

Is Earned Value Management (EVM) in the future of Performance-Based Services Acquisitions (PBSA)?

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Headlines

Government Agency might have wasted millions of dollars on excessive award fee contracts, in part because of a lax and subjective rating system in which nearly all contractors were graded highly.

According to the reports, the agency was unable to document the basis for these ratings, despite extra administrative costs associated with managing these contracts. Ratings were viewed as a subjective review and evaluation of the Contractor's performance over time.

"In Iraq, too much money has been paid out for services that were never performed, buildings that were never completed, companies that skimmed off the top,"

-- Quote from the President of the United States

Headlines: Program Status

“The project management was excellent with no problems encountered and costs were within scope of work.”

Scarce or limited documentation found measuring performance!

Some activities have a task order nature and provide limited opportunities to evaluate performance.

Performance or Service delivery not tied to costs or budget!

Earned Value Management (Courtesy of The EVMIG)

Proper EVM implementation ensures that the PM is provided contractor performance data that:

- Relates time-phased budgets to specific contract tasks and/or statements of work (SOW).
- Objectively measures work progress.
- Properly relates cost, schedule, and technical accomplishment.
- Allows for informed decision making and corrective action.
- Is valid, timely, and able to be audited.
- Allows for statistical estimation of future costs.

PBSA Defined

- **Description of PBSA**
- Performance based service acquisition involves strategies, methods, and techniques for acquiring services that communicate the desired end result rather than dictating detailed performance processes.

“Courtesy of the Army Material Command (AMC) Office of Command Contracting”

PBSA Defined

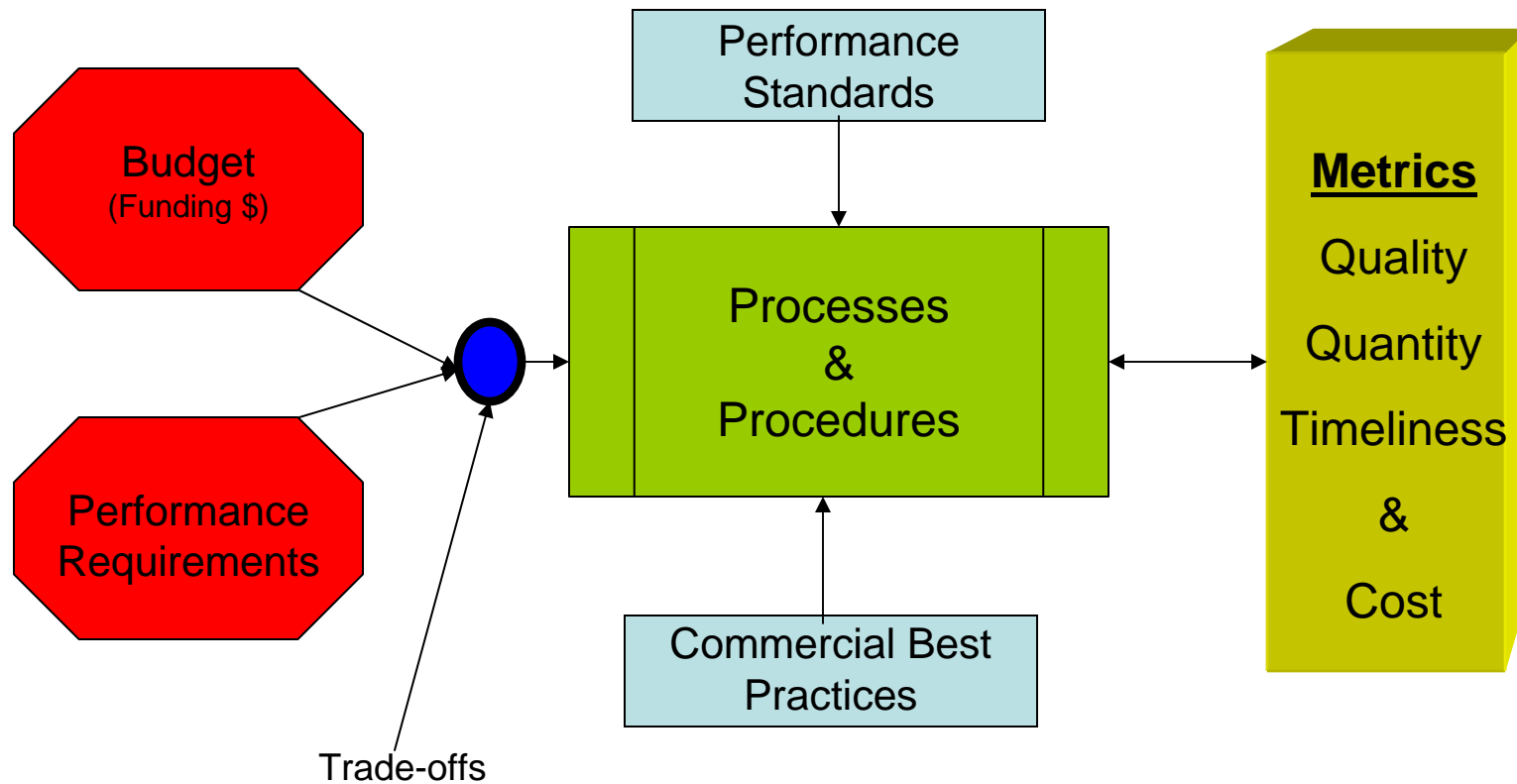
It is structured around defining a service requirement in terms of performance objectives and is designed to provide contractors the liberty to determine how to meet those performance objectives. Simply put, it is a process for acquiring what is wanted and leaving how to accomplish it to the contractor.

“Courtesy of the Army Material Command (AMC)
Office of Command Contracting”

Performance Based Acquisitions Elements

- Performance requirements that define the work in measurable, mission-related terms.
- Performance standards, also referred to as thresholds, (i.e., quality, quantity, and timeliness) that are measurable and tied to the performance requirement.
- A Government quality assurance plan, also referred to as a quality assurance surveillance plan, that describes how the contractor's performance will be measured against the performance standards.
- Procedures for applying contract price or fee decrements when performance does not meet the stated standards/thresholds.
- When appropriate, performance incentives to further encourage innovation and exceptional results.

Performance Based Service Acquisitions Elements



PBSA Objectives

Enhance Competition and Innovation	Reduce Government Risk
Encourage Quality Performance	Encourage Commercial Practices

The work or service defined in measurable mission related terms!

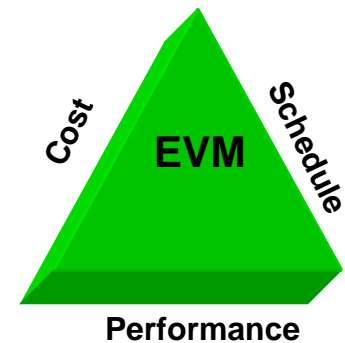
Accountability

- Performance-Based procurements are part of government-wide priority to make federal acquisitions more results-oriented.
- **“Use of Award Fees for Achieving Program Outcomes Should Be Improved”**
- Balancing Performance, Accountability and Value in Service Contracts

Definition of Earned Value Management

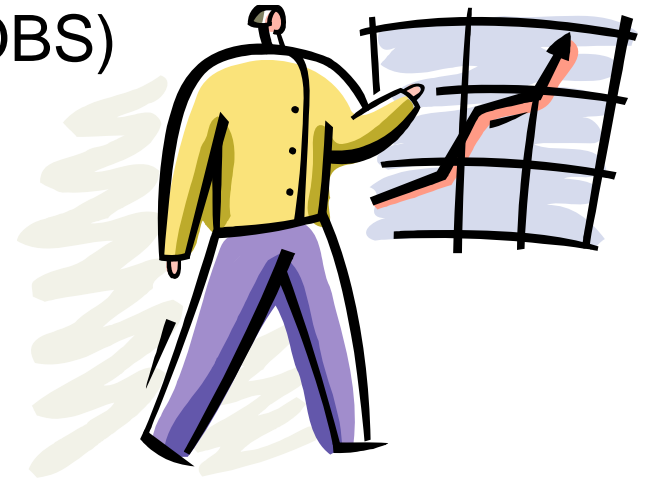
What is EVM?

- EVM is an integrated management control system for assessing, understanding and quantifying performance for \$ spent
- Integrates technical, cost, schedule and performance with risk management.
- Allows objective assessment and quantification of project performance
- Helps predict future performance based on trends and project plan execution.
- EVM provides project management with objective, accurate and timely data for effective decision making.



Basic EVM Information and Data

- Work Breakdown Structure (WBS)
- Organizational Breakdown Structure (OBS)
- Project Schedule
- Time-phased Baseline Budget
- Cost/Resource Control Plan
- Change Control Plan
- Cost Data
(Budget, Actuals and Earned Value)
- Metrics and Performance Measurements
- Forecasting
- Contract Performance Report (CPR)



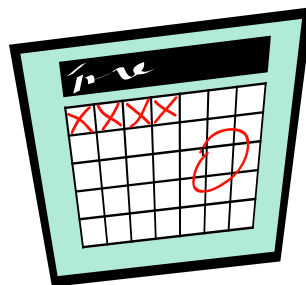
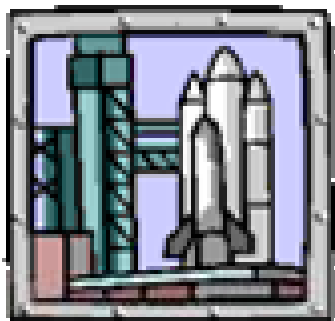
EVM Defined

EVM metrics have insight and inferences to the program's execution.....

A qualitative performance metric may not shed light on the overall program direction

Program Performance Elements

- *Performance based services may exist in an environment with competing alternatives and changing mission objectives.*
- **Integrates technical, cost, schedule and performance with risk management!**



Let's not
forget Quality!

Performance Data

- What should we measure?
- How should we measure them?
- How are these metrics interrelated?
- Trip Wire Metrics!
- How are the Metrics collected?
- Who should measure and analyze?
- Where should we measure?

Spend & Usage Analysis

Spend and Usage analyses is required to establish many performance Metrics!

- Time Consuming
- May be difficult to capture the right data
- Proper accounting procedures must be in place
- Trend analysis is needed
- Exception Cases must be identified

Quality of Metrics and Data Collected

Reporting is can be challenging when seeking to build a database for performance measurement metrics to be used in a PBSA. The conditions and environment in which metrics are collected can effect the quality of the data.

Sometimes Stakeholders and end-users are only looking at the results and not the road taken to achieve a level of performance, quality, milestone or delivery date.

Processes and Procedures

- Draft new processes & procedures
 - Story Board
- Has the process matured to the point to give a true reflection of the performance metric!
- Draft new desk top procedures
- Possibly draft new system description
 - Multitude of competing metrics

*Depending upon
the Wind, Win and
the When!*

Accountability For the Metric

- **Accounting Process Area**
 - *EVM Metrics Backed by ANSI/EIA 748*
- **Planning at the Control Account**
 - *EVM has defined control points*
- **Reporting Progress at the Control Account**
 - *Defined methodologies to determine progress*
- **Variance Analysis at the Control Account**
 - *Analysis of changes in any selected EVM metrics*
- **Control Account Managers**
 - *Well defined roles*

ANSI/EIA-748

**American National Standards
Institute/Electronic Industries Alliance
standard 748 (ANSI/EIA-748) was
created to provide consistency and
guidance in EVM application across
programs.**

ANSI/EIA-748

The EVM process is comprised of five functional components and 32 criteria guidelines that are cited below:

- **Organization** - Entails the WBS, OBS, Control/Cost Account Plans, Indirect Costs, and the associated integration required to monitor project performance and estimate costs at completion.
- **Planning, Scheduling, and Budgeting** - Entails the project schedule, milestones, budgets, work packages, EV measurement, overhead budgets, management reserves, undistributed budgets, and overall allocation resolutions necessary to account for and budget all work and to cover all expenses in the execution of the project.
- **Accounting** - entails the recording of direct and indirect costs, unit or lot costs, and their summarization and accumulation over time.
- **Analysis and Management Report** – Entails the analysis and reporting of actual performance against the project baseline, and the actual cost based on the project baseline. Included are the variances, their causes, corrective actions, and associated revised estimates at completion.
- **Revision & Data Maintenance** - the incorporation of authorized changes to the baseline, reconciling budgets, controlling changes, minimizing changes, and documenting changes.

Roles and Responsibilities

EVM Based Metric

Clearly defined Roles and Responsibilities as demanded by ANSI/EIA-748

Interfaces to the Integrated process areas are clearly defined

Non-EVM Based Metric

Roles and Responsibilities (R&R) must be determined and defined.

As the metric matures, changes or is modified Roles & Responsibilities may need to be redefined.

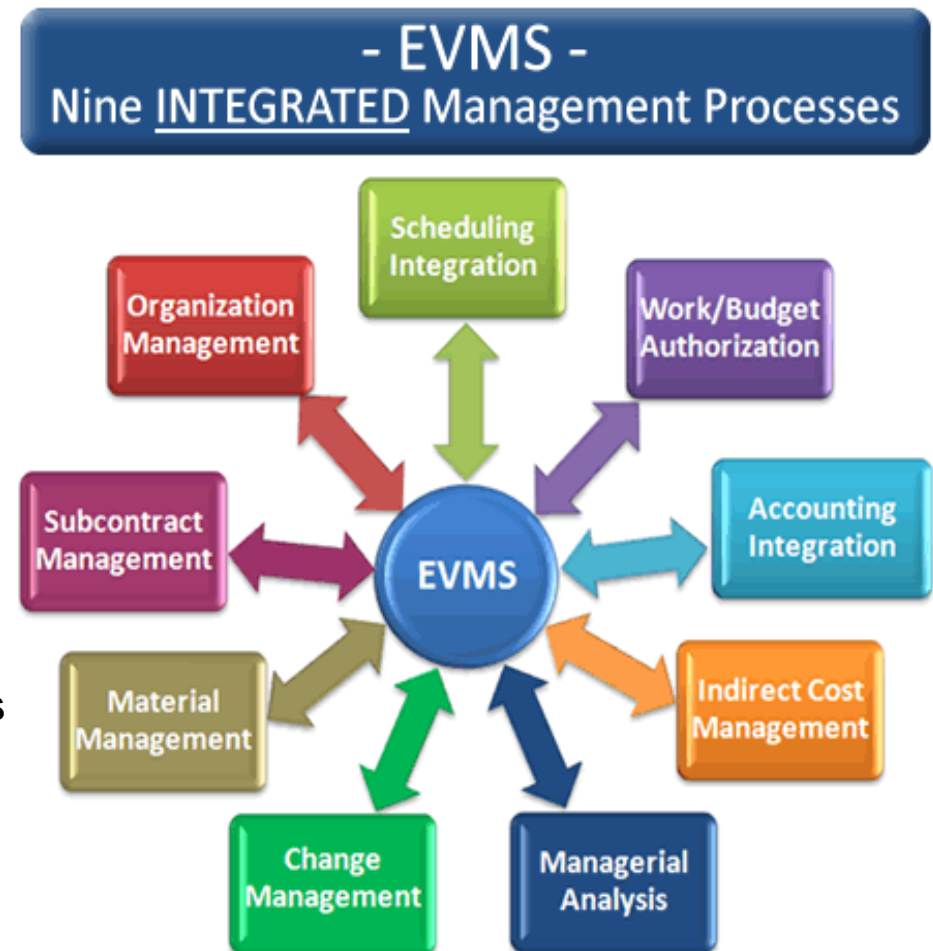
Earned Value Management System (EVMS)

The following project management process areas are those that are primarily related to EVMS:

- Measurement and Analysis
- Project Planning
- Project Monitoring and Control
- Requirements Development
- Requirements Management
- Integrated Project Management

EVMS also relates to specific practices in the following process areas:

- Supplier Agreement Management
- Risk Management
- Process and Product Quality Assurance



Demonstrates how EVM integrates into the program's home environment!

Maintenance & Surveillance

“A Government quality assurance plan, also referred to as a quality assurance surveillance plan, that describes how the contractor's performance will be measured against the performance standards”

- Surveillance and Maintenance is required for each metric!
 - A metric dictionary needs to be created!
 - A change management plan needs to be established for the metric.
 - Metric tracking and the keeping of the metric history!
- (Unless we are talking about a CMMI level 5 organization it becomes the keeping of the tribal oral history)

Maintenance & Surveillance

New program, new contract or contract change!

- Possibly a set of new metrics
- Standardization across programs and/or contracts is not possible or at an operational minimum.
- Possible 180 degree turn from the original metric
- Business Process Management

Maintenance & Surveillance

Disciplined metric maintenance/surveillance and incorporation of revisions in a timely manner are Key!

Key to keeping the metric relative to program execution!

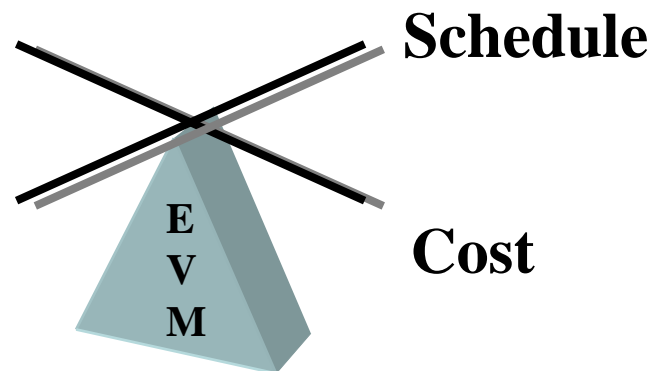
Key keeping the metric a true barometer of performance and desired results!

Operation & Maintenance (O &M)

- **Service Level Agreement (SLA)** is that part of a service contract where the level of service is formally defined in terms of delivery or performance.
 - Establish Milestones and Metrics
 - Use EVM Metrics, Performance Factors, Efficiency Factors and Trend Analysis to project/estimate Operation and Maintenance Costs.
 - Operational and Maintenance Metrics collected can be used to tie service level delivered to the available budget (cost), schedule and performance (Quality).

**Supportability or
Service Level**

Performance



Service Levels

- Entry Criteria
- Exit Criteria
- Grouping types of services
- Prioritizing the work
- Discrete Measurements
- Establishing the WBS

Service Levels

- Planned Value for a performance periods
- Gage contractor performance in alignment with the Performance Work Statement (PWS)
- Bound service level to establish min and max service levels.
- Determine if the Service level can be measured discretely
- Establish relationships to budget, schedule and EVM technique

Qualitative Measurements

- Is there a relationship between EVM and qualitative performance based metrics that can be placed in mission-related terms.
 - Costs
 - Budget needed to produce results
 - Time
 - Schedule, the time it takes to deliver results
 - Quality
 - Performance, what it takes to produce a quality result

Some of the Basic building blocks of EVM!

The trick is finding the keystone to speak to the mission results!

Industrial Committee On Program Management (ICPM)

Predictive Measures of Program Performance

The ICPM treatise calls out a number of EVM metrics that can be used in the measurement of Program performance. A few of the metrics mentioned in the paper are cited below:

Cost Performance Index - CPI
Schedule Performance Index -SPI
Statistical EACs – Estimate at Completion
To Complete Performance Index - TCPI
Cum CPI vs. $TCPI_{EAC}$
Baseline Execution Index - BEI

Where is the Silver Bullet?

Does EVM have the metal to answer the challenges created by Performance Based Service Acquisitions?



Where is the Silver Bullet?

- Qualitative or esoteric metrics have their niche with Performance Based Service Acquisitions.
- Some PBSA metrics can be designed to encourage process improvement.
- EVM can reflect process improvement, but may not measure it directly.
- Visibility for the performance metric depends on upfront process design and how the metric is collected.

Where is the Silver Bullet?

- What are the strategic goals?
- PBSA performance based metrics can be designed to help achieve strategic goals!
- EVM metrics may not readily translate to strategic goals

Conclusion

- Tying EVM metrics to PBSAs brings “EVM Gaming” to a whole new level!
- Translating and connecting performance measurement requirements into an effective budget is paramount!
- Discrete measurement of work or service performed assist in applying EVM techniques.

Conclusion

- Performance measures and metrics can bring a valued qualitative aspect to achieving desired results!
- Sole Source PBSAs present unique challenges
- Establish Service Contracts baselines and Work Breakdown Structures to facilitate EVM implementation.
- Performance measures and metrics can directly measure what is critical to the stakeholders, program and overall mission.
- Qualitative metrics allow for **immediate** performance impact data to be collected and acted upon.

Conclusion

- EVM allows for relative metric stability & collection.
- EVM through the change management process and the CPR Format 3 captures program changes. Where as a program change may invalidate a non-EVM performance metric.
- Use measurable performance metrics and standards in conjunction with quality assurance/surveillance plans.
- Ability track and provide trend analysis of metrics collected is needed to achieve the basic goals of the PBSA.
- The bottom line is that if EVM is to be applied to PBSA contracts, it must be done with great caution, detailed application and high degree of surveillance.
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