Introduction to Implementing an EVMS – Seven Steps to Success

An earned value management system (EVMS) is a common contractual requirement on any US federal government agency project as well as some foreign government agency projects. Requiring the use of an EVMS is a sensible approach as a means to provide more visibility into project performance whether for a government customer or for internal management.

Implementing an EVMS does require dedication and significant effort as it inherently increases the maturity level of a contractor's project control functions. It requires a higher level of project control discipline that can impact business functions as well as the corporate culture.

Based on more than three decades of helping hundreds of companies implement earned value management systems, Humphreys & Associates experience has shown that it typically requires approximately 12 months to fully implement an EVM System. Preparing for and obtaining a system validation from the designated government agency can easily add six months or more to the process.

As with any new concept or tool, everything is dependent on how the system is implemented. The upfront planning can mean the difference between success and failure. The seven steps described below can help to expedite and manage the implementation of a compliant EVM System. The goal is to create an earned value based project control system that is embraced and used throughout the company from the highest level managers to those performing the work. Successfully implementing an EVMS can prove to be a business enhancing endeavor.

Step 1 – Management Team Commitment

Commitment and support from the management team is essential to the success of the implementation. Without it, the process will fail. Establishing an implementation team responsible for developing the strategy plan and schedule is a critical initial step. The first task for the team is to create a charter that defines its specific roles and responsibilities. With that in place, the team can focus on developing an initial implementation plan that defines the goals and objectives, scope of the effort, overall time frame and key milestones, and resource requirements (people and budget). It is also useful to include a discussion on potential risks as well as how to document and resolve problems that may arise during the implementation process.

Step 2 – Pre-Implementation Assessment

Before implementing an EVMS, it always helps to have a clear understanding of the state of the current project control system. This is essential to be able to determine the full scope of the implementation effort. Comparing the current processes and procedures to the 32 guidelines in the EIA-748 Standard for Earned Value Management Systems (EIA-748) is part of the process. It also includes assessing the level of data quality and integration as well as how company personnel are using the current system. It is important to evaluate the level of project management and earned value knowledge.

Internal EVM experts or an independent third party can conduct this assessment, sometimes referred to as a requirements analysis or gap analysis. The intent is to produce fact-based information useful for creating a more realistic implementation plan. What are the processes, tools, and training that need to be enhanced or implemented? Based on this knowledge, a resource loaded schedule can be produced that defines the specific tasks and milestones to accomplish the end objectives. This implementation plan and frequent schedule status help to manage the process and maintain focus – what's been done and what's left to do.

Step 3 – System Structure and Integration

At the beginning of the system enhancement or design stage, it is useful to focus on each of the subsystems that support the nine EVMS process areas and how they integrate with each other. When the customer's reviewing agency reviews the company's EVMS, it will look at each of the following process areas:

- Work Organization
- Planning and Scheduling
- Work/Budget Authorization
- Accounting
- Indirect Management
- Management Reporting and Analysis
- Revisions and Data Maintenance
- Material Management
- Subcontract Management

Note that risk management may be treated as a separate and additional process area or incorporated into the other process areas where appropriate. An example is incorporating schedule risk assessment into the scheduling subsystem.

The EIA-748 32 guidelines are the foundation for determining if an EVMS meets the requirements for a compliant system. Developing flow diagrams and storyboards are useful tools at the beginning of the design phase to note what needs to be added or enhanced to create a fully integrated EVMS as well as to satisfy the EIA-748 guidelines.

An EVMS storyboard illustrates all of the EVMS process areas as cross functional flow diagrams on panels or a conference room wall. It depicts the integration of all the process areas and clearly shows who is responsible for what, the flow of functions, inputs, outputs or products, and actions using real company project artifacts. The storyboard illustrates the complete system as well as the various interactions between the different subsystems, functional organizations, and project artifacts. The contractor will also need it for demonstrating how its system works to the government reviewing agency's team. It is also very useful as the basis for an EVMS training program.

Once this preliminary design is laid out and approved by the implementation team and management, a more comprehensive effort to design or modify forms, practices, and subsystems can begin.

Step 4 – The System Description Document

The primary document for describing the system and how it satisfies the EVMS guidelines is the EVM System Description. Internal formal procedures support this document. The system description and related procedures are meant to be the all-inclusive explanation of the EVMS

characteristics and how the system is used to manage a project from inception to completion. The EVMS storyboard and system description are complementary work efforts. An excellent starting point for the system description is to develop an outline that describes the subsystems for each of the nine process areas. Include references to completed forms and reports. If a form or report exists, include it as an example. If it does not, then one should be created and incorporated into the system process. Some companies also find it useful to create desktop procedures to help ensure that the end users understand how to use a specific toolset to complete typical actions such as statusing a network schedule or completing a baseline change request (BCR).

It is also strongly recommended that a cross reference to the EIA-748 guidelines' 162 management system characteristics (MSCs) is included as part of the EVM System Description. This is important to fully demonstrate that specific system description content, forms, or reports support the requirements.

Step 5 – Training

Training is an important part of the implementation process. This includes upper level management, project managers, functional managers, control account managers (CAMs), and analysts. The training should reflect the EVM System Description as the government reviewing agency's team will assess whether or not a project is following the company's EVM System Description. The development and execution of the training plan as part of the overall implementation plan helps to ensure the various end users complete the training they need. Training tailored for the various end user roles helps to engrain the new process more quickly. Training may be more in depth for analysts and CAMs or summarized for upper level management. Having a strong set of instructors in place makes it easier to continually train new and existing users. This also helps to increase the confidence level and knowledge base within the company and provides the foundation to keep improving the application and use of the EVM System.

Step 6 – System Implementation

System implementation on a pilot project requires dedicated teamwork and is the most time consuming of the seven steps. An easier approach is to implement the EVMS on a new project so that all project artifacts reflect the system description at the onset. An existing project can present extra challenges as it may be necessary to recode data or enhance the quality of the data, incorporate new forms, or undertake forensic accounting to create contract budget base (CBB), management reserve (MR), and undistributed budget (UB) logs.

Once a company becomes comfortable with its EVMS, each future project must be planned and managed using the EVM System. This is where the benefit from implementing the system becomes more apparent over time. Management gains confidence in the system to provide timely and reliable information that it can use to make informed decisions. An actively used EVMS can help project managers to manage their work effort with less stress because they can quickly respond to issues and problems. Projects that are run effectively and efficiency often translate into higher profit margins and result in more company business.

Step 7 – Operation and Use Verification

Once in place, periodic internal reviews, sometimes called self surveillance, can be done to ensure that the EVMS implementations on the various projects continue to comply with the

company's EVM System Description. This helps to prevent the system from atrophying over time. It also provides an opportunity to address additional training needs, resolve common implementation issues, and enhance the system.

A common approach for companies with a long history of using EVMS on its projects is to form peer review teams. An example would be reviewers from a different project or another division performing a review on a given project. This provides a degree of independence that can help to identify problems or issues. These companies develop an annual schedule of the reviews they will conduct based on a number of factors such as risk, the number of change orders, type of contract, size of the contract, project phase, etc. This can also include subcontractors when the EVMS requirement has been flowed down to the subcontractor.

Independent third parties can also assist with the self surveillance process. This provides an added benefit with using experienced outside consultants who regularly perform mock validation and other types of reviews. The outside consultant team can also update a company on the latest issues the government agency review teams are focusing on, provide a fresh look at how an EVMS is used on a project, or bring new ideas to the table that can improve the company's EVM System.

Similar to the implementation and use of the EVMS, it is important to establish a repeatable process for self surveillance, capture the results from the self surveillance, identify the problem areas, identify actions to address the root cause of the problems, and track them to closure.