

Buyers Guide



A Guide to Organizing and Documenting Business Requirements



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INTRODUCTION

This guide is intended to help you organize your business and functional requirements as well as gather fact-based information to evaluate your options for earned value management software (EVM) tools. These tools are designed to support the EIA-748 Standard for Earned Value Management Systems (EVMS) guideline requirements and related government customer contractual requirements to provide timely, auditable, and actionable project performance information.

This guide focuses on the EVM cost management software tool that complements or integrates with other project control software tools such as schedule and risk to ensure technical, schedule, cost, and profit objectives are met.

The content is organized into three steps:

1

Defining Business Requirements

2

Documenting Requirements

3

Implementation



STEP 1 DEFINING BUSINESS REQUIREMENTS

What is your objective? What problems are you trying to solve?

What project control and business needs will be addressed with the purchase of EVM software? What do you want to achieve?

Taking the time to articulate your issues, business needs, and objectives provides a documented basis to determine which software tool provides the best return on investment. It also helps you to develop an implementation plan for the tool and identify any process or procedure updates that may be required.

Create a simple framework to capture your top project performance management process issues.

Define specific actions to eliminate or mitigate the root cause of the issue.

Where possible, identify a means to measure the business impact of eliminating the issue.



This approach can help you create the functional requirements list for the software tool.

The following example illustrates this thought process.

EXAMPLE FRAMEWORK TO IDENTIFY AND ORGANIZE ISSUES

Issue:

Government contracts the company is bidding on require EVM performance reporting or an EIA-748 compliant EVMS to be in place. This means updating processes and procedures along with implementing new tools to support the contractual requirements.

Root Cause

Process and procedures need to be updated to incorporate EVM best practices. Lack a cost management tool to manage the complete set of time phased cost data (budget, earned value, actual cost, estimate to complete (ETC), and estimate at completion (EAC)) to calculate performance metrics.

Requirements

Establish a central EVM database for project teams to maintain budget, earned value, actual cost, ETC, and EAC data that integrates with the schedule tool. Tool should provide a collaborative working environment where all team members can manage and view the data as well as track changes.

Expected Outcome

Single authoritative source for the EVM data to produce data views and performance reports with confidence. Can produce ad-hoc reports as well as contractual reporting deliverables. Can demonstrate full data traceability, independently verify project manager produced range of EACs.

Issue:

Project start up after contract award is taking too long and impacts the ability to be prepared for an Integrated Baseline Review (IBR). Need means to leverage the proposal schedule, cost estimate, and basis of estimate (BOE) to quickly create an executable performance measurement baseline (PMB).

Root Cause

Proposal and project execution functions are siloed. Business development produces ad-hoc Excel spreadsheets for proposals that lack substantiation. Project control teams must start over at contract award.

Requirements

Establish a central cost estimating and EVM database where proposal teams hand-off proposal schedule and cost estimating data with rationale to project control teams after contract award. Resource loaded schedule activities provide the source data for the time phased budget.

Expected Outcome

Goal is to reduce project start up duration by 80% by removing process silos. Significant improvement in the quality of the schedule and cost data as project control teams can use the integrated source data with rationale from the proposal phase as the basis to produce the PMB.

Issue:

The government customer has issued a number of EVMS corrective action requests (CARs) related to schedule and cost data quality issues. The in-house developed cost management software is unable to scale to support the performance management requirements, lacks means to integrate with the schedule tool.

Root Cause

Legacy software tool is unable to provide the necessary data to support the EVMS. Project control teams lack the means to integrate the schedule and cost data. Project managers lack the tools needed to manage the complete set of time phased cost data, produce EVM metrics, identify and analyze significant variances, as well as produce a range of EACs for performance reporting.

Requirement

Establish a single cost management tool as a central database to maintain the time phased cost data. The tool must support standard methods for measuring work performance and calculate standard EVM metrics that can be analyzed in an interactive dashboard. The schedule and cost tools must be integrated to create schedule driven budget and ETC data with schedule status as the basis for claiming earned value.

Expected Outcome

Incrementally improve data quality over the next six months to meet the milestones in corrective action plans (CAPs). Enhanced process will ensure schedule and cost data alignment. Reduce time spent performing manual data quality data checks by 80%. Eliminate use of ad-hoc macros used to supplement the current tool. Reduce time to prepare, validate, and submit customer performance reports by 65%.

Identify how you intend to measure the impact of an issue in time or cost.

Use the same measure to quantify the expected outcome by eliminating or reducing the impact of the issue.

Use this data to calculate the return on investment and how quickly results can be achieved.

STEP 2 DOCUMENTING REQUIREMENTS

Documenting your requirements is useful for establishing an objective means to determine which software tool would work best for your environment. An example framework for gathering requirements follows and is organized into five categories.



REQUIRED FUNCTIONALITY

Make a list of the functionality you need. Organize the items to align with your EVM process or other grouping that aligns with your business requirements. This can help you during the software implementation process to verify the tool meets your needs.

Consider ranking the line items to identify which ones are more important. This can be as simple as noting whether a line item is required or a nice to have – a bonus when the functionality is included. Or establish a weighted methodology.

Add a column for each software tool you are evaluating so you can easily do fact-based comparisons.

Add a notes column to include details about tool functionality you can reference during the evaluation process. For example, perhaps one tool partially supports a requirement. Make a note of any limitations. Or, perhaps another tool includes functionality you didn't think about. Make a note of other capabilities that can help address other business needs or make things easier for a user.

An example requirements list organized by process follows.





Configuration, Setting Up Core Data

Functionality	Rating	Tool A	Tool B
Can establish a standard accounting calendar template	Required	✓	✓
Can define project specific reporting calendars as well as resource calendars	Required	✓	
Can establish a standard base project configuration new projects can use as a template to enable cross-project reporting and analysis	Required	✓	✓
Can create an unlimited number of user defined code lists and structures, add a variety of different types of user defined fields (text, codes, flags, Boolean, dates) to support project unique data views and reporting requirements	Required	✓	✓
Can establish a standard rate template and rate calculations with ability to create custom expressions	Required	✓	
Can build complex rate structures with ability to apply escalation factors	Required	✓	
Can create an unlimited number of rate structures for different cost types (budget, actual costs, estimates)	Required	✓	
Can import current rates from the accounting system	Required	✓	
Can establish a standard hierarchical resource structure template with element of cost categories (labor, material, other direct costs, subcontract) for IPMR or IPMDAR reporting	Required	✓	
Can easily import data from other systems using Excel	Required	✓	



Planning

Functionality	Rating	Tool A	Tool B
Build WBS structure	Required		
Import WBS from Excel	Required		
Import WBS from scheduling system (identify specific tools such as Microsoft Project or Oracle Primavera P6)	Required		
Can produce a WBS dictionary	Required		
Can parse statement of work (SOW) document paragraphs into a code structure to map to WBS elements	Bonus		
Means to identify control accounts and summary level planning packages (SLPPs)	Required		
Control accounts can be at any level within the WBS (project defined)	Required		



Budgeting

Functionality	Rating	Tool A	Tool B
Easy to use grid view similar to Excel to enter data with built-in hierarchical structure to view the data at summary, intermediate, and detail levels	Required		
Ability to change the order of the columns, hide or show columns, sort and filter the data in the grid view similar to Excel	Bonus		
Project team members can collaborate and share the cost data with optional user locks	Required		
Ability to import proposal cost estimate and basis of estimate (BOE) rationale as the initial basis for the time phased budget			
Can enter budgets in hours, full time equivalents (FTEs), or cost and select the rate structure to apply direct and indirect rates	Required		
Can create custom budget distribution spreads and learning curves			
Import resource loaded activity data from scheduling system to produce the time phased budget data	Required		
Ability to enter BOE, SOW, and other text documentation with the budget data at user determined level of detail	Required		
Can create hierarchical bills of material (BOM) and assign material categories	Required		
Supports standard performance measurement techniques: 0/100, 100/0, 50/50, User Defined, Percent Complete, Milestones, Level of Effort, and Apportioned Effort	Required		
Supports rolling wave planning techniques	Required		
Built-in contract budget base (CBB) log to track the CBB, management reserve (MR), undistributed budget (UB), and distributed budget with monthly summary values as well as detailed transaction source data for historical traceability and internal audits	Required		
Ability to define additional budget cost codes to support various project scenarios such as an Over Target Baseline (OTB)	Required		



Measuring Performance

Functionality	Rating	Tool A	Tool B
Import schedule activity status as the basis for the work package earned value claimed in the cost tool	Required		
Ability to enter quantifiable backup data to substantiate the earned value claimed in the cost tool			
Import actual costs from accounting system on a weekly and monthly basis	Required		
Enter estimated actuals for materials and subcontractors to align earned value claimed and actual costs in the same accounting month	Required		



Analyzing Performance

Functionality	Rating	Tool A	Tool B
Variance thresholds can be set at any level in the WBS, can set both value and percent thresholds	Required		
Built-in cost data validation analysis view and report to identify common data anomalies	Required		
Import resource loaded activity data from scheduling system to produce time phased estimate to complete (ETC) data	Required		
Web option for technical users or teaming partners to enter time phased ETC data or progress data	Required		
Ability to do what-if analysis and create different ETC scenarios	Required		
Ability to enter or calculate an unlimited range of estimates at completion (EACs)	Required		
Calculates standard EVM metrics	Required		



Reporting

Functionality	Rating	Tool A	Tool B
Built-in ad-hoc and pivot table reporting, built-in report wizard	Required		
Built-in standard EVM reports (RAM, CAP, VAR), line charts and graphs with interactive dashboard to view, summarize, and drill down into the data for root cause analysis	Required		
Build-in standard IPMR Formats (1 to 5 and 7) and XML deliverable as well as IPMDAR Contract Performance Dataset (CPD) JSON encoded deliverable, Performance Narrative Report	Required		
Can produce ad-hoc data exports to support DCMA data calls	Required		
Single project, multi-project, or enterprise level portfolio analysis reporting	Required		



Workflow, Change Tracking

Functionality	Rating	Tool A	Tool B
Ability to define user roles, routing rules and workflow queue to manage the development, entry, and maintenance of project data	Required		
Workflow available in the web to identify responsible parties for ETC or progress entry	Required		
Ability to manage baseline change requests, capture change rationale and impact analysis documentation, track to closure	Required		
Ability to manage work authorization forms	Required		
Approved baseline change requests automatically update work authorization forms and budget log, can track changes down to reference date, work package, and resource (element of cost)	Required		

USER COMMUNITY

Identify the functional roles of the people who will be using the tool. Functional roles could include project managers, schedulers, control account managers, cost analysts, and potentially technical experts. Functional or business managers may want a say in the decision-making process or at least be informed about introducing a new tool into the project control process.

Develop a role-based training plan to encourage user acceptance of the new tool. How many people will need to be trained? How do you plan to conduct the training? What is the format, timing, and duration of the training? Engage the functional users

so they can learn for themselves how to use the software to accomplish their project control tasks. Consider conducting different types of training sessions to target specific functional roles.

Determine the likely number of software users. The software vendor will need this information for pricing. Depending on the vendor's pricing model, be prepared to identify the likely number of core users and occasional users that provide budget, status, or estimate to complete data to the project control team.



DEPLOYMENT ENVIRONMENT

Identify the requirements for deploying the software. You may need help from your CIO or IT resources to document specific technical, user access control, or security requirements the vendor must comply with. An example of a basic list follows.

Deployment Requirements	Tool A	Tool B
SaaS subscription option available, meets FedRAMP security requirements		
Access controls: Project level		
Access controls: Role-based or user locking at WBS element level		
Access controls: Subcontractor (external entity) specific grid view to enter or update data for specific WBS elements		

REGULATORY ENVIRONMENT

Document how the software tool can help satisfy federal government or agency specific EIA-748 Standard for EVMS contractual requirements. This includes the Federal Acquisition Regulation (FAR), Defense Federal Acquisition Regulation Supplement (DFARS), and other agency EVM policy documents. The Defense Contract Management Agency (DCMA) conducts EVM System compliance and surveillance reviews for the DoD and NASA. DCMA uses their EVMS Compliance Metrics (DECM) to perform data quality analytics on contractor performance data. They record the results to assess the current state of a project and identify higher risk process areas in the contractor's EVMS for further discussion.

To frame this content, you could organize the requirements into two general categories.

Reports

A typical government contract data requirement list (CDRL) includes the Integrated Program Management Data and Analysis Report (IPMDAR) Data Item Description (DID). The DID specifies the requirements to provide data electronically to the DoD EVM Central Repository. This includes a Contract Performance Dataset (CPD) and Schedule Performance Dataset (SPD), a set of JSON encoded data files, along with a Performance Narrative Report that consists of an Executive Summary and Detailed Analysis Report.

Include any specific reporting requirements in your list of required software functionality. Be sure to list DID specific data deliverable encoding formats.

Process

The EVM tool is only one component of an EVMS. An EVMS consists of an integrated set of policies, process, procedures, systems, practices, and tools used to manage projects with EVM requirements. The process and procedures define the workflow and best practices project personnel are expected to follow. The software tool should help project personnel to complete their project control tasks quickly, accurately, and efficiently.

Identify where the software tool can support or improve process and procedures. Some level of process and procedure enhancement is often required when new software tools are added to the mix. This is needed to help project personnel implement practices that improve the quality of the schedule and cost data, define accomplishment criteria, measure performance, analyze performance, and manage changes.

Tool functionality could also help to address broader strategic objectives such as establishing a single authoritative source for EVM data with interactive dashboards to view, summarize, and drill down into the data to identify the root cause of a significant cost or schedule variance.

ABOUT THE VENDOR AND THE TOOL

As part of your assessment, you also want to gain an understanding of the tool's architecture, history, update cycles, and how the vendor responds to software issues.

Use your professional network to talk with other users of the software. Ask the vendor for client referrals you can contact.

Here is a short list of things to consider.



Single database?

What often happens is that vendors acquire tools from other companies. As a result, the data may reside in different databases requiring users to continually import and export data between the tools. There is an automatic process penalty when the data doesn't reside in a single, central database.



What is built into the tool or are add-ons required?

Verify what functionality is built into the tool. For example, does the tool include built-in:

- Workflow to process work authorizations and baseline change requests?
- Customer performance reporting data deliverables?
- Standard EVM line charts and graphs?
- Project and enterprise level reporting?

If not, do you need to purchase other tools or utilities?

Implementation risks are higher with additional tools in the mix because they add a layer of complexity and are external to the main tool's database. They often have a different user interface that requires additional training. They also increase the total cost of ownership.



What is the average release cycle for updates?

This provides a gauge of how quickly the vendor responds to user enhancement requests or to address software issues. Does the vendor do periodic major releases? How often do these occur? Twice a year, once a year?

Or, does the vendor follow an Agile approach where they do fast, incremental releases to continually enhance the product? If yes, ask the vendor about their sprint cycle.



What is the average response and resolution time for issues?

This is where other users of the software can provide useful information. Does the vendor respond in hours, days, or weeks? Are the support personnel knowledgeable?



Does the software architecture support web services?

This provides a gauge of whether the software architecture is dated or current. Recently developed software is often available as a web service or web application (browser access) for a broader user base. Web services are self-contained, modular, and dynamic applications that use open protocols and standards. Web services allow the application platform and technology to be independent.



How easy is it to exchange data with other business systems?

Verify what options you have. Excel import/exports only? Or does the tool include APIs? APIs are a superior method to exchange data between systems because they are a direct connection between databases.



How configurable is the tool?

The intent is to gain an understanding of the scope of the configuration options in the tool. Is it flexible enough to accommodate your business environment? Can you create the necessary user defined codes, structures, and other fields to align with your business needs? Can you organize, sort, select, and group data as desired? Can you produce the results, outputs, or reports you need?

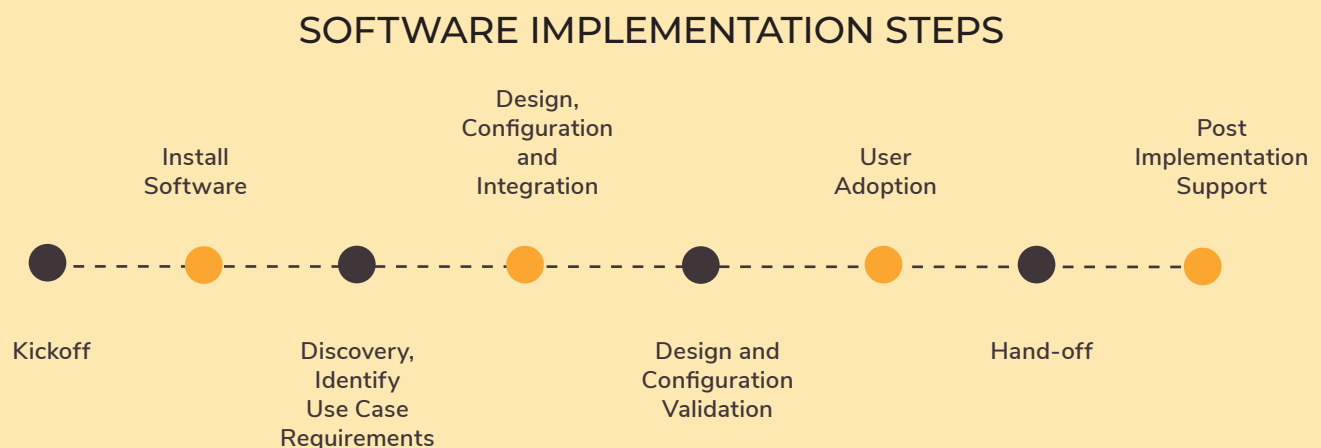
This can help you identify and document the configuration details for your environment.

STEP 3 IMPLEMENTATION PLANNING

Software features and functions are only part of the equation. You also need a plan and schedule for how you intend to implement the software. How do you reduce the risk of implementing a new tool? How do you produce fact-based information that justifies the investment? How do you encourage user adoption of the new tool?

One approach is to create a priority list of specific use case requirements with a clear definition of done. Similar to Agile development methodologies, the objective is to define a specific set of requirements with limited scope that can be delivered and demonstrated in a short time frame working with a core set of software users. These could be milestones in your implementation schedule as each use case is completed.

Define use cases that directly address the root cause of an issue identified in Step 1 with a measurable return on investment. The software is then configured and implemented to support the requirements. As additional use cases are implemented, more software functionality is engaged to support the larger set of business objectives and requirements.



Benefits of this iterative and incremental approach is it reduces the time required to:

- Build a base of core users who know how to use the tool because they were part of the process to define and implement the use cases.
- Set up common core data or a library of templates for a broader base of users.
- Generate specific work instructions so other users can easily learn how to apply the tool for their EVM or cost management tasks.
- Identify training needs, produce training materials, and conduct targeted training.
- Discover ways to streamline process and procedures as well as improve the quality of the schedule and cost data.



Steps to Get Started

1

Start with the list of issues, defined root causes, and how you intend to measure results. Identify items with the highest return on investment.

2

Create a priority list of use cases that address specific root causes. These use cases should have a specific scope of work and duration with a clear definition of done.

3

Incrementally implement use cases that can quickly deliver results, reduce risk, and provide fact-based justification to implement the tool.



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more about ProjStream's
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PHONE

1-407-476-1084

WEB

www.projstream.com

EMAIL

info@projstream.com

ADDRESS

1540 International Parkway #2000
Lake Mary, FL 32746

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