decision-making.		
1-Culture	1d. Timely and transparent decisions	Contractor	1d. 5	e) Communication platforms disseminate information to enable effective decisions.		
1-Culture	1d. Timely and transparent decisions	Contractor	1d. 6	f) Team members implementing the EVMS are supported by timely decisions and inputs from the sponsors and have corporate support when needed.		
1-Culture	1d. Timely and transparent decisions	Contractor	1d. 7	g) Decisions are shared transparently (for example, scope changes are shared across key stakeholders) and are consistent.		
1-Culture	**1e. Leadership effectively manages and controls change**	**Joint**	1e. 1	a) Project leadership (contractor and customer leadership and their teams) has the authority to manage and respond to changes, implement corrective actions, and employ continuous improvement practices. Every project has changes, including scope, forecasts, personnel, funding, external environment, and EVMS tools. Regardless of the change, project leadership and the team acknowledge and tolerate change as a normal part of the project and are proactive in their response.		
1-Culture	1e. Leadership effectively manages and controls change	Joint	1e. 2	b) The customer and contractor foster an actionable culture that innovates quickly enough to operate in a rapidly changing environment using the EVMS.		
1-Culture	1e. Leadership effectively manages and controls change	Contractor	1e. 3	c) Project leadership is diligent in ensuring the team follows a closed-loop procedure when responding to change.		
1-Culture	1e. Leadership effectively manages and controls change	Contractor	1e. 4	d) The EVMS offers a solution-based approach to addressing complex project problems.		
1-Culture	1e. Leadership effectively manages and controls change	Joint	1e. 5	e) The customer and contractor remove obstacles to processing contracts and baseline change management.		
1-Culture	1e. Leadership effectively manages and controls change	Contractor	1e. 6	f) The baseline is proactively managed to ensure it is realistic and preserves the integrity of related metrics.		
1-Culture	1e. Leadership effectively manages and controls change	Contractor	1e. 7	g) Project leadership anticipates change and handles it with a positive attitude, fostering positive stakeholder attitudes and outcomes that lead to effective EVMS implementation and continuous improvement.		

Culture – cont'd

1-Culture	1f. Effective teamwork exists	Joint	1f. 1	a) EVMS stakeholders (including customers and contractors) are working synergistically together toward common project goals using effective teamwork.		
1-Culture	1f. Effective teamwork exists	Contractor	1f. 2	b) There is a mutual commitment to work together. The project overcomes functional silos through effective teamwork and can organize effectively for integrated project management activities.		
1-Culture	1f. Effective teamwork exists	Contractor	1f. 3	c) Effective teamwork promotes and welcomes diverse ideas and perspectives that can benefit the EVMS. Formal and informal team-building programs initiate teamwork as early in the project as possible.		
1-Culture	1f. Effective teamwork exists	Contractor	1f. 4	d) Team building seeks to resolve differences, remove roadblocks, and build and develop trust and commitment, a common mission statement, shared goals, interdependence, accountability among team members, and problem-solving skills. Team building contributes to alignment by helping a group evolve from a collection of individuals into a team.		
1-Culture	1f. Effective teamwork exists	Joint	1f. 5	e) Team building between customer and contractor is equally important, but it ensures customer independence for overseeing that the contractor meets applicable regulations and contract terms and conditions. Team building considers the current stage of team development (forming, storming, norming, or performing). A history of team members and their organizations working together on past efforts using the EVMS supports effective teamwork. (Excessive turnover of team members may hinder effective teamwork because of a lack of continuity. Project leadership addresses team-building activities again to minimize associated impacts.)		
1-Culture	**1g. Alignment and cohesion exist among key team members**	**Contractor**	1g. 1	a) Alignment and cohesion among key EVMS stakeholders, including agreement on common programmatic and technical objectives and current priorities, gives the project team the ability to effectively move forward together using the EVMS. When aligned, appropriate participants work within acceptable tolerances to develop and meet a uniformly defined and understood set of project objectives.		
1-Culture	1g. Alignment and cohesion exist among key team members	Contractor	1g. 2	b) Effective alignment promotes direction and the ability to respond to change as needed. (Lack of alignment, conversely, leads to the project team's pursuing conflicting objectives and goals.) Alignment effectively incorporates a diversity of ideas and perspectives that can benefit the EVMS.		
1-Culture	1g. Alignment and cohesion exist among key team members	Joint	1g. 3	c) The customer and contractor work cohesively and collectively to implement the EVMS, including working with designated project controls personnel assigned to EVMS implementation. EVMS implementation includes individuals from the entire project (corporate EVMS oversight, consultants, customer, contracts, finance and procurement offices, and so forth).		
1-Culture	1g. Alignment and cohesion exist among key team members	Contractor	1g. 4	d) In the project environment, alignment has three dimensions: 1. Vertical, top-to-bottom alignment within an organization. Executives, business managers, PMs, and functional specialists within each organization have a common understanding of the plans, schedules, and budgets coming from the EVMS.		
1-Culture	1g. Alignment and cohesion exist among key team members	Joint	1g. 5	d) In the project environment, alignment has three dimensions: 2. Horizontal, cross-organizational alignment between functional groups within the organizations represented on the project. Different organizations (including customers, prime contractors, subcontractors, and external stakeholders) with a stake in the project are also well aligned with a common understanding of the plans, schedules, and budgets coming from the EVMS. Any disconnects are understood and addressed to foster alignment. If the project has multiple customers or sponsors, they are considered for alignment and cohesion.		
1-Culture	1g. Alignment and cohesion exist among key team members	Contractor	1g. 6	d) In the project environment, alignment has three dimensions: 3. Longitudinal alignment of expectations and programmatic objectives throughout the project life cycle. This alignment ensures the project team is working toward common goals.		

People

Category	Factor Title	Owner	Checkpoint #	Checkpoint/Criteria	Rating	Comment/Recommendation
2-People	2a. Contractor team is experienced and qualified	Contractor	2a. 1	a) The contractor leadership team (including executive management, functional organizational managers, PM, and contracts manager) and the contractor's		
2-People	2a. Contractor team is experienced and qualified	Contractor	2a. 2	b) The contractor team is qualified to effectively implement the EVMS on the basis of relevant training, education, certification, or		
2-People	2a. Contractor team is experienced and qualified	Contractor	2a. 3	c) The contractor team has the right mixture of experienced personnel to implement the EVMS to ensure it reaches its objectives and desired outcomes. Experience increases the contractor's familiarity with the EVMS for		
2-People	2a. Contractor team is experienced and qualified	Contractor	2a. 4	d) A structured method for mentoring and professional development brings contractor leadership and project personnel		
2-People	**2b. Customer team is experienced**	**Customer**	2b. 1	a) The customer leadership team (such as the sponsor representative and contracting officer) and customer project team (such as the PM, budget officer,		
2-People	2b. Customer team is experienced	Customer	2b. 2	b) The customer has the right mixture of experienced personnel to ensure EVM is used effectively to inform decision-making. Experience with projects of similar size and complexity increases the familiarity and understanding of		
2-People	2b. Customer team is experienced	Customer	2b. 3	c) A structured method for mentoring and professional development brings new		
2-People	**2c. Leadership is defined, effective, and accountable.**	**Customer**	2c. 1	a) Customer and contractor project leadership is defined, effective, and accountable, leading to better EVMS implementation and execution. (Project leadership roles		
2-People	2c. Leadership is defined, effective, and accountable.	Contractor	2c. 2	b) The organizational structure follows the hierarchy of executive		
2-People	2c. Leadership is defined, effective, and accountable.	Contractor	2c. 3	c) The sponsor and senior leadership enhance the project environment. (They are responsible for the project, have decision-		
2-People	2c. Leadership is defined, effective, and accountable.	Contractor	2c. 4	d) Components of good leadership in the project context typically include the following: - General knowledge of		
2-People	2c. Leadership is defined, effective, and accountable.	Contractor	2c. 5	d) Components of good leadership in the project context typically include the following:		
2-People	2c. Leadership is defined, effective, and accountable.	Contractor	2c. 6	d) Components of good leadership in the project context typically include the following:		
2-People	2c. Leadership is defined, effective, and accountable.	Contractor	2c. 7	d) Components of good leadership in the project context typically include the following:		
2-People	2c. Leadership is defined, effective, and accountable.	Contractor	2c. 8	e) Components of good leadership in the EVMS context typically include the following:		
2-People	2c. Leadership is defined, effective, and accountable.	Contractor	2c. 9	e) Components of good leadership in the EVMS context typically include the following: - Clear support of the EVMS as an		
2-People	2c. Leadership is defined, effective, and accountable.	Contractor	2c. 10	e) Components of good leadership in the EVMS context typically include the following: - Swift action if the EVMS maturity		
2-People	2c. Leadership is defined, effective, and accountable.	Contractor	2c. 11	e) Components of good leadership in the EVMS context typically include the following:		
2-People	2c. Leadership is defined, effective, and accountable.	Contractor	2c. 12	e) Components of good leadership in the EVMS context typically include the following:		
2-People	2c. Leadership is defined, effective, and accountable.	Contractor	2c. 13	e) Components of good leadership in the EVMS context typically include the following: - Understanding of the relationships and integration		
2-People	2c. Leadership is defined, effective, and accountable.	Contractor	2c. 14	e) Components of good leadership in the EVMS context typically include the following:		

People – cont'd

2-People	**2d. Project/program stakeholder interests are appropriately represented**	**Contractor**	2d. 1	a) Project internal and external stakeholder interests are appropriately represented to provide the right input at the right time during EVMS implementation. (A stakeholder is an individual or entity who can influence, or is influenced by, the project. Appropriate internal stakeholders may include individuals representing the contractor,		
2-People	2d. Project/program stakeholder interests are appropriately represented	Contractor	2d. 2	b) Stakeholders effectively communicate expectations and proactively assist with key decisions. Appropriate stakeholder input helps improve team alignment by providing a sound foundation for a successful EVMS. Proper stakeholder input also gives the leadership and project management teams diverse expertise in the technical and		
2-People	**2e. Professional learning and education is appropriate**	**Contractor**	2e. 1	a) The professional learning and education of key individuals responsible for EVMS implementation support meeting project requirements. They can		
2-People	2e. Professional learning and education is appropriate	Contractor	2e. 2	b) Implementing the EVMS involves individuals with the necessary technical background, training, EV		
2-People	2e. Professional learning and education is appropriate	Contractor	2e. 3	c) Effective training on project management practices, procedures, and processes		
2-People	2e. Professional learning and education is appropriate	Contractor	2e. 4	d) A rigorous, tailored professional development program is maintained as the project progresses, including the development of technical		
2-People	2e. Professional learning and education is appropriate	Contractor	2e. 5	e) A proactive, formalized learning and development framework considers succession planning, cross-disciplinary training, team		
2-People	**2f. Team members are co-located and/or accessible.**	**Contractor**	2f. 1	a) Project leadership and team members responsible for the EVMS implementation phases of the		
2-People	2f. Team members are co-located and/or accessible.	Contractor	2f. 2	b) Team members are collocated or accessible to develop shared goals, purpose, and culture. (If the team is collocated for general day-		
2-People	2f. Team members are co-located and/or accessible.	Contractor	2f. 3	c) Collocation facilitates the development of a positive team climate, independent team processes, and maturation of team members and the team itself. (The accessibility of team members, through video conferencing and so		
2-People	2f. Team members are co-located and/or accessible.	Contractor	2f. 4	d) Through collocation, the team regularly and easily meets, converses, and shares ideas,		

Practices

Category	Factor Title	Owner	Checkpoint #	Checkpoint/Criteria	Rating	Comment/Recommendation
3-Practices	**3a. Promotes and follows standard practices.**	**Contractor**	3a. 1	a) Project management documents containing effective practices, procedures, processes, and tools for EVMS implementation are developed and consistently used, tailored where appropriate to the size and complexity of the project. Often referred to as the EVM system description, they define a uniform, consistent, and realistic approach to EVMS implementation.		
3-Practices	3a. Promotes and follows standard practices.	Contractor	3a. 2	b) The project promotes and follows standard practices, including proper, realistic, and up-front EVMS planning.		
3-Practices	3a. Promotes and follows standard practices.	Contractor	3a. 3	c) EVMS standard practices govern the organization's project management to integrate a defined set of associated work scopes, schedules, and budgets for effective planning, performance, and management control.		
3-Practices	3a. Promotes and follows standard practices.	Contractor	3a. 4	d) The project clarifies any variation from the organization's standard procedures for a given contract for all stakeholders to ensure alignment.		
3-Practices	3a. Promotes and follows standard practices.	Contractor	3a. 5	e) Standard practices facilitate training of all team members, including those less experienced.		
3-Practices	**3b. EVMS requirements definition is in place, and agreement exists.**	**Contractor**	3b. 1	a) EVMS requirements definition is in place and agreed upon by key stakeholders and customers, establishing common expectations on the importance of EVMS.		
3-Practices	3b. EVMS requirements definition is in place, and agreement exists.	Contractor	3b. 2	b) EVMS project implementation objectives are clear and scaled to the size and complexity of the project. Customer work scope requirements-including the requirement to implement the EVMS-are communicated and documented before work begins.		
3-Practices	3b. EVMS requirements definition is in place, and agreement exists.	Contractor	3b. 3	c) EVMS requirements are appropriate to support contractual requirements, leading to more uniform and better-informed decisions.		
3-Practices	**3c. Roles and responsibilities are defined, documented and well-understood**	**Joint**	3c. 1	a) Practices, procedures, and processes define and document the roles, responsibilities, accountability, and authority of internal and external stakeholders for both contractor and customer.		
3-Practices	3c. Roles and responsibilities are defined, documented and well-understood	Contractor	3c. 2	b) Clearly defined roles and responsibilities align with shared goals and effective EVMS implementation.		
3-Practices	3c. Roles and responsibilities are defined, documented and well-understood	Contractor	3c. 3	c) The project's roles, responsibilities, and authorities are well understood, consistent with the contract, followed, and updated as needed, closing gaps to ensure the EVMS runs efficiently.		
3-Practices	3c. Roles and responsibilities are defined, documented and well-understood	Contractor	3c. 4	d) Roles, responsibilities, and authorities are documented in a responsibility assignment matrix, making EVMS implementation and execution much smoother and helping meet project expectations.		
3-Practices	**3d. Communication is open and effective**	**Contractor**	3d. 1	a) Constant, open, and effective communication channels transfer EVMS information efficiently and expediently. Communication, including consistent terminology, builds and maintains a productive interface between the project and EVMS stakeholders.		
3-Practices	3d. Communication is open and effective	Contractor	3d. 2	b) The project has a communication plan that identifies stakeholders and includes clear milestones involving specific stakeholders as needed.		
3-Practices	3d. Communication is open and effective	Joint	3d. 3	c) The availability of metrics and reports gives customer and contractor management visibility into the project's current state. For example, realistic status and EACs are communicated at all internal and external levels.		
3-Practices	3d. Communication is open and effective	Contractor	3d. 4	d) The project identifies and communicates required metrics and reports for the EVMS in meaningful language and terms understandable by all parties.		
3-Practices	3d. Communication is open and effective	Contractor	3d. 5	e) Metrics and reports are produced promptly to communicate any significant variances and anomalies to support effective management decision-making.		
3-Practices	3d. Communication is open and effective	Contractor	3d. 6	f) Conflict resolution practices and procedures are in place and actively used.		
3-Practices	**3e. Effective oversight is in place and used**	**Contractor**	3e. 1	a) Established practices are used for effective oversight of the EVMS by an independent entity throughout the project life cycle to ensure the EVMS benefits the project. (Contract requirements and agreements in place between customer and contractor often drive oversight. An internal, administratively independent oversight team or organization-such as audit, financial, or project controls-can render this input. Conversely, an external organization can perform this type of oversight to effect change. Independent, external assessment and evaluation help remove conflicts of interest and identify other issues not evident to the project team.)		
3-Practices	3e. Effective oversight is in place and used	Contractor	3e. 2	b) Evaluations of EVMS practices and subprocesses, including those used to assess EVMS implementation efficacy or compliance with standards, are regularly performed and trends evaluated. These practices include adequate resources and management commitment to support internal and external, data driven surveillance and independent reviews.		
3-Practices	3e. Effective oversight is in place and used	Contractor	3e. 3	c) Effective oversight and surveillance practices help the project self-govern and lead to corrective action and continuous improvement.		

Practices – cont'd

3-Practices	**3f. Contractual terms and conditions are known and have been addressed.**	**Contractor**	3f. 1	a) Contractual terms and conditions-such as contract type and associated risk; use of agile, fast-tracking; many changes; or late requirements for EVMS use-are known, and those that are inappropriate or that conflict with appropriate EVMS implementation have been addressed as early as possible. (In some cases, contract terms and conditions can limit the effectiveness of EVMS applications. For instance, the contractual terms and conditions for EVM may not be appropriate for the contract scope, such as in a case where the contractor must implement a full EVMS on a relatively small, simple maintenance program.)		
3-Practices	3f. Contractual terms and conditions are known and have been addressed.	Contractor	3f. 2	b) The contract award fee or incentives are based on the acceptable implementation and use of the EVMS and current, accurate, and complete performance data for proactive management, in addition to meeting target milestones or deliverables. Contract award fees or incentives are not tied solely to performance thresholds.		
3-Practices	3f. Contractual terms and conditions are known and have been addressed.	Contractor	3f. 3	c) Contractual terms and conditions are actively enforced and strictly interpreted. Contractual terms and conditions are identified, including the responsibility for EVMS implementation, and the project is proactively addressing any limitations within the EVMS structure (such as the overlap of responsibilities, mismatch of business rhythm and capability, contract time not conducive to project objectives, and so forth).		
3-Practices	3f. Contractual terms and conditions are known and have been addressed.	Contractor	3f. 4	d) Contract modifications are reviewed to ensure their impact on the EVMS is addressed, especially changes made late in the project's life		
3-Practices	3g. Subject Matter Expert (SME) input	Contractor	3g. 1	a) Appropriate SME input is timely, effective, and efficient, supporting the project execution team's needs. (Typically, SMEs are external to the project and have experience and expertise in certain domains of knowledge critical in EVMS success. They can be used for independent assessment or reviews (such as non-advocate reviews or as a "time-shared" resource split between two or more projects. Individual SMEs may cover one or more functional areas, as needed.)		
3-Practices	3g. Subject Matter Expert (SME) input	Contractor	3g. 2	b) With the significant input of appropriate SME knowledge, lessons learned are leveraged and obstacles that typically hinder EVMS use are identified well in advance to facilitate timely, consistent use of data, enhancing management decision-making.		
3-Practices	3h. Coordination exists	Contractor	3h. 1	a) A formal structure of interaction between the key disciplines involved in implementing the EVMS enables them to coordinate and integrate the EVMS effectively with other project management activities. Key disciplines include accounting, engineering, project management, procurement, and supply chain integration.		
3-Practices	3h. Coordination exists	Contractor	3h. 2	b) Specifically, the project follows a cross-discipline coordination and collaboration plan to assist discipline leads, compliance reporting, audits, etc. This plan, along with a responsibility assignment matrix, is used to coordinate efforts between the customer, contractor, and external stakeholders.		
3-Practices	3h. Coordination exists	Contractor	3h. 3	c) The coordination and collaboration plan is part of the project execution plan and is updated as changes occur.		

Resources

Category	Factor Title	Owner	Checkpoint #	Checkpoint/Criteria	Rating	Comment/Recommendation
4-Resources	**4a. Adequate technology/software and tools are integrated and used**	**Contractor**	4a. 1	a) Technology and tools are available, accessible, current, and used appropriately as part of the integrated EVMS.		
4-Resources	4a. Adequate technology/software and tools are integrated and used	Contractor	4a. 2	b) The project invests appropriately in technology and infrastructure, including EVMS tools, to assist in the actual operation of work, making decision-making and data sharing more effective.		
4-Resources	4a. Adequate technology/software and tools are integrated and used	Contractor	4a. 3	c) The necessary expertise (programmers, systems analysts, etc.) is available to integrate the technology and processes and set up the interfaces between the various systems and tools to ensure smooth integration and minimize the need for major change where possible.		
4-Resources	4a. Adequate technology/software and tools are integrated and used	Contractor	4a. 4	d) The choice of technology and processes is periodically assessed for adequacy and other solutions available in the marketplace. (Software products can be "homegrown" internally or part of a commercial system with adequate vendor support. Automated tools are usually better than those needing manual data input.)		
4-Resources	4a. Adequate technology/software and tools are integrated and used	Contractor	4a. 5	e) The technology enables the project to completely integrate its EVMS subprocesses with other applicable digital infrastructure systems, creating a met system of connected processes and tools that communicate with each other, preferably automatically.		
4-Resources	4a. Adequate technology/software and tools are integrated and used	Contractor	4a. 6	f) Software and tools are in place to generate all of the necessary reports, charts, and data from the summary, total program, and project levels down through the work breakdown structure (WBS) and organization breakdown structure (OBS) to the work package (WP) or task level. They furnish the ability to drill down through the data and summarize the data up to the portfolio level.		
4-Resources	**4b. Sufficient funding is committed and available for implementing and executing the EVMS.**	**Contractor**	4b. 1	a) Sufficient funds are allocated and available to appropriately support the EVMS process for all directly involved in the project, from initiation through final EVMS delivery. (In some cases, the project is sufficiently funded, but the EVMS is not funded sufficiently for implementation. In other cases, generally unacceptable, the project is not sufficiently funded at initiation to meet the project baseline requirements. In still other situations, funding is provided year to year, which can cause continuity concerns. In any of these cases, the EVMS effort may be severely impeded.)		
4-Resources	4b. Sufficient funding is committed and available for implementing and executing the EVMS.	Contractor	4b. 2	b) Sufficient funding enables up-front organizational allocation and commitment to accomplish the EVMS requirements; funding is applied strategically and efficiently, using industry benchmarks or standards where appropriate for comparison.		
4-Resources	4b. Sufficient funding is committed and available for implementing and executing the EVMS.	Contractor	4b. 3	c) Funding is available for non-project-specific external resources to enable the project to support internal and external surveillance, training, lessons learned, corrective action plans, and other needs.		
4-Resources	4b. Sufficient funding is committed and available for implementing and executing the EVMS.	Contractor	4b. 4	d) Resources external to the project can flexibly provide surge capacity, independent assessment, or specialized knowledge as needed for implementing or executing an efficient, effective EVMS.		
4-Resources	**4c. Size and composition**	**Contractor**	4c. 1	a) The team that implements and executes the project EVMS is adequate in size and composition to efficiently support the project, adjusted as needed.		
4-Resources	4c. Size and composition	Joint	4c. 2	b) The customer and contractor organizations have committed time and resources to efficiently and effectively use EVM results, ensuring that decision-making is timely and informed.		
4-Resources	4c. Size and composition	Joint	4c. 3	c) Customer and contractor organizational staffing levels are in place and adequate to execute scope and workflow, including staffing levels, to effectively implement the EVMS. This includes individuals from the project, corporate EVMS oversight, consultants, customer, project controls, contracts, finance and procurement offices, and so forth.		
4-Resources	4c. Size and composition	Contractor	4c. 4	d) Expertise, authority, and experience, having size and composition comparable to industry benchmarks, are appropriate.		
4-Resources	**4d. Sufficient calendar time and workhours are committed and available**	**Contractor**	4d. 1	a) Sufficient working days and hours are committed and available for all, direct and indirect, involved in implementing the EVMS.		
4-Resources	4d. Sufficient calendar time and workhours are committed and available	Contractor	4d. 2	b) The magnitude of effort to perform the EVMS function is known, and resources to perform the effort are available when needed. This allocation of time and work hours enables adequate effort based on the size and complexity of the project.		
4-Resources	4d. Sufficient calendar time and workhours are committed and available	Contractor	4d. 3	c) Organizational prioritization and commitment of resources to accomplish EVMS requirements, as well as sufficient notification to assign the resources, is adequate. (For example, this requires the commitment of functional and program-specific managers to have individuals available for the effort and dedicate key personnel time to support the EVMS.)		
4-Resources	**4e. Data are readily available**	**Contractor**	4e. 1	a) Data are readily available and accessible in a consistent and timely manner according to the business rhythm.		
4-Resources	4e. Data are readily available	Contractor	4e. 2	b) Data are shared, effectively and efficiently, and support analyses to properly manage the project.		
4-Resources	4e. Data are readily available	Contractor	4e. 3	c) Data are current, accurate, complete, repeatable, auditable, and contextualized to aid understanding, which leads to effective, timely, and informed decisionmaking at all levels.		
4-Resources	4e. Data are readily available	Contractor	4e. 4	d) Data meet applicable EVM reporting requirements, such as file type and format.		
4-Resources	**4f. Project/program utilizes an appropriate periodic cycle**	**Contractor**	4f. 1	a) The EVMS is implemented in a cycle time appropriate to control the project effectively and efficiently, according to the business rhythm calendar per the contract requirements. The same periodic cycle is followed by subcontractors, accounting, procurement, contracting, and others, as required.		
4-Resources	4f. Project/program utilizes an appropriate periodic cycle	Contractor	4f. 2	b) The appropriate periodic cycle is used to assess and prioritize workflow, ensuring demand is balanced with EVMS capacity, which helps effectively plan, forecast, and allocate resources.		
4-Resources	4f. Project/program utilizes an appropriate periodic cycle	Contractor	4f. 3	c) EVMS personnel and management proactively address any issues that arise		

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EVMS Maturity Model Approach & Analysis

July 2022

Tony Spillman

Project Management Programs/EVMS Reporting

August 1, 2022

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DOE Driver for EVMS Maturity and Effectiveness

OFFICE OF PROJECT MANAGEMENT (PM)
EARNED VALUE MANAGEMENT SYSTEM (EVMS)
COMPLIANCE REVIEW STANDARD OPERATING PROCEDURE (ECRSOP)

APPENDIX A
COMPLIANCE ASSESSMENT GOVERNANCE (CAG) 2.0

OFFICE OF PROJECT MANAGEMENT
PROJECT CONTROLS AND POLICY DIVISION (PM-30)

3. Management Processes and Attributes for System Maturity and Effectiveness

EVMS processes ensure the project takes a systematic and disciplined approach to planning, scheduling, budgeting, analysis, change control, decision-making, and communications with customers (see Figure 1). They facilitate the use of a pragmatic and logical approach to meet the objectives of EIA-748:

Figure 3. Example EVMS Maturity Template

❶ SUB-PROCESS G: CHANGE CONTROL	❹ Maturity Level				
	LOW	MEDIUM			HIGH
❷ G.1. Controlling Management Reserve (MR) and Undistributed Budget (UB)	1	2	3	4	5
❸ The distribution of Management Reserve (MR) and Undistributed Budget (UB) should be accomplished through the use of a formal change control process. MR is controlled by limiting its use to applying risk contained within a formal risk register or for in-scope influences/events not previously identified and budgeted in the Performance Measurement Baseline (PMB). MR is not to be used to offset poor performance(s) (i.e., cost overruns) or cover costs that are out-of-scope to the contract. Conversely, it is to be used to accommodate unforeseen changes that are in-scope to the contract. budgetary changes to future work scope caused by rate adjustments, and other unknowns. To ensure that budgets for newly authorized work remain tied in the associated scope, UBs used to control the distribution of work using a holding account. Once the responsible organization(s) for the new scope has been identified, the budget is transferred from UB to the appropriate Control Account(s) (CAs). This ensures budget and scope will not be transferred independently. Changes to MR and UB budget are formally and separately controlled, tracked, and reported detailing newly) transactions and providing current budget values. A Contract Budget Base/Project Budget Base (CBB/PBB) log is used to track Performance Measurement Baseline (PMB), UB, and MR changes. The CBB/PBB log also serves to identify reporting period (monthly) end-values, reporting period changes to/from MR, PMB, and UB, and current MR and UB budget balances. Items to consider include: ☐ Documentation identifying both MR and UB values. This may include automated or manual records recording initial and, as the program progresses, revised amounts for MR and UB ☐ MR logs, UB logs, PMB logs, and/or CBB logs showing month-end values and changes, monthly sources and applications to from CAs, and current values ☐ Management performance reports ☐ Other MR and UB changes should be integrated with the Analysis and Management Reporting sub-process. *Comments: This attribute refers to controlling changes to MR and UB. For more information on the identification of MR and UB, see attributes C1 b and C1 i respectively. PBB is sometimes used when multiple distinct projects make up one contract.* *References:* NDIA EVMS EIA-748-D Intent Guide GL 29; DoD EVMSIG GL 29; DOE CAG GL 29; EIA748-D; NDIA PASEG; ISO 21508:2018(E)	Not yet started.	Some of the processes outlining the steps/actions needed to control MR and UB are in place. MR and UB logs do not exist.	Most of the processes outlining the steps/actions needed to control MR and UB are in place and documented. MR and UB logs exist, however are not fully maintained.	The documented processes outlining the steps/actions needed to control MR and UB are in place and approved. MR and UB logs exist and are fully maintained.	MR and UB are proactively managed to inform decision-making.
		MR and UB Logs do not exist. MR is being misapplied. It is being used to offset poor performance (i.e., cost overruns) or cover costs that are out-of-scope to the contract. UB cannot be identified with defined scope. A process to ensure for the timely closing of budget and related scope in the UB account does not yet exist.	MR and UB use and changes are documented in logs, but individual transactions may not be separately reconcilable to internal monthly baseline changes. There may be a few misapplications of MR, including its use to offset poor performance (i.e., cost overruns) or cover costs that are out-of-scope to the contract. UB has defined scope and has been appropriately distributed to the PMB. With some exception, there is timely clearing of budget and related scope in the UB account. MR and UB changes are coordinated with the Analysis and Management Reporting sub-process.	All MR and UB changes are documented monthly in logs showing at a minimum the date and to/from of the change action, associated work package, CA, descriptive title, and reference numbers as needed for tracing back to the originating change documentation. ❻ Risk mitigation and/or realization activities are identified with all MR transactions. These transactions are coordinated with the risk management process for re-evaluation of residual risk. MR is used per contractual documentation. New contractual work scope is not budgeted with MR; but instead comes from contingency and is documented via the formal contract change modification process and approved accordingly. UB has defined scope and has been appropriately distributed to the PMB in a timely and effective manner. MR and UB changes are fully integrated with the Analysis and Management Reporting sub-process.	All MR and UB changes are documented and reported in published logs. The control of MR and UB by the project/program manager is proactive and effective. MR and UB are monitored and automatically tested to assess system health and integrity. Necessary corrective actions are implemented, completed, and recurring issues resolved. Review of MR budget and its distribution is subject to, managed, and controlled by a Change Control Board (CCB) or equivalent. An accurate relationship between the budget amounts in the UB account and the scope of work authorized for each budget value is consistently maintained. Routine surveillance results of MR and UB are fully disclosed with all key stakeholders, who maximize use of these results. MR and UB changes are continuously reviewed and optimized.

Figure 4. Relationship of Organizing (A.1) with Other Subprocesses

Primary Process (Attribute)	Secondary Processes
A. Organizing (A.1)	A. Organizing
B. Planning and Scheduling	**B. Planning and Scheduling**
C. Budgeting and Work Authorization	**C. Budgeting and Work Authorization**
D. Accounting Considerations	**D. Accounting Considerations**
E. Indirect Budget and Cost Management	E. Indirect Budget and Cost Mgmt.
F. Analysis and Management Reporting	**F. Analysis & Mgmt. Reporting**
G. Change Control	**G. Change Control**
H. Material Management	H. Material Management
I. Subcontract Management	I. Subcontract Management
J. Risk Management	J. Risk Management

Integrated Project/Program Management (IP2M)
Maturity and Environment Total Risk Rating (METRR)
using EVMS

[Previously referred to as: Earned Value Management System (EVMS) Maturity and Environment Total Rating (METR)]

One of the Deliverables for the DOE-funded Research Project: *Improving the Maturity and Environment of Earned Value Management Systems (EVMS) – Development of an EVMS Rating Index*

SEPTEMBER 1, 2021

WRPS-MOP-2022-5345

EVMS Maturity – Subprocess Areas/Attributes

Per DOE - Maturity: ***"Degree to which an implemented system, associated processes, and deliverables serve as the basis for an effective and compliant EVMS."***

- 10 Subprocess Areas
- 56 Attributes
- 235 Effectiveness Criteria

Subprocess	Grand Total
A-Organization	20
B-Planning and Scheduling	49
C-Budgeting and Work Authorization	49
D-Accounting	16
E-Indirect	15
F-Analysis and Management Reporting	22
G-Change Control	24
H-Material Management	18
I-Subcontract Management	12
J-Risk Management	10
Grand Total	**235**

A. ORGANIZING
- A.1. Product-Oriented Work Breakdown Structure (WBS)
- A.2. Work Breakdown Structure (WBS) Hierarchy
- A.3. Organizational Breakdown Structure (OBS)
- A.4. Integrated System with Common Structures
- A.5. Control Account (CA) to Organizational Element

B. PLANNING AND SCHEDULING
- B.1. Authorized, Time-Phased Work Scope
- B.2. Schedule Provides Current Status
- B.3. Horizontal Integration
- B.4. Vertical Integration
- B.5. Integrated Master Schedule (IMS) Resources
- B.6. Schedule Detail
- B.7. Critical Path and Float
- B.8. Schedule Margin (SM)
- B.9. Progress Measures and Indicators
- B.10. Time-Phased Performance Measurement Baseline (PMB)

C. BUDGETING AND WORK AUTHORIZATION
- C.1. Scope, Schedule and Budget Alignment
- C.2. Over-Target Baseline (OTB) Authorization
- C.3. Summary Level Planning Packages (SLPPs)
- C.4. Work Authorization Documents (WADs)
- C.5. Work Authorization Prior to Performance
- C.6. Elements of Cost (EOC)
- C.7. Work Package Planning, Distinguishability, and Duration
- C.8. Measurable Units and Budget Substantiation
- C.9. Appropriate Assignment of Earned Value Techniques (EVTs)
- C.10. Identify and Control Level of Effort (LOE) Work Scope
- C.11. Identify Management Reserve (MR) Budget
- C.12. Undistributed Budget (UB)
- C.13. Reconcile to Target Cost Goal

D. ACCOUNTING CONSIDERATIONS
- D.1. Direct Costs
- D.2. Actual Cost Reconciliation
- D.3. Recording Direct Costs to Control Accounts (CAs) and/or Work Packages (WPs)
- D.4. Direct Cost Breakdown Summary

E. INDIRECT BUDGET AND COST MANAGEMENT
- E.1. Indirect Account Organization Structure
- E.2. Indirect Budget Management
- E.3. Record/Allocate Indirect Costs
- E.4. Indirect Variance Analysis

F. ANALYSIS AND MANAGEMENT REPORTING
- F.1. Calculating Variances
- F.2. Variances to Control Accounts (CAs)
- F.3. Performance Measurement Information
- F.4. Management Analysis and Corrective Actions
- F.5. Estimates at Completion (EAC)

G. CHANGE CONTROL
- G.1. Controlling Management Reserve (MR) and Undistributed Budget (UB)
- G.2. Incorporate Customer Directed Changes in a Timely Manner
- G.3. Baseline Changes Reconcilable
- G.4. Control of Retroactive Changes
- G.5. Preventing Unauthorized Revisions to the Contract Budget Base (CBB)

H. MATERIAL MANAGEMENT
- H.1. Recording Actual Material Costs
- H.2. Material Performance
- H.3. Residual Material
- H.4. Material Price/Usage Variance
- H.5. Identification of Unit Costs and Lot Costs

I. SUBCONTRACT MANAGEMENT
- I.1. Subcontract Identification and Requirements Flow Down
- I.2. Subcontractor Integration and Analysis
- I.3. Subcontract Oversight

J. RISK MANAGEMENT
- J.1. Identify, Analyze and Manage Risk
- J.2. Risk Integration

EVMS Maturity Scoring (1,000) and Scale (1-5)

Per the ECRSOP CAG, each Attribute ***(by effectiveness criteria and metric analysis)*** is assessed on a 1-to-5 maturity scale.

Each Attribute has a relative associated weight, all maturity Attribute scores sum to a 1,000-point scale—the higher the score is, the better.

"1" means that work on this Attribute has not yet started, and "5" means best in class.

Weights are:

- 1 – 0%
- 2 = 25%
- 3 = 50%
- 4 = 75%
- 5 = 100%

Attributes that are mature enough for an EIA-748–compliant EVMS receive a maturity level of "4" or higher.

Subprocess	Effectiveness Criteria			Attribute Metrics	
	EC Count	Max Score	Percent of Total	Metrics Count	Percent of Total
A-Organization	20	96	10%	21	11%
B-Planning and Scheduling	49	202	20%	55	30%
C-Budgeting and Work Authorization	49	178	18%	28	15%
D-Accounting	16	65	7%	10	5%
E-Indirect	15	55	6%	7	4%
F-Analysis and Management Reporting	22	109	11%	18	10%
G-Change Control	24	116	12%	22	12%
H-Material Management	18	59	6%	11	6%
I-Subcontract Management	12	60	6%	6	3%
J-Risk Management	10	60	6%	5	3%
	235	**1,000**		**183**	

Weighted EVMS Maturity Score Sheet

SUB-PROCESS B: PLANNING AND SCHEDULING							
Attribute	Maturity Level						Comments
	N/A	1	2	3	4	5	
B.1. Authorized, Time-Phased Work Scope		0	6	11	17	22	
B.2. Schedule Provides Current Status		0	6	11	17	22	
B.3. Horizontal Integration		0	5	10	15	21	
B.4. Vertical Integration		0	5	10	14	19	
B.5. Integrated Master Schedule (IMS) Resources		0	4	9	13	17	
B.6. Schedule Detail		0	5	9	14	18	
B.7. Critical Path and Float		0	7	13	20	27	
B.8. Schedule Margin (SM)		0	2	5	7	10	
B.9. Progress Measures and Indicators		0	5	11	16	21	
B.10. Time-Phased Performance Measurement Baseline (PMB)		0	6	13	19	25	
Column Totals		0	51	102	152	202	

Table 5. Attribute A.1. Maturity Level Template

LOW	MEDIUM			HIGH
1	2	3	4	5
Not yet started.	A singular, high-level product-oriented WBS is established. The WBS does not decompose to capture all work requirements.	Processes to require a singular, product-oriented WBS are established. The WBS is traceable and decomposed to the appropriate level for effective project management. The WBS includes most of the authorized work scope and requirements.	Processes requiring a singular, product-oriented WBS are established and approved. The WBS is traceable, encompassing all authorized work, and decomposed to the appropriate levels for effective project management and external reporting. The required WBS is annually validated through internal checks per approved processes.	The singular product-oriented WBS is reviewed, revised, and validated annually (or more frequently as needed) with revision history, per approved processes, through in-process internal checks.
	The process to establish a singular, product-oriented WBS has started but is not documented. The hierarchical WBS is not fully traceable to the SOW and is missing the SOW scope. The WBS is functionally oriented and lacks product orientation. Products often do not fulfill project requirements.	The process to establish a singular, product-oriented WBS that accurately reflects the products, services, and deliverables required to complete the project has been developed. No internal checks are in place to validate that the WBS meets requirements. Most products fulfill project requirements. The WBS hierarchy initially is product-oriented, but when extended to lower levels, the WBS becomes functionally oriented in an organizational or functional orientation. The WBS is coordinated with the planning and scheduling, budgeting and work authorization, change control, accounting consideration, and analysis and management reporting subprocesses.	(A.1.1) The process to establish a singular, product-oriented WBS that accurately reflects the products, services, and deliverables required to complete the project has been developed, documented, and approved. (A.1.2) Internal checks are in place to validate that the WBS meets project requirements. These checks may be outside the WBS process flow. The project ensures that the WBS is verified as product-oriented, and corrections are performed as required during project start-up. Products fulfill all project requirements. If required, WBS descriptive documents, such as a WBS dictionary, index, or similar, have been developed. (A.1.3) The WBS is integrated with the planning and scheduling, budgeting and work authorization, change control, accounting considerations, and analysis and management reporting subprocesses.	The WBS is optimized to streamline the management of the project. Internal checks are in place to validate that the WBS meets project requirements within the WBS process flow. Automated testing ensures that the established WBS is a product-oriented hierarchical decomposition of hardware, software, and services. Necessary corrective actions are implemented, completed, and recurring issues resolved. Routine surveillance results of the WBS are fully disclosed to all key stakeholders, who maximize their use. The WBS is continuously improved and optimized.

EVMS Maturity Weighting and Point Distribution

10 Subprocesses and the distribution of points

As documented in the CAG, Subprocesses B and C account for 380 points, or 38% of the maximum score of 1,000 points.

When combined with Subprocesses F and G, these four Subprocesses account for 605 points, or 61%, of the maximum score.

Thus, emphasizing credible ***plans, schedules, and budgets*** with adequate ***controls and rigorous reporting*** best positions the EVMS to help the project achieve its objectives.

Subprocess	Attributes	
	Max Score	Percent of Total
A-Organization	96	10%
B-Planning and Scheduling	202	20%
C-Budgeting and Work Authorization	178	18%
D-Accounting	65	7%
E-Indirect	55	6%
F-Analysis and Management Reporting	109	11%
G-Change Control	116	12%
H-Material Management	59	6%
I-Subcontract Management	60	6%
J-Risk Management	60	6%
	1,000	

WRPS Approach - EVMS Maturity - Subprocess

Subprocesses Scoring and Analysis

Detailed analysis can be “drilled down on” for each of the 235 effective criteria that form the weighted score

Overall scoring provided for analysis and opportunity for improvement (focus areas)

Separate raking by 1-5 helps focus where specific issues or concerns reside

Sum of Score	Rating							
Category	2-Needs Improv.	3-Meets Some	4-Meets Most	5-High Performing	Grand Total	Score	Max Score	
A-Organization	2%	4%		85%	**91%**	87	96	
B-Planning and Scheduling	1%		71%		**73%**	147	202	
C-Budgeting and Work Authorization	1%	40%		17%	**57%**	102	178	
D-Accounting	25%				**25%**	16	65	
E-Indirect				100%	**100%**	55	55	
F-Analysis and Management Reporting			75%		**75%**	82	109	
G-Change Control		50%			**50%**	58	116	
H-Material Management	25%				**25%**	15	59	
I-Subcontract Management				100%	**100%**	60	60	
J-Risk Management			75%		**75%**	45	60	
						667	**1,000**	**Total Score**

WRPS Approach - EVMS Maturity - Attribute

Sum of Weighted Score		
Subprocess	Sub-Process Attribute	Total
A-Organization	A.1. Product-Oriented Work Breakdown Structure (WBS)	58%
	A.2. Work Breakdown Structure (WBS) Hierarchy	100%
	A.3. Organizational Breakdown Structure (OBS)	100%
	A.4. Integrated System with Common Structures	100%
	A.5. Control Account (CA) to Organizational Element	100%
B-Planning and Scheduling	B.1. Authorized, Time-Phased Work Scope	75%
	B.2. Schedule Provides Current Status	75%
	B.3. Horizontal Integration	75%
	B.4. Vertical Integration	75%
	B.5. Integrated Master Schedule (IMS) Resources	75%
	B.6. Schedule Detail	75%
	B.7. Critical Path and Float	75%
	B.8. Schedule Margin (SM)	25%
	B.9. Progress Measures and Indicators	75%
	B.10. Time-Phased Performance Measurement Baseline (PMB)	75%

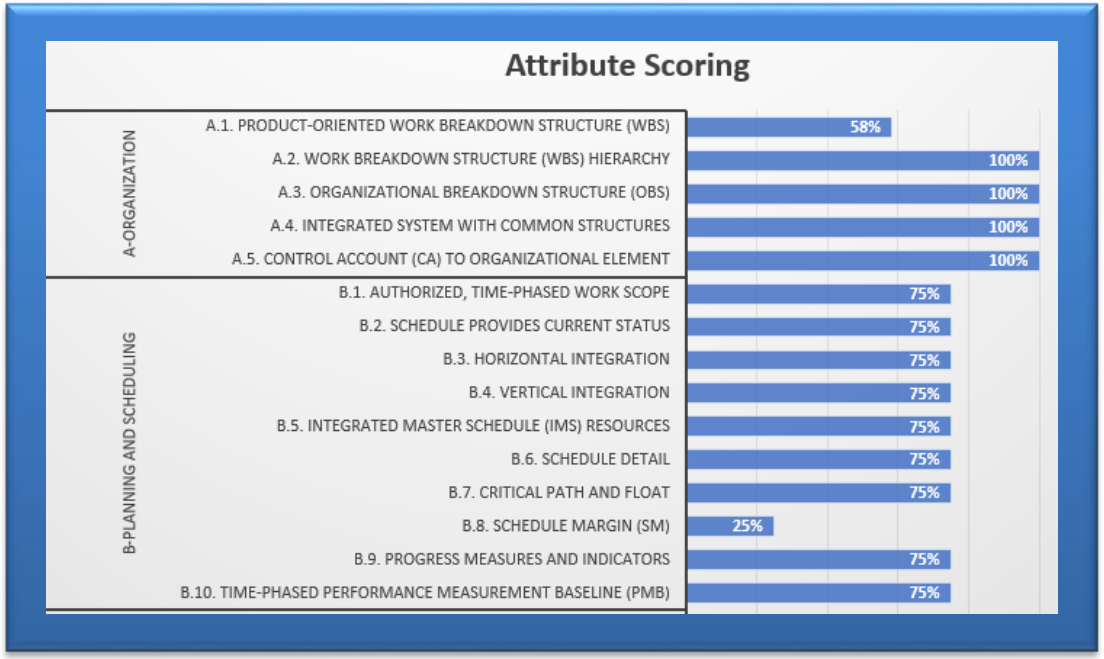
Count of Score	Rating				
Subprocess	2-Needs Improv.	3-Meets Some	4-Meets Most	5-High Performing	Grand Total
A-Organization	1	1		18	20
B-Planning and Scheduling	3		46		49
C-Budgeting and Work Authorization	5	36		8	49
D-Accounting	16				16
E-Indirect				15	15
F-Analysis and Management Reporting			22		22
G-Change Control		24			24
H-Material Management	18				18
I-Subcontract Management				12	12
J-Risk Management			10		10
Grand Total	43	61	78	53	235

WRPS Scoring and Analysis Approach

Evaluation and scoring is at the 235 “Effective Criteria” level for Analysis and Trending

Weighted to the 56 Attribute Level for Review and Trending

Summarized to the 10 Subprocess area for Reporting



WRPS Approach - Recommendations

WRPS EVMS Maturity Scoring and Analysis Approach

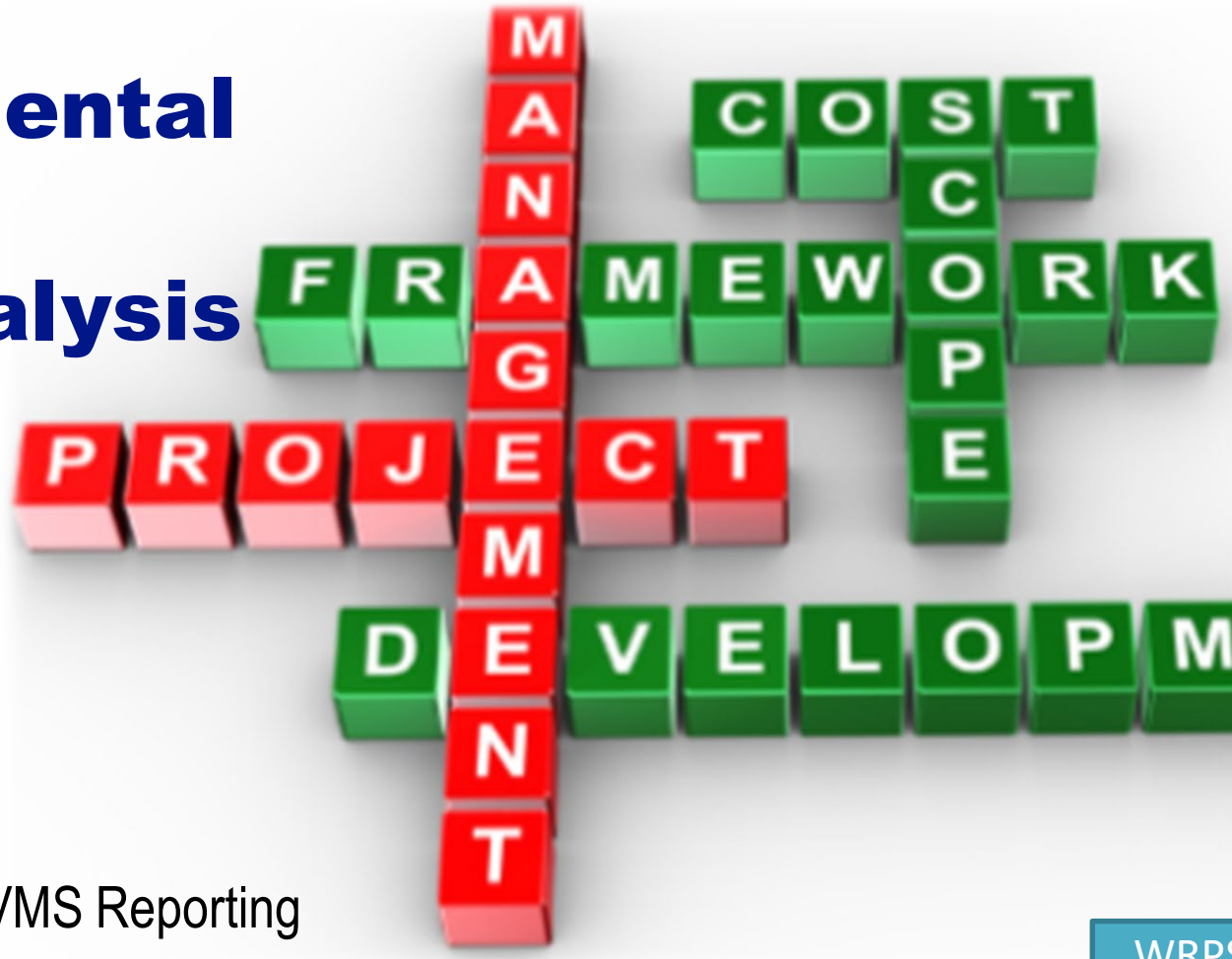
Using the Effectiveness Criteria, without applying the associated EVMS Metrics, is a reasonably subjective process. The following is recommended:

- Develop an automated tool, like a survey monkey, and broaden the subject evaluations to a larger audience. Suggestion would be Project Controls Managers, and selected Control Account Managers.
- Identify at least one Metric per EC which would provide a basis for supporting the evaluation, and on a regular basis (at least annually) use these in an overarching evaluation.
- Based on those results, develop a Corrective Action Management Plan, after a causal analysis has been performed identifying the actionable drivers associated with any Attribute scoring of less than 75%.
- For those individual ECs which score less than 4, identify the drivers and use a less rigorous corrective action approach to bring closure.
- Brief these results to the EVM Governance Board.

Questions and Comments

washington river protection solutions
an amentum-led company

EVMS Environmental Factors Model Approach & Analysis



July 2022

Tony Spillman

Project Management Programs/EVMS Reporting

August 1, 2022

WRPS-MOP-2022-5350

DOE Driver for EVMS Environmental Factors

OFFICE OF PROJECT MANAGEMENT (PM)
EARNED VALUE MANAGEMENT SYSTEM (EVMS)
COMPLIANCE REVIEW STANDARD OPERATING PROCEDURE (ECRSOP)

APPENDIX A
COMPLIANCE ASSESSMENT GOVERNANCE (CAG) 2.0

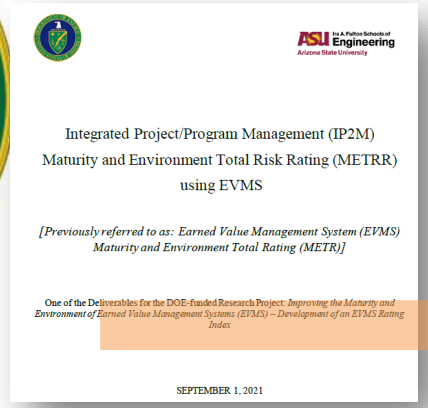
OFFICE OF PROJECT MANAGEMENT
PROJECT CONTROLS AND POLICY DIVISION (PM-30)

2. Environment for System Implementation

The environmental and human factors of a project refer to events, factors, people, systems, structures, and conditions, internal and external to organizations, that influence the implementation of the EVMS. The study found that culture, people, practices, and resources are the driving factors most associated with a project's environment, and as such, influence organizations' activities, decisions, behaviors, and attitudes of the people responsible for implementing the EVMS.

Table 1. Cultural Factors

Description	Checkpoint
1A The contractor organization supports and is committed to EVMS implementation, including making the necessary investments for regular maintenance and self-governance.	a) The contractor integrated project team (IPT)—including corporate leadership, execution and operations personnel, oversight personnel, and support staff—is in place, and it has a demonstrated belief in the intrinsic value of the EVMS to position the project for success. b) The project follows an integrated project management strategy to identify and manage risks using the EVMS that would otherwise impair a well-formed baseline plan. c) The project has committed resources, including funding, to ensure that effective implementation of the EVMS is a priority, assuring continuous improvement and accountability at every level of the contractor organization. This commitment ensures the availability of key individuals who contribute to implementing the EVMS. Typically, this includes the availability and commitment of other personnel with specialized skills and knowledge of the EVMS, who may or may not be "dedicated" to the project. d) Contractor leadership and team member attitude and discipline, at the corporate office and project levels, lead to the correct use, application, and acceptance of EVMS as an integrated project management tool used in the definition of work scope, planning and scheduling, budgeting and work authorization, managerial analysis, reporting, forecasting, and risk management. e) Contractor leadership actively revisits the most effective ways to evaluate EVMS metrics that support decision-making. f) The contractor organization's policies include incentives and education to foster support and commitment to implementing the EVMS. g) The contractor team does not choose convenience over following the EVMS regulations and procedures that apply to the project. h) Project decision-making, which ultimately drives project results, is collaborative and effectively relies on EVMS-generated data and metrics. i) Governance is enforced and effective at dealing with the project challenges. Self-governance refers to the capacity of a contractor to govern autonomously, an important approach in overseeing effective EVMS implementation. When a contractor instills integrated project management principles using the EVMS in a way that benefits all levels of the organization, the results can guide management decisions, lead to improved project execution, and optimize the performance of the project team.



Integrated Project/Program Management (IP2M) Maturity and Environment Total Risk Rating (METRR) using EVMS

[Previously referred to as: Earned Value Management System (EVMS) Maturity and Environment Total Rating (METR)]

One of the Deliverables for the DOE-funded Research Project: *Improving the Maturity and Environment of Earned Value Management Systems (EVMS) – Development of an EVMS Rating Index*

SEPTEMBER 1, 2021

Appendix E:

Weighted EVMS Environment Score Sheet

The following tables are the same as the previous EVMS environment score sheets; however, these tables contain the weights for each environment factor.

1. **Culture:** the culture category addresses those issues that impact the project/program culture. Culture is, by definition, the display of behaviors. Organizational culture is a system of common assumptions, values and beliefs (or the lack thereof) that governs how people behave in organizations. Organizational values and beliefs should align with the development and outcomes of a successful EVMS. The project/program culture can enable or hinder the effectiveness of the EVMS.

Factors for Review	Not Acceptable	Needs Improvement	Meets Some	Meets Most	High Performing
1a. The **contractor organization is supportive and committed** to EVMS implementation, including making the necessary investments for regular maintenance and self-governance.	0	19	39	58	78
1b. The project/program **culture fosters trust, honesty, transparency, communication, and shared values** across functions.	0	15	30	45	60
1c. The **customer organization is supportive and committed** to the implementation and use of EVMS.	0	14	27	41	54
1d. Project/program leaders make **timely and transparent decisions** informed by the EVMS.	0	12	24	36	48
1e. The project/program **leadership effectively manages and controls change** using EVMS, including corrective actions and continuous improvement.	0	8	16	24	32
1f. **Effective teamwork exists,** and team members are working synergistically toward common project/program goals.	0	5	11	16	22
1g. **Alignment and cohesion exist among key team members** who implement and execute EVMS, including common objectives and priorities.	0	5	9	14	19
Column Totals	**0**	**78**	**156**	**234**	**313**

WRPS-MOP-2022-5350

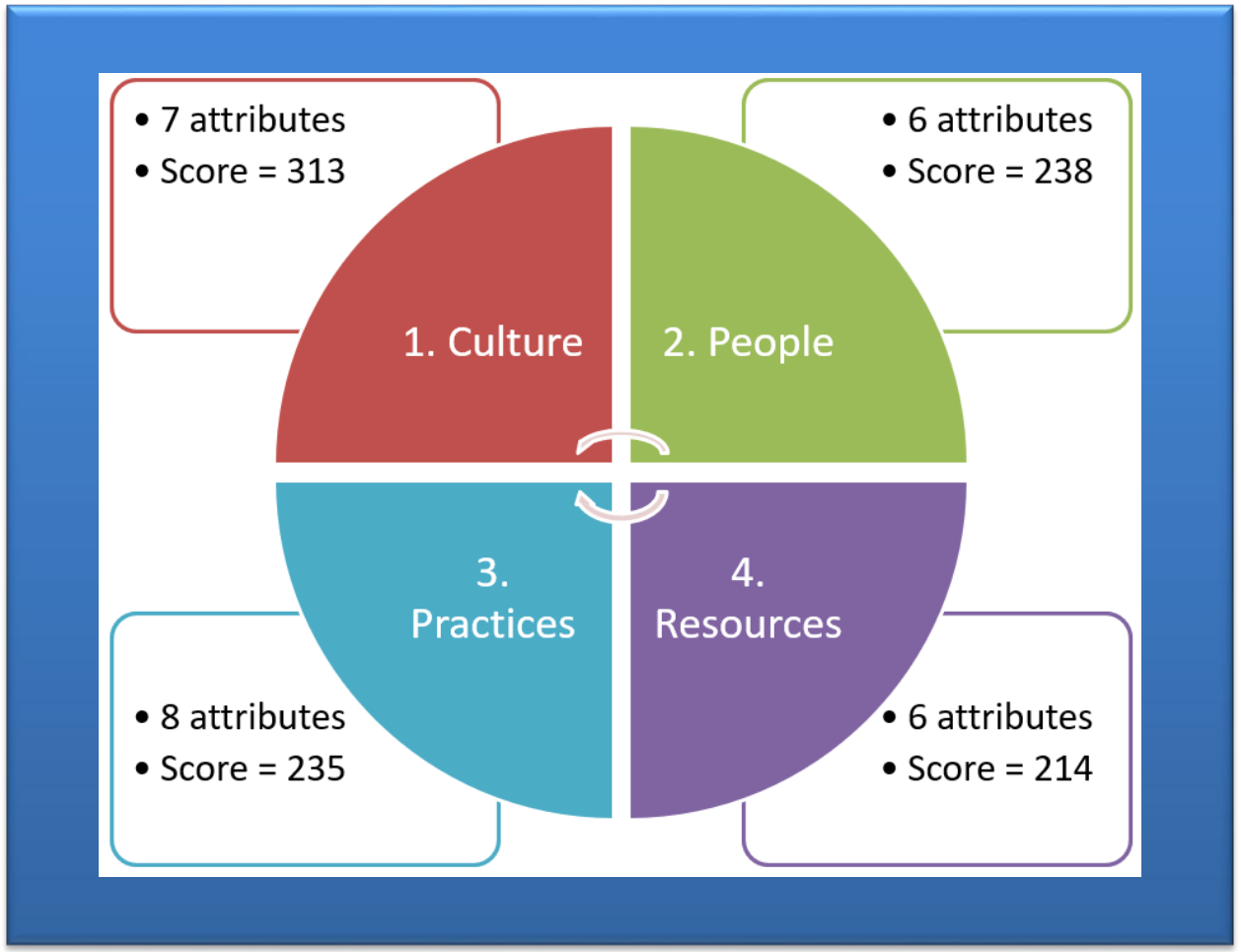
EVMS Environmental Factors – 27 Attributes

Per DOE – Maturity of an EVMS correlates with the environment in which it operates. The environment is a measure of internal and external factors in which the project functions; for good fiscal stewardship and project success, it ***prioritizes EVMS compliance similar to quality and safety.***

Environmental Factors focuses on establishing and maintaining a healthy project environment, and its primary product is an effective EVMS.

For projects of all types and sizes, the better the project environment is, the more likely the EVMS is viewed as a necessity for better outcomes.

The study found a strong positive correlation (Pearson r=0.83) between maturity and EF, in which both move in the same direction and the project environment is dominant.



EVMS Env. Factor Scoring (1,000) and Scale (1-5)

Per the ECRSOP CAG and IP2M METRR, each Factor ***(by checkpoint criteria)*** is assessed on a 1-to-5 maturity scale.

Each Factor has a relative associated weight, all Environmental Factor scores sum to a 1,000-point scale—the higher the score is, the better.

"1" means that the Environment is not acceptable, and "5" means high performing.

Scoring weights are:

- 1 Not Acceptable = 0%
- 2 Needs Improvement = 25%
- 3 Meets Some = 50%
- 4 Meets Most = 75%
- 5 High Performing = 100%

EVMS environment factors that fully meet the criteria discussed in the factor descriptions should receive a *High Performing* rating

	0%	25%	50%	75%	100%
Factors for Review	**Not Acceptable**	**Needs Improvement**	**Meets Some**	**Meets Most**	**High Performing**
1- Culture	0	78	156	234	313
2 - People	0	58	121	178	238
3 - Practices	0	58	118	177	235
4 - Resources	0	53	107	159	214
		247	**502**	**748**	**1000**

Weighted EVMS Environment Score Sheet

The following tables are the same as the previous EVMS environment score sheets; however, these tables contain the weights for each environment factor.

1. **Culture:** the culture category addresses those issues that impact the project/program culture. Culture is, by definition, the display of behaviors. Organizational culture is a system of common assumptions, values and beliefs (or the lack thereof) that governs how people behave in organizations. Organizational values and beliefs should align with the development and outcomes of a successful EVMS. The project/program culture can enable or hinder the effectiveness of the EVMS.

Factors for Review	Not Acceptable	Needs Improvement	Meets Some	Meets Most	High Performing
1a. The **contractor organization is supportive and committed** to EVMS implementation, including making the necessary investments for regular maintenance and self-governance.	0	19	39	58	78
1b. The project/program **culture fosters trust, honesty, transparency, communication, and shared values** across functions.	0	15	30	45	60
1c. The **customer organization is supportive and committed** to the implementation and use of EVMS.	0	14	27	41	54
1d. Project/program leaders make **timely and transparent decisions** informed by the EVMS.	0	12	24	36	48
1e. The project/program **leadership effectively manages and controls change** using EVMS, including corrective actions and continuous improvement.	0	8	16	24	32
1f. **Effective teamwork exists,** and team members are working synergistically toward common project/program goals.	0	5	11	16	22
1g. **Alignment and cohesion exist among key team members** who implement and execute EVMS, including common objectives and priorities.	0	5	9	14	19
Column Totals	**0**	**78**	**156**	**234**	**313**

WRPS Approach - EVMS Env Factors - Category

Category Scoring and Analysis

Detailed analysis can be “drilled down on” for each of the 138 checkpoint criteria that form the weighted score

Overall scoring provided for analysis and opportunity for improvement (focus areas)

Separate rating by 1-5 helps focus where specific issues or concerns reside

Evaluation includes Contractor, Customer and Joint

Sum of Score	Rating							
Category	2-Needs Improv.	3-Meets Some	4-Meets Most	5-High Performing	Grand Total	Score	Max Score	
1-Culture	1%	26%	9%	33%	69%	216	313	
2-People	0%	17%	28%	28%	73%	173	238	
3-Practices	4%	22%	23%	10%	59%	139	235	
4-Resources	2%		40%	39%	81%	173	214	
						701	1,000	Total Score

Count of Checkpoint/Criteria	Owner			
Category	Contractor	Joint	Customer	Grand Total
1-Culture	32	10	10	52
2-People	28		4	32
3-Practices	28	2		30
4-Resources	22	2		24
GrandTotal	110	14	14	138

WRPS Approach - EVMS Environment - Factor

Sum of Weighted Score		
Category	Factor Title	Total
1-Culture	1a. Contractor organization is supportive and committed	62%
	1b. Culture fosters trust, honesty, transparency, communication, and shared values	53%
	1c. Customer organization is supportive and committed	100%
	1d. Timely and transparent decisions	61%
	1e. Leadership effectively manages and controls change	79%
	1f. Effective teamwork exists	65%
	1g. Alignment and cohesion exist among key team members	71%
2-People	2a. Contractor team is experienced and qualified	56%
	2b. Customer team is experienced	100%
	2c. Leadership is defined, effective, and accountable.	64%
	2d. Project/program stakeholder interests are appropriately represented	75%
	2e. Professional learning and education is appropriate	70%
	2f. Team members are co-located and/or accessible.	75%

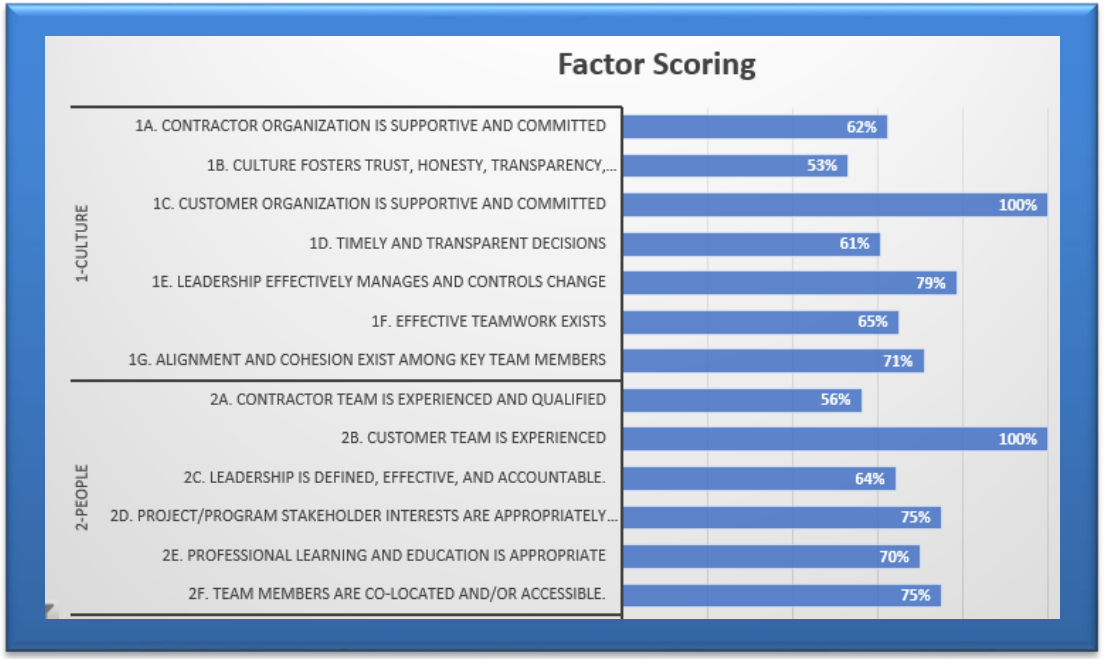
Count of Score		Rating				
Category	Factor Title	2-Needs Improv.	3-Meets Some	4-Meets Most	5-High Performing	Grand Total
1-Culture	1g. Alignment and cohesion exist among key team members	1	1	2	2	6
	1f. Effective teamwork exists	1	2		2	5
	1e. Leadership effectively manages and controls change		3		4	7
	1d. Timely and transparent decisions		5	1	1	7
	1c. Customer organization is supportive and committed				10	10
	1b. Culture fosters trust, honesty, transparency, communication, and shared values		7	1		8
	1a. Contractor organization is supportive and committed		6	2	1	9
1-Culture Total		2	24	6	20	52
2-People	2f. Team members are co-located and/or accessible.			4		4
	2e. Professional learning and education is appropriate		2	2	1	5
	2d. Project/program stakeholder interests are appropriately represented			2		2
	2c. Leadership is defined, effective, and accountable.	1	6	5	2	14
	2b. Customer team is experienced				3	3
	2a. Contractor team is experienced and qualified		3	1		4
2-People Total		1	11	14	6	32
3-Practices		5	12	9	4	30
4-Resources		2		12	10	24
GrandTotal		10	47	41	40	138

WRPS Scoring and Analysis Approach

Evaluation and scoring is at the 138 “Checkpoint Criteria” level for Analysis and Trending

Weighted to the 27 Environmental Factor Level for Review and Trending

Summarized to the 4 Categories for Reporting



WRPS Approach - Recommendations

WRPS EVMS Environmental Factors Scoring and Analysis Approach

Even with the additional delineation of detailed measurement points, this type of evaluation is heavily subjective. The following is recommended:

- Develop an automated tool, like a survey monkey, and broaden the subject evaluations to a larger audience. Suggestion would be Project Controls Managers, selected Control Account Managers, Work Area Managers, and potentially a few customers (ORP).
- Based on those results, develop a Corrective Action Management Plan, after a causal analysis has been performed identifying the actionable drivers associated with any measurement point averaging a score of 3 or lower.
- Brief these results to the EVM Governance Board.

Questions and Comments

DOE IP2M METRR Pilot Project

Presented by:

Tony Spillman

washington river protection solutions
an amentum-led company

EVMS Compliance and Reporting

2022 EVM Practitioners' Forum
October 26th & 27th
www.evmpforum.com

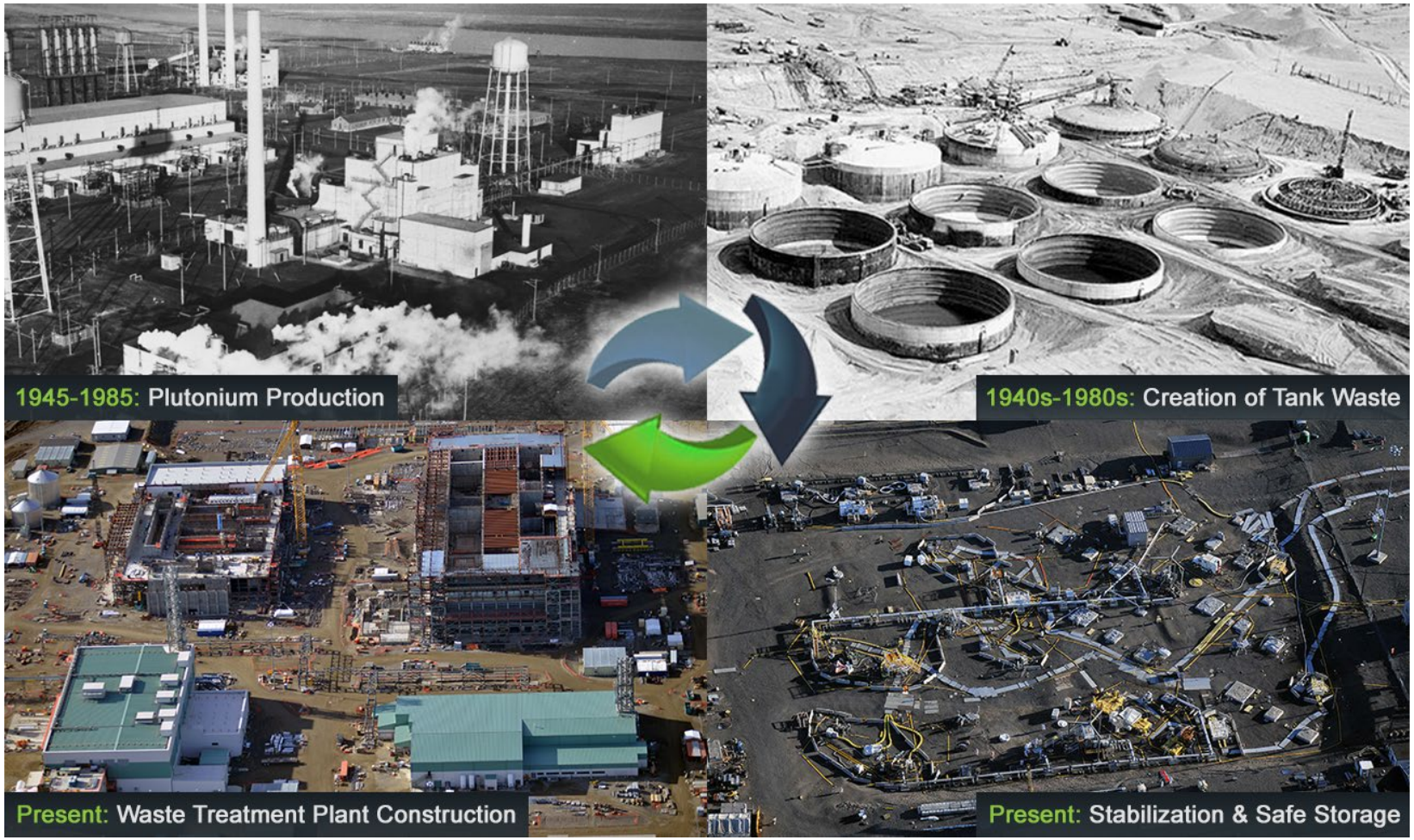
EVM
EARNED VALUE MANAGEMENT PRACTITIONERS' FORUM®

Learning Objectives

- Objectively Assessing Environmental Factors
- Objectively Assessing EVMS Maturity
- Corrective Action Approach(s) to Continuous Improvement

Hanford Legacy and WRPS Tank Operations Mission

WRPS is an Amentum-Led LLC owned by Amentum and Atkins as an integrated subcontractor



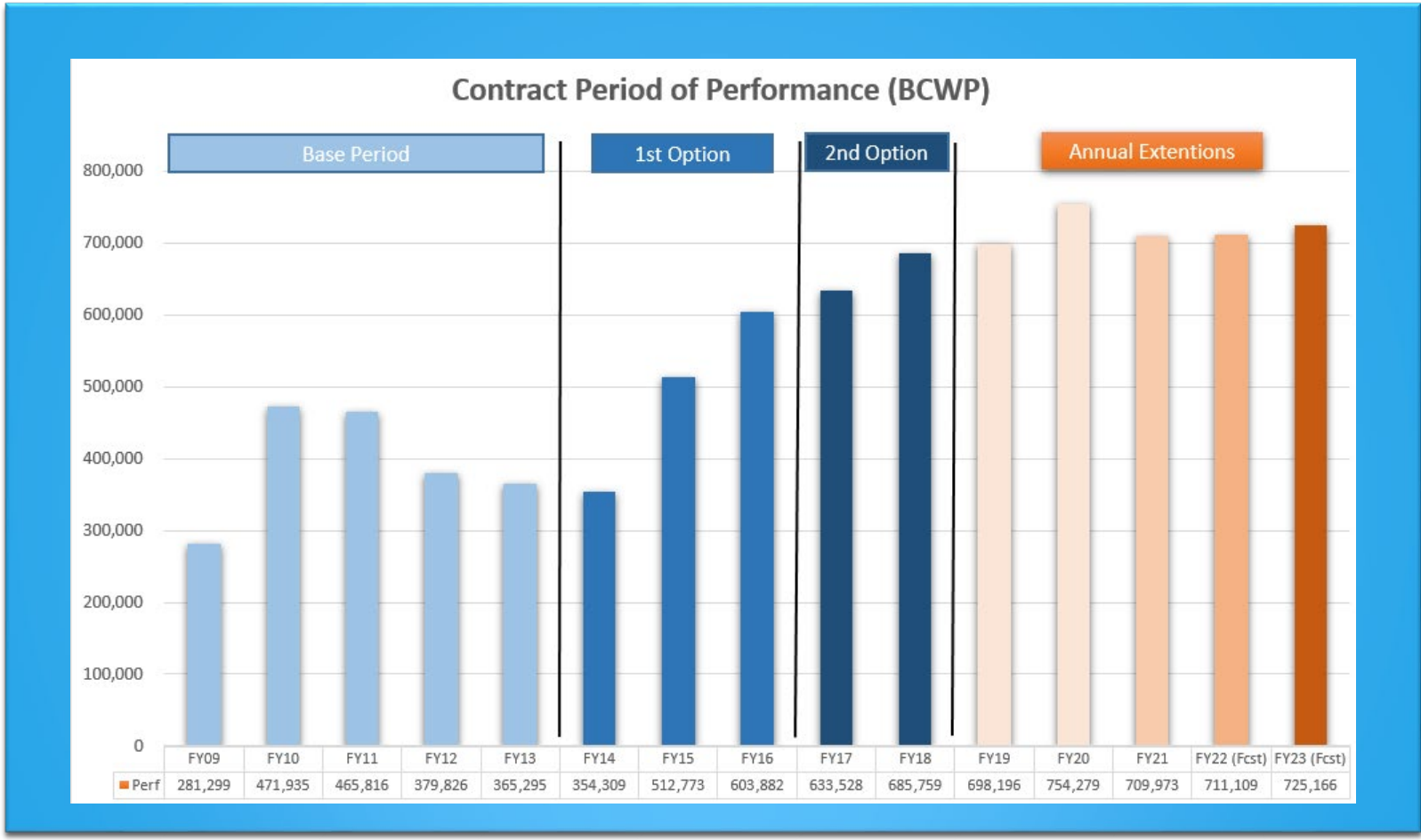
WRPS Current PMB and BCWR

WRPS "Program" PMB/BCWR

As of: Aug-22

EVMS Requirement: ***Contract/Full Program***
EVMS Certification: ***September 17, 2009***
Contract Duration: ***15 Years (FY09-FY23)***
PMB Value = ***$8,402 Million***
BCWR = ***$869 Million***
CAMs = ***90***
Employees = ***~3,500 (including contractors)***
Status: ***Preparing for Contract Transition***

Capital Line-Item Projects = ***1***
Value = ***$136 million***
Status: ***Complete***



WRPS Contribution to IP2M METRR Approach

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Amy Basche	Hanford Mission Integration Solutions
Ivan Bembers	National Reconnaissance Office
Danielle A. Bemis	U.S. Department of Defense
Thomas P. Carney	Lockheed Martin
Mounir El Asmar, PI	Arizona State University
Jon Fleming	National Aeronautics and Space Administration
Mark Frampton	National Reconnaissance Office/Contract support
Melvin Frank	U.S. Department of Energy
G. Edward Gibson, PI	Arizona State University
Wayne A. Harris	U.S. Department of Energy/Contract support
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Kristen Kehrer	National Aeronautics and Space Administration
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Team Member	Organization
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Hala Sanboskani	Arizona State University
Anthony W. Spillman	Washington River Protection Solutions
Tristan Walters	Sandia National Lab
William G. Weisler	U.S. Department of Defense
Mathew Z. (Zac) West	U.S. Department of Energy

Past Members/Contributors:
Emily M. Beltramo, U.S. Department of Defense/Contract support
Namho Cho, Arizona State University
Jonathan de Guzman, U.S. Department of Defense/Contract support
Vicki L. Frahm, Sandia National Lab
Jerald G. Kerby, ret., National Aeronautics and Space Administration
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DOE Driver for EVMS Environmental Factors

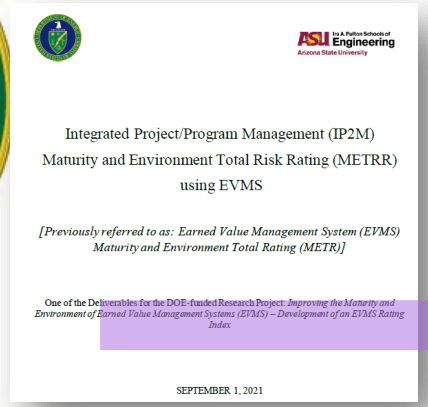
OFFICE OF PROJECT MANAGEMENT (PM)
EARNED VALUE MANAGEMENT SYSTEM (EVMS)
COMPLIANCE REVIEW STANDARD OPERATING PROCEDURE (ECRSOP)

APPENDIX A
COMPLIANCE ASSESSMENT GOVERNANCE (CAG) 2.0

OFFICE OF PROJECT MANAGEMENT
PROJECT CONTROLS AND POLICY DIVISION (PM-30)

2. Environment for System Implementation

The environmental and human factors of a project refer to events, factors, people, systems, structures, and conditions, internal and external to organizations, that influence the implementation of the EVMS. The study found that culture, people, practices, and resources are the driving factors most associated with a project's environment, and as such, influence organizations' activities, decisions, behaviors, and attitudes of the people responsible for implementing the EVMS.



Integrated Project/Program Management (IP2M) Maturity and Environment Total Risk Rating (METRR) using EVMS

[Previously referred to as: Earned Value Management System (EVMS) Maturity and Environment Total Rating (METR)]

One of the Deliverables for the DOE-funded Research Project: *Improving the Maturity and Environment of Earned Value Management Systems (EVMS) – Development of an EVMS Rating Index*

SEPTEMBER 1, 2021

Table 1. Cultural Factors

Description	Checkpoint
1A The contractor organization supports and is committed to EVMS implementation, including making the necessary investments for regular maintenance and self-governance.	a) The contractor integrated project team (IPT)—including corporate leadership, execution and operations personnel, oversight personnel, and support staff—is in place, and it has a demonstrated belief in the intrinsic value of the EVMS to position the project for success. b) The project follows an integrated project management strategy to identify and manage risks using the EVMS that would otherwise impair a well-formed baseline plan. c) The project has committed resources, including funding, to ensure that effective implementation of the EVMS is a priority, assuring continuous improvement and accountability at every level of the contractor organization. This commitment ensures the availability of key individuals who contribute to implementing the EVMS. Typically, this includes the availability and commitment of other personnel with specialized skills and knowledge of the EVMS, who may or may not be "dedicated" to the project. d) Contractor leadership and team member attitude and discipline, at the corporate office and project levels, lead to the correct use, application, and acceptance of EVMS as an integrated project management tool used in the definition of work scope, planning and scheduling, budgeting and work authorization, managerial analysis, reporting, forecasting, and risk management. e) Contractor leadership actively revisits the most effective ways to evaluate EVMS metrics that support decision-making. f) The contractor organization's policies include incentives and education to foster support and commitment to implementing the EVMS. g) The contractor team does not choose convenience over following the EVMS regulations and procedures that apply to the project. h) Project decision-making, which ultimately drives project results, is collaborative and effectively relies on EVMS-generated data and metrics. i) Governance is enforced and effective at dealing with the project challenges. Self-governance refers to the capacity of a contractor to govern autonomously, an important approach in overseeing effective EVMS implementation. When a contractor instills integrated project management principles using the EVMS in a way that benefits all levels of the organization, the results can guide management decisions, lead to improved project execution, and optimize the performance of the project team.

Appendix E:

Weighted EVMS Environment Score Sheet

The following tables are the same as the previous EVMS environment score sheets; however, these tables contain the weights for each environment factor.

1. **Culture:** the culture category addresses those issues that impact the project/program culture. Culture is, by definition, the display of behaviors. Organizational culture is a system of common assumptions, values and beliefs (or the lack thereof) that governs how people behave in organizations. Organizational values and beliefs should align with the development and outcomes of a successful EVMS. The project/program culture can enable or hinder the effectiveness of the EVMS.

Factors for Review	Not Acceptable	Needs Improvement	Meets Some	Meets Most	High Performing
1a. The **contractor organization is supportive and committed** to EVMS implementation, including making the necessary investments for regular maintenance and self-governance.	0	19	39	58	78
1b. The project/program **culture fosters trust, honesty, transparency, communication, and shared values** across functions.	0	15	30	45	60
1c. The **customer organization is supportive and committed** to the implementation and use of EVMS.	0	14	27	41	54
1d. Project/program leaders make **timely and transparent decisions** informed by the EVMS.	0	12	24	36	48
1e. The project/program **leadership effectively manages and controls change** using EVMS, including corrective actions and continuous improvement.	0	8	16	24	32
1f. **Effective teamwork exists,** and team members are working synergistically toward common project/program goals.	0	5	11	16	22
1g. **Alignment and cohesion exist among key team members** who implement and execute EVMS, including common objectives and priorities.	0	5	9	14	19
Column Totals	**0**	**78**	**156**	**234**	**313**

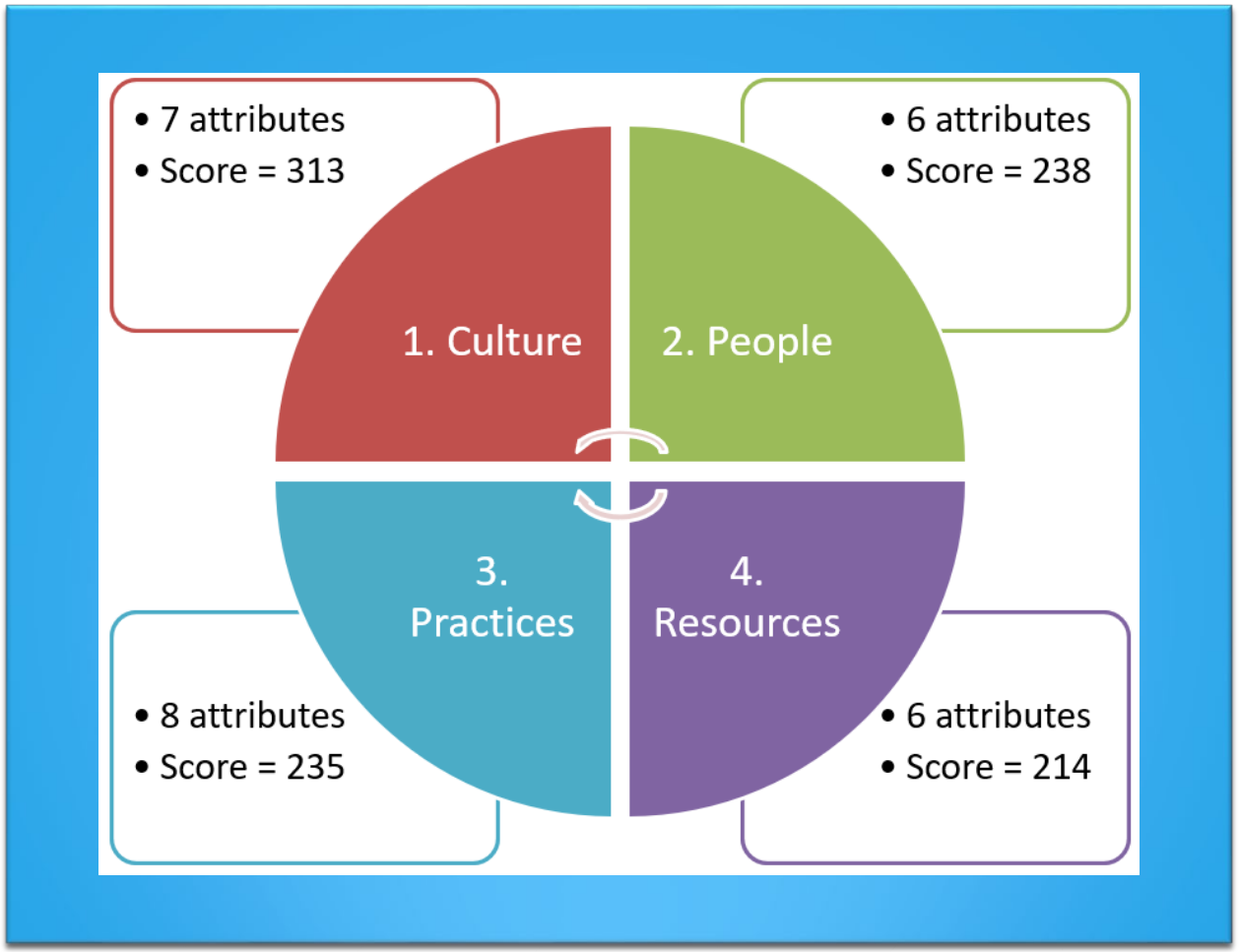
EVMS Environmental Factors – 27 Attributes

Per DOE – Maturity of an EVMS correlates with the environment in which it operates. The environment is a measure of internal and external factors in which the project functions; for good fiscal stewardship and project success, it ***prioritizes EVMS compliance similar to quality and safety [and security].***

Environmental Factors focuses on establishing and maintaining a healthy project environment, and its primary product is an effective EVMS.

For projects of all types and sizes, the better the project environment is, the more likely the EVMS is viewed as a necessity for better outcomes.

The study found a strong positive correlation (Pearson r=0.83) between maturity and EF, in which both move in the same direction and ***the project environment is dominant***.



"Environment is the broth of the EVMS soup, making it taste either good or bad."
-Mel Frank

EVMS Env. Factor Scoring (1,000) and Scale (1-5)

Per the ECRSOP CAG and IP2M METRR, each Factor ***(by checkpoint criteria)*** is assessed on a 1-to-5 maturity scale.

Each Factor has a relative associated weight, all Environmental Factor scores sum to a 1,000-point scale—the higher the score is, the better.

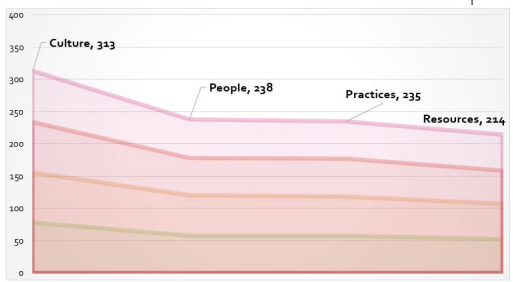
"1" means that the Environment is not acceptable, and "5" means high performing.

Scoring weights are:

- *1 Not Acceptable = 0%*
- *2 Needs Improvement = 25%*
- *3 Meets Some = 50%*
- 4 Meets Most = 75%
- *5 High Performing = 100%*

EVMS environment factors that fully meet the criteria discussed in the factor descriptions should receive a *High Performing* rating

	0%	25%	50%	75%	100%
Factors for Review	**Not Acceptable**	**Needs Improvement**	**Meets Some**	**Meets Most**	**High Performing**
1- Culture	0	78	156	234	313
2 - People	0	58	121	178	238
3 - Practices	0	58	118	177	235
4 - Resources	0	53	107	159	214
		247	**502**	**748**	**1000**



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Factors for Review	Not Acceptable	Needs Improvement	Meets Some	Meets Most	High Performing
he contractor organization is supportive and committed to VMS implementation, including making the necessary ıvestments for regular maintenance and self-governance.	0	19	39	58	78
he project/program **culture fosters trust, honesty, ransparency, communication, and shared values** across ınctions.	0	15	30	45	60
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Column Totals	**0**	**78**	**156**	**234**	**313**

WRPS Approach - EVMS Env Factors - Category

Category Scoring and Analysis

Detailed analysis can be “drilled down on” for each of the ***138 checkpoint criteria*** that form the weighted score

Overall scoring provided for analysis and opportunity for improvement (focus areas)

Separate raking by 1-5 helps focus where specific issues or concerns reside

Evaluation includes Contractor, Customer and Joint

Sum of Score	Rating						
Category	2-Needs Improv.	3-Meets Some	4-Meets Most	5-High Performing	Grand Total	Score	Max Score
1-Culture	1%	14%	37%	20%	**72%**	224	313
2-People	1%	7%	35%	36%	**79%**	188	238
3-Practices	0%	6%	51%	19%	**76%**	179	235
4-Resources		3%	25%	61%	**89%**	190	214
					Total Score	**781**	**1,000**

Count of Checkpoint/Criteria	Owner			
Category	Contractor	Joint	Customer	Grand Total
1-Culture	31	11	10	**52**
2-People	28		4	**32**
3-Practices	28	2		**30**
4-Resources	22	2		**24**
GrandTotal	**109**	**15**	**14**	**138**

WRPS Approach - EVMS Environment - Factor

Weighted Score		
Category	Factor Title	Total
4-Resources	4a. Adequate technology/software and tools are integrated and used	96%
	4b. Sufficient funding is committed and available for implementing and executing the EVMS.	88%
	4c. Size and composition	88%
	4d. Sufficient calendar time and workhours are committed and available	75%
	4e. Data are readily available	94%
	4f. Project/program utilizes an appropriate periodic cycle	92%

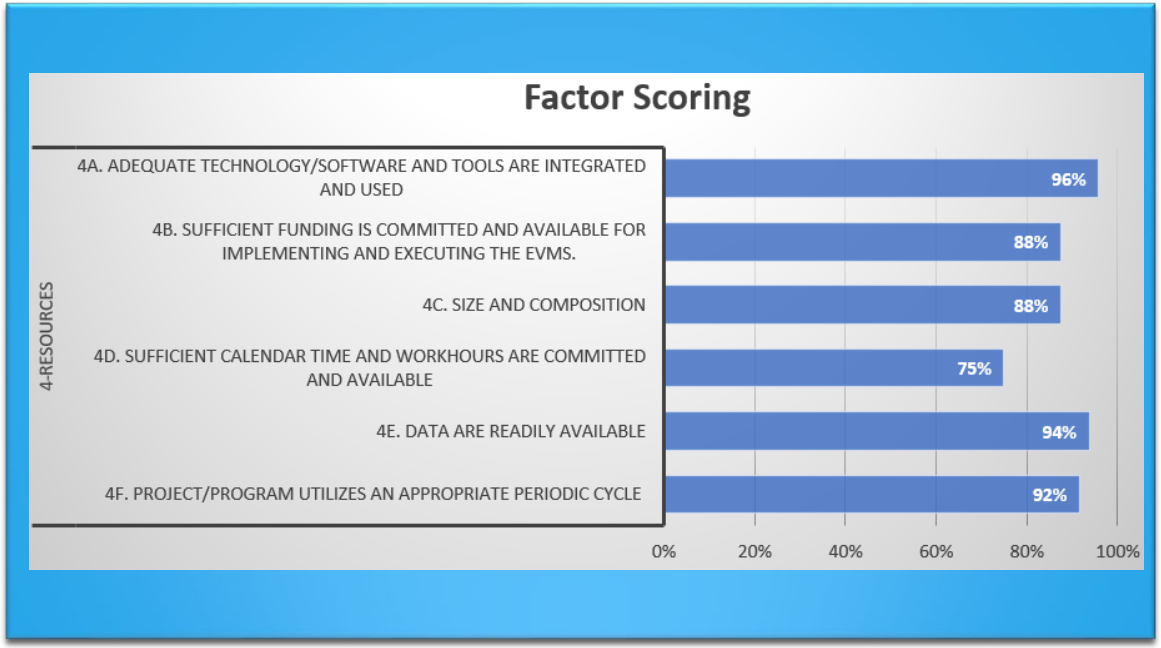
Category	4-Resources			
Count of Score	Rating			
Factor Title	3-Meets Some	4-Meets Most	5-High Performing	Grand Total
4a. Adequate technology/software and tools are integrated and used		1	5	6
4b. Sufficient funding is committed and available for implementing and executing the EVMS.		2	2	4
4c. Size and composition		2	2	4
4d. Sufficient calendar time and workhours are committed and available	1	1	1	3
4e. Data are readily available		1	3	4
4f. Project/program utilizes an appropriate periodic cycle		1	2	3
GrandTotal	1	8	15	24

WRPS Scoring and Analysis Approach

Evaluation and scoring is at the 138 “Checkpoint Criteria” level for Analysis and Trending

Weighted to the 27 Environmental Factor Level for Review and Trending

Summarized to the 4 Categories for Reporting



WRPS Approach - EVMS Env. – Checkpoint Crit.

Category	4-Resources

Count of Score	Rating			
Factor Title	3-Meets Some	4-Meets Most	5-High Performing	Grand Total
4a. Adequate technology/software and tools are integrated and used		1	5	6
4b. Sufficient funding is committed and available for implementing and executing the EVMS.		2	2	4
4c. Size and composition		2	2	4
4d. Sufficient calendar time and workhours are committed and available	1	1	1	3
4e. Data are readily available		1	3	4
4f. Project/program utilizes an appropriate periodic cycle		1	2	3
GrandTotal	1	8	15	24

Category	Factor Title	Checkpoint #	Checkpoint/Criteria	Rating	Comment/Recommendation
4-Resources	4a. Adequate technology/software and tools are integrated and used	4a. 1	a) Technology and tools are available, accessible, current, and used appropriately as part of the integrated EVMS.	5-High Performi	Best in class tools.
4-Resources	4a. Adequate technology/software and tools are integrated and used	4a. 2	b) The project invests appropriately in technology and infrastructure, including EVMS tools, to assist in the actual operation of work, making decision-making and data sharing more effective.	5-High Performi	Best in class tools.
4-Resources	4a. Adequate technology/software and tools are integrated and used	4a. 3	c) The necessary expertise (programmers, systems analysts, etc.) is available to integrate the technology and processes and set up the interfaces between the various systems and tools to ensure smooth integration and minimize the need	5-High Performi	Best in class tools.
4-Resources	4a. Adequate technology/software and tools are integrated and used	4a. 4	d) The choice of technology and processes is periodically assessed for adequacy and other solutions available in the marketplace. (Software products can be "homegrown" internally or part of a commercial system with adequate vendor support. Automated tools are usually better than those needing manual data	4-Meets Most	Only hampered by the reliance on HMIS tools.
4-Resources	4a. Adequate technology/software and tools are integrated and used	4a. 5	e) The technology enables the project to completely integrate its EVMS subprocesses with other applicable digital infrastructure systems, creating a met system of connected processes and tools that communicate with each	5-High Performi	Best in class tools.
4-Resources	4a. Adequate technology/software and tools are integrated and used	4a. 6	f) Software and tools are in place to generate all of the necessary reports, charts, and data from the summary, total program, and project levels down through the work breakdown structure (WBS) and organization breakdown structure (OBS) to the work package (WP) or task level. They furnish the ability to drill down through the data and summarize the data up to the portfolio level.	5-High Performi	Best in class tools.

CAG Section 2 – Table 1

Table 4. Resource Factors

Description	Checkpoint
4A Adequate technology, including software, and tools are integrated and used for the EVMS.	a) Technology and tools are available, accessible, current, and used appropriately as part of the integrated EVMS. b) The project invests appropriately in technology and infrastructure, including EVMS tools, to assist in the actual operation of work, making decision-making and data sharing more effective. c) The necessary expertise (programmers, systems analysts, etc.) is available to integrate the technology and processes and set up the interfaces between the various systems and tools to ensure smooth integration and minimize the need for major change where possible. d) The choice of technology and processes is periodically assessed for adequacy and other solutions available in the marketplace. (Software products can be "homegrown" internally or part of a commercial system with adequate vendor support. Automated tools are usually better than those needing manual data input.) e) The technology enables the project to completely integrate its EVMS subprocesses with other applicable digital infrastructure systems, creating a met system of connected processes and tools that communicate with each other, preferably automatically. f) Software and tools are in place to generate all of the necessary reports, charts, and data from the summary, total program, and project levels down through the work breakdown structure (WBS) and organization breakdown structure (OBS) to the work package (WP) or task level. They furnish the ability to drill down through the data and summarize the data up to the portfolio level.

WRPS Approach - Recommendations

WRPS EVMS Environmental Factors Scoring and Analysis Approach

Even with the additional delineation of detailed measurement points, this type of evaluation is heavily subjective. The following is recommended:

- Develop an automated tool and broaden the subject evaluations to a larger audience. Suggestion would be Project Controls Managers, selected Control Account Managers, Project Managers, Senior Executive Managers, and potentially a few customer stakeholders (DOE Field office).
- Based on those results, develop a Corrective Action Management Plan, after a causal analysis has been performed identifying the actionable drivers associated with any measurement point averaging a score of 3 or lower, in areas of authority.
- Brief these results to the EVM Governance Board.

DOE Driver for EVMS Maturity and Effectiveness

OFFICE OF PROJECT MANAGEMENT (PM)
EARNED VALUE MANAGEMENT SYSTEM (EVMS)
COMPLIANCE REVIEW STANDARD OPERATING PROCEDURE (ECRSOP)

APPENDIX A
COMPLIANCE ASSESSMENT GOVERNANCE (CAG) 2.0

OFFICE OF PROJECT MANAGEMENT
PROJECT CONTROLS AND POLICY DIVISION (PM-30)

3. Management Processes and Attributes for System Maturity and Effectiveness

EVMS processes ensure the project takes a systematic and disciplined approach to planning, scheduling, budgeting, analysis, change control, decision-making, and communications with customers (see Figure 1). They facilitate the use of a pragmatic and logical approach to meet the objectives of EIA-748:

Figure 3. Example EVMS Maturity Template

❶ SUB-PROCESS G: CHANGE CONTROL	❹ Maturity Level				
	LOW	MEDIUM			HIGH
❷ G.1. Controlling Management Reserve (MR) and Undistributed Budget (UB)	1	2	3	4	5
❸ The distribution of Management Reserve (MR) and Undistributed Budget (UB) should be accomplished through the use of a formal change control process. MR is controlled by limiting its use to changes in risk contained within a formal risk register or for in-scope influences/events not previously identified and budgeted in the Performance Measurement Baseline (PMB). MR is not to be used to offset poor performance(s) (i.e., cost overruns) or cover costs that are out-of-scope to the contract. Conversely, it is to be used to accommodate unforeseen changes that are in-scope to the contract. budgetary changes to future work scope caused by rate adjustments, and other realignments. To ensure that budgets for newly authorized work remain tied in the associated scope, UBs used to control the distribution of work using a holding account. Once the responsible organization(s) for the new scope has been identified, the budget is transferred from UB to the appropriate Control Account(s) (CAs). This ensures budget and scope will not be transferred independently.	Not yet started.	**None of the processes outlining the steps/actions needed to control MR and UB are in place. MR and UB logs do not exist.**	**Most of the processes outlining the steps/actions needed to control MR and UB are in place and documented. MR and UB logs exist, however are not fully maintained.**	**The documented processes outlining the steps/actions needed to control MR and UB are in place and approved. MR and UB Logs exist and are fully maintained.**	**MR and UB are proactively managed to inform decision-making.**
Changes to MR and UB budget are formally and separately controlled, tracked, and reported detailing newly) transactions and providing current budget values. A Contract Budget Base/Project Budget Base (CBB/PBB) log is used to track Performance Measurement Baseline (PMB), UB, and MR changes. The CBB/PBB log also serves to identify reporting period (monthly) end-values, reporting period changes to/from MR, PMB, and UB, and current MR and UB budget balances.		MR and UB Logs do not exist. MR is being misapplied. It is being used to offset poor performance (i.e., cost overruns) or cover costs that are out-of-scope to the contract. UB cannot be identified with defined scope. A process to ensure for the timely closing of budget and related scope in the UB account does not yet exist.	MR and UB use and changes are documented in logs, but individual transactions may not be separately reconcilable to internal monthly baseline changes. There may be a few misapplications of MR, including its use to offset poor performance (i.e., cost overruns) or cover costs that are out-of-scope to the contract. UB has defined scope and has been appropriately distributed to the PMB. With some exception, there is timely clearing of budget and related scope in the UB account. MR and UB changes are coordinated with the Analysis and Management Reporting sub-process.	All MR and UB changes are documented monthly in logs showing at a minimum the date and to/from of the change action, associated work package, CA, descriptive title, and reference numbers as needed for tracing back to the originating change documentation. Risk mitigation and/or realization activities are identified with all MR transactions. These transactions are coordinated with the risk management process for re-evaluation of residual risk. MR is used per contractual documentation. New contractual work scope is not budgeted with MR; but instead comes from contingency and is documented via the formal contract change modification process and approved accordingly. UB has defined scope and has been appropriately distributed to the PMB in a timely and effective manner. MR and UB changes are fully integrated with the Analysis and Management Reporting sub-process.	All MR and UB changes are documented and reported in published logs. The control of MR and UB by the project/program manager is proactive and effective. MR and UB are monitored and automatically tested to assess system health and integrity. Necessary corrective actions are implemented, completed, and recurring issues resolved. Review of MR budget and its distribution is adjust to, managed, and controlled by a Change Control Board (CCB) or equivalent. An accurate relationship between the budget amounts in the UB account and the scope of work authorized for each budget value is consistently maintained. Routine surveillance results of MR and UB are fully disclosed with all key stakeholders, who maximize use of these results. MR and UB changes are continuously reviewed and optimized.
Items to consider include: ☐ Documentation identifying both MR and UB values. This may include automated or manual records recording initial and, as the program progresses, revised amounts for MR and UB ☐ MR logs, UB logs, PMB logs, and/or CBB logs showing month-end values and changes, monthly sources and applications to from CAs, and current values ☐ Management performance reports ☐ Other MR and UB changes should be integrated with the Analysis and Management Reporting sub-process.					
Comments: This attribute refers to controlling changes to MR and UB. For more information on the identification of MR and UB, see attributes C1 b and C1 l respectively. If PBB is sometimes used when multiple distinct projects make up one contract.					
References: NDIA EVMS EIA-748-D Intent Guide GL 29; DoD EVMSIG GL 29; DOE CAG GL 29; EIA748-D; NDIA PASEG; ISO 21506:2018(E)					

Figure 4. Relationship of Organizing (A.1) with Other Subprocesses

Primary Process (Attribute)	Secondary Processes
A. Organizing (A.1)	A. Organizing
B. Planning and Scheduling	**B. Planning and Scheduling**
C. Budgeting and Work Authorization	**C. Budgeting and Work Authorization**
D. Accounting Considerations	**D. Accounting Considerations**
E. Indirect Budget and Cost Management	E. Indirect Budget and Cost Mgmt.
F. Analysis and Management Reporting	**F. Analysis & Mgmt. Reporting**
G. Change Control	**G. Change Control**
H. Material Management	H. Material Management
I. Subcontract Management	I. Subcontract Management
J. Risk Management	J. Risk Management

Integrated Project/Program Management (IP2M)
Maturity and Environment Total Risk Rating (METRR)
using EVMS

[Previously referred to as: Earned Value Management System (EVMS) Maturity and Environment Total Rating (METR)]

One of the Deliverables for the DOE-funded Research Project: *Improving the Maturity and Environment of Earned Value Management Systems (EVMS) – Development of an EVMS Rating Index*

SEPTEMBER 1, 2021

EVMS Maturity – Subprocess Areas/Attributes

Per DOE - Maturity: ***"Degree to which an implemented system, associated processes, and deliverables serve as the basis for an effective and compliant EVMS."***

- 10 Subprocess Areas
- 56 Attributes
- 235 Effectiveness Criteria

Subprocess	Grand Total
A-Organization	20
B-Planning and Scheduling	49
C-Budgeting and Work Authorization	49
D-Accounting	16
E-Indirect	15
F-Analysis and Management Reporting	22
G-Change Control	24
H-Material Management	18
I-Subcontract Management	12
J-Risk Management	10
Grand Total	**235**

A. ORGANIZING
- A.1. Product-Oriented Work Breakdown Structure (WBS)
- A.2. Work Breakdown Structure (WBS) Hierarchy
- A.3. Organizational Breakdown Structure (OBS)
- A.4. Integrated System with Common Structures
- A.5. Control Account (CA) to Organizational Element

B. PLANNING AND SCHEDULING
- B.1. Authorized, Time-Phased Work Scope
- B.2. Schedule Provides Current Status
- B.3. Horizontal Integration
- B.4. Vertical Integration
- B.5. Integrated Master Schedule (IMS) Resources
- B.6. Schedule Detail
- B.7. Critical Path and Float
- B.8. Schedule Margin (SM)
- B.9. Progress Measures and Indicators
- B.10. Time-Phased Performance Measurement Baseline (PMB)

C. BUDGETING AND WORK AUTHORIZATION
- C.1. Scope, Schedule and Budget Alignment
- C.2. Over-Target Baseline (OTB) Authorization
- C.3. Summary Level Planning Packages (SLPPs)
- C.4. Work Authorization Documents (WADs)
- C.5. Work Authorization Prior to Performance
- C.6. Elements of Cost (EOC)
- C.7. Work Package Planning, Distinguishability, and Duration
- C.8. Measurable Units and Budget Substantiation
- C.9. Appropriate Assignment of Earned Value Techniques (EVTs)
- C.10. Identify and Control Level of Effort (LOE) Work Scope
- C.11. Identify Management Reserve (MR) Budget
- C.12. Undistributed Budget (UB)
- C.13. Reconcile to Target Cost Goal

D. ACCOUNTING CONSIDERATIONS
- D.1. Direct Costs
- D.2. Actual Cost Reconciliation
- D.3. Recording Direct Costs to Control Accounts (CAs) and/or Work Packages (WPs)
- D.4. Direct Cost Breakdown Summary

E. INDIRECT BUDGET AND COST MANAGEMENT
- E.1. Indirect Account Organization Structure
- E.2. Indirect Budget Management
- E.3. Record/Allocate Indirect Costs
- E.4. Indirect Variance Analysis

F. ANALYSIS AND MANAGEMENT REPORTING
- F.1. Calculating Variances
- F.2. Variances to Control Accounts (CAs)
- F.3. Performance Measurement Information
- F.4. Management Analysis and Corrective Actions
- F.5. Estimates at Completion (EAC)

G. CHANGE CONTROL
- G.1. Controlling Management Reserve (MR) and Undistributed Budget (UB)
- G.2. Incorporate Customer Directed Changes in a Timely Manner
- G.3. Baseline Changes Reconcilable
- G.4. Control of Retroactive Changes
- G.5. Preventing Unauthorized Revisions to the Contract Budget Base (CBB)

H. MATERIAL MANAGEMENT
- H.1. Recording Actual Material Costs
- H.2. Material Performance
- H.3. Residual Material
- H.4. Material Price/Usage Variance
- H.5. Identification of Unit Costs and Lot Costs

I. SUBCONTRACT MANAGEMENT
- I.1. Subcontract Identification and Requirements Flow Down
- I.2. Subcontractor Integration and Analysis
- I.3. Subcontract Oversight

J. RISK MANAGEMENT
- J.1. Identify, Analyze and Manage Risk
- J.2. Risk Integration

EVMS Maturity Scoring (1,000) and Scale (1-5)

Per the ECRSOP CAG, each Attribute ***(by effectiveness criteria and metric analysis)*** is assessed on a 1-to-5 maturity scale.

Each Attribute has a relative associated weight, all maturity Attribute scores sum to a 1,000-point scale—the higher the score is, the better.

"1" means that work on this Attribute has not yet started, and "5" means best in class.

Weights are:

- 1 – 0%
- 2 = 25%
- 3 = 50%
- 4 = 75%
- 5 = 100%

Attributes that are mature enough for an EIA-748–compliant EVMS receive a maturity level of "4" or higher.

Subprocess	Effectiveness Criteria			Attribute Metrics	
	EC Count	Max Score	Percent of Total	Metrics Count	Percent of Total
A-Organization	20	96	10%	21	11%
B-Planning and Scheduling	49	202	20%	55	30%
C-Budgeting and Work Authorization	49	178	18%	28	15%
D-Accounting	16	65	7%	10	5%
E-Indirect	15	55	6%	7	4%
F-Analysis and Management Reporting	22	109	11%	18	10%
G-Change Control	24	116	12%	22	12%
H-Material Management	18	59	6%	11	6%
I-Subcontract Management	12	60	6%	6	3%
J-Risk Management	10	60	6%	5	3%
	235	**1,000**		**183**	

Weighted EVMS Maturity Score Sheet

SUB-PROCESS B: PLANNING AND SCHEDULING							
Attribute	Maturity Level						Comments
	N/A	1	2	3	4	5	
B.1. Authorized, Time-Phased Work Scope		0	6	11	17	22	
B.2. Schedule Provides Current Status		0	6	11	17	22	
B.3. Horizontal Integration		0	5	10	15	21	
B.4. Vertical Integration		0	5	10	14	19	
B.5. Integrated Master Schedule (IMS) Resources		0	4	9	13	17	
B.6. Schedule Detail		0	5	9	14	18	
B.7. Critical Path and Float		0	7	13	20	27	
B.8. Schedule Margin (SM)		0	2	5	7	10	
B.9. Progress Measures and Indicators		0	5	11	16	21	
B.10. Time-Phased Performance Measurement Baseline (PMB)		0	6	13	19	25	
Column Totals		0	51	102	152	202	

Table 5. Attribute A.1. Maturity Level Template

LOW	MEDIUM			HIGH
1	2	3	4	5
Not yet started.	A singular, high-level product-oriented WBS is established. The WBS does not decompose to capture all work requirements.	Processes to require a singular, product-oriented WBS are established. The WBS is traceable and decomposed to the appropriate levels for effective project management. The WBS includes most of the authorized work scope and requirements.	Processes requiring a singular, product-oriented WBS are established and approved. The WBS is traceable, encompassing all authorized work, and decomposed to the appropriate levels for effective project management and external reporting. The required WBS is annually validated through internal checks per approved processes.	The singular product-oriented WBS is reviewed, revised, and validated annually (or more frequently as needed) with revision history, per approved processes, through in-process internal checks.
	The process to establish a singular, product-oriented WBS has started but is not documented. The hierarchical WBS is not fully traceable to the SOW and is missing the SOW scope. The WBS is functionally oriented and lacks product orientation. Products often do not fulfill project requirements.	The process to establish a singular, product-oriented WBS that accurately reflects the products, services, and deliverables required to complete the project has been developed. No internal checks are in place to validate that the WBS meets requirements. Most products fulfill project requirements. The WBS hierarchy initially is product-oriented, but when extended to lower levels, the WBS becomes functionally oriented in an organizational or functional orientation. The WBS is coordinated with the planning and scheduling, budgeting and work authorization, change control, accounting consideration, and analysis and management reporting subprocesses.	(A.1.1) The process to establish a singular, product-oriented WBS that accurately reflects the products, services, and deliverables required to complete the project has been developed, documented, and approved. (A.1.2) Internal checks are in place to validate that the WBS meets project requirements. These checks may be outside the WBS process flow. The project ensures that the WBS is verified as product-oriented, and corrections are performed as required during project start-up. Products fulfill all project requirements. If required, WBS descriptive documents, such as a WBS dictionary, index, or similar, have been developed. (A.1.3) The WBS is integrated with the planning and scheduling, budgeting and work authorization, change control, accounting considerations, and analysis and management reporting subprocesses.	The WBS is optimized to streamline the management of the project. Internal checks are in place to validate that the WBS meets project requirements within the WBS process flow. Automated testing ensures that the established WBS is a product-oriented hierarchical decomposition of hardware, software, and services. Necessary corrective actions are implemented, completed, and recurring issues resolved. Routine surveillance results of the WBS are fully disclosed to all key stakeholders, who maximize their use. The WBS is continuously improved and optimized.

EVMS Maturity Weighting and Point Distribution

10 Subprocesses and the distribution of points

As documented in the CAG, Subprocesses B and C account for 380 points, or 38% of the maximum score of 1,000 points.

When combined with Subprocesses F and G, these four Subprocesses account for 605 points, or 61%, of the maximum score.

Thus, emphasizing credible ***plans, schedules, and budgets*** with adequate ***controls and rigorous reporting*** best positions the EVMS to help the project achieve its objectives.

Subprocess	Attributes	
	Max Score	Percent of Total
A-Organization	96	10%
B-Planning and Scheduling	202	20%
C-Budgeting and Work Authorization	178	18%
D-Accounting	65	7%
E-Indirect	55	6%
F-Analysis and Management Reporting	109	11%
G-Change Control	116	12%
H-Material Management	59	6%
I-Subcontract Management	60	6%
J-Risk Management	60	6%
	1,000	

WRPS Approach - EVMS Maturity - Subprocess

Subprocesses Scoring and Analysis

Detailed analysis can be "drilled down on" for each of the 235 effective criteria that form the weighted score for each Maturity Subprocess.

Overall scoring provided for analysis and opportunity for improvement (focus areas)

Separate raking by 1-5 helps focus where specific issues or concerns reside

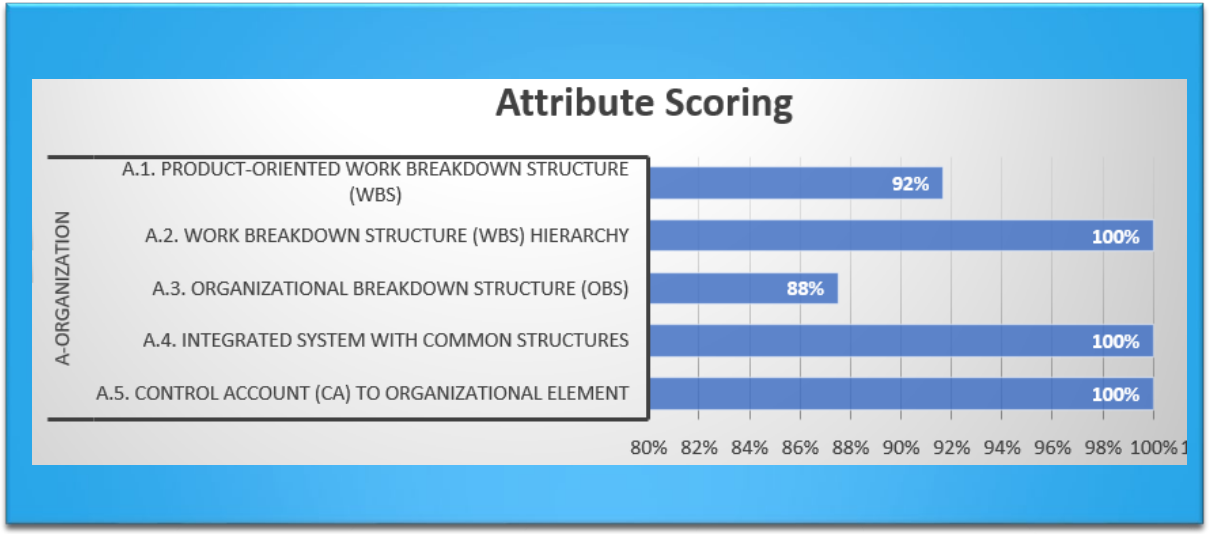
The total 235 Checkpoint Criteria included evaluation of ***Process (113)*** and **Implementation (122)**.

Sum of Score	Rating						
Subprocess	2-Needs Improv.	3-Meets Some	4-Meets Most	5-High Performing	Grand Total	Score	Max Score
A-Organization			11%	85%	**96%**	93	96
B-Planning and Scheduling			36%	52%	**88%**	178	202
C-Budgeting and Work Authorization		1%	14%	78%	**93%**	166	178
D-Accounting	1%		5%	88%	**94%**	61	65
E-Indirect				100%	**100%**	55	55
F-Analysis and Management Reporting		4%	16%	70%	**90%**	98	109
G-Change Control			3%	96%	**99%**	115	116
H-Material Management		7%	21%	59%	**86%**	51	59
I-Subcontract Management		12%	44%	17%	**73%**	44	60
J-Risk Management		10%	14%	61%	**85%**	51	60
					Total Score	**912**	**1,000**

Subprocess	Process	Implement	Grand Total
A-Organization	14	6	**20**
B-Planning and Scheduling	19	30	**49**
C-Budgeting and Work Authorization	24	25	**49**
D-Accounting	10	6	**16**
E-Indirect	6	9	**15**
F-Analysis and Management Reporting	15	7	**22**
G-Change Control	7	17	**24**
H-Material Management	8	10	**18**
I-Subcontract Management	6	6	**12**
J-Risk Management	4	6	**10**
Grand Total	**113**	**122**	**235**

WRPS Approach - EVMS Maturity - Attribute

Weighted Score		
Subprocess	Sub-Process Attribute	Total
A-Organization	A.1. Product-Oriented Work Breakdown Structure (WBS)	92%
	A.2. Work Breakdown Structure (WBS) Hierarchy	100%
	A.3. Organizational Breakdown Structure (OBS)	88%
	A.4. Integrated System with Common Structures	100%
	A.5. Control Account (CA) to Organizational Element	100%



WRPS Scoring and Analysis Approach

Evaluation and scoring is at the 235 “Effective Criteria” level for Analysis and Trending

Weighted to the 56 Attribute Level for Review and Trending

Summarized to the 10 Subprocess area for Reporting

Subprocess	A-Organization		
Count of Score	Rating		
Sub-Process Attribute	4-Meets Most	5-High Performing	Grand Total
A.1. Product-Oriented Work Breakdown Structure (WBS)	1	2	3
A.2. Work Breakdown Structure (WBS) Hierarchy		5	5
A.3. Organizational Breakdown Structure (OBS)	2	2	4
A.4. Integrated System with Common Structures		4	4
A.5. Control Account (CA) to Organizational Element		4	4
Grand Total	3	17	20

WRPS Approach - Recommendations

WRPS EVMS Maturity Scoring and Analysis Approach

Using the Effectiveness Criteria, ***with or without applying the associated EVMS Metrics***, is a reasonably subjective process. The following is recommended:

- Develop an automated tool and broaden the subject evaluations to a larger audience. Suggestion would be "Subprocess Owners", Project Controls Managers, and selected Control Account Managers.
- Identify at the attribute level, objective evidence which would provide a basis for supporting the evaluation, and on a regular basis (at least annually) use these in an overarching evaluation.
- Based on those results, develop a Corrective Action Management Plan, after a causal analysis has been performed identifying the actionable drivers associated with any ***Attribute*** scoring of less than 75%.
    - For those ***individual Effectiveness Criteria*** which score less than 4, identify the drivers and use a rigorous corrective action approach to bring closure.
- Brief these results to the EVM Governance Board.

EVMS Compliance and Reporting

2022 EVM Practitioners' Forum