



Scaling up performance with right-sized EVM

EBOOK

Introduction

A recent review of more than 300 billion-dollar-plus megaprojects found the average project cost overrun sits at 80%, with schedule delays running close to 50%.

Earned Value Management (EVM) is, at its core, a structured way of doing what project controls professionals already do: analyzing cost and schedule data to improve project performance.

An effective EVM approach can amplify collaboration and efficiency, power smarter decisions and keep projects moving forward on schedule and on budget. However, due in part to the well-known (and notoriously complex) EIA-748 standard, EVM implementation is often mistakenly perceived as more trouble than it's worth.

The truth is that when EVM is right-sized and configured to fit an organization's needs, it doesn't create complexity; it cuts through it. And the long-term, enterprise-wide value far outweighs initial investment.

Flexible EVM solutions unlock insights into productivity, cost and schedule forecasts through summaries, visualizations and drill-down views that support role-specific decision-making. In this eBook, we'll explore these capabilities and more, breaking down everything project controls professionals need to know about the value, challenges and opportunities of EVM implementation.

¹ Erikhans Kok, Martin Linder, Sam Linder and Tom Brinded, "Don't cancel or coddle at-risk capital projects — challenge them," McKinsey & Company, July 16, 2025.



Contents

The EVM advantage	4
Four common EVM misconceptions	7
Selling EVM to executives	9
Key foundations for EVM success	10
Five critical EVM capabilities	12
Calibrating right-sized EVM	13
Unleashing EVM success with software	14
Flexible EVM with Octave Sequence	15
Success stories	16

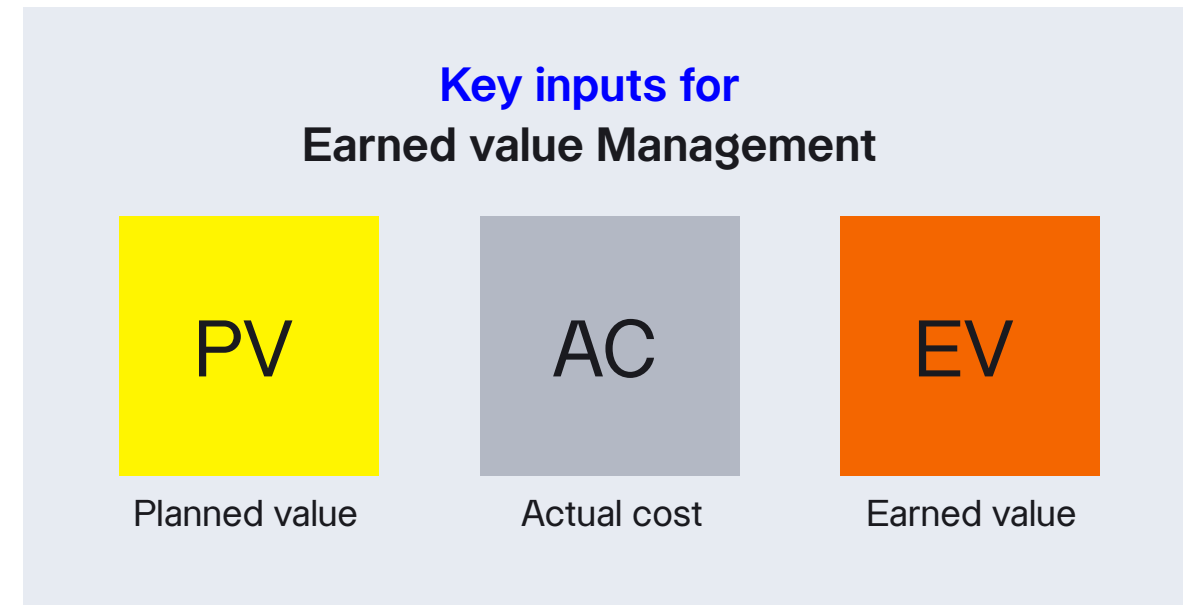
The EVM advantage

In simplest terms, Earned Value (EV) is progress expressed as a monetary amount: the overall percentage that a project is complete, multiplied by the total budgeted cost.

For example, a \$1 million project at 50% completion has an EV of \$500,000. EVM is the methodology of applying EV to measure, forecast and improve project performance.

EV can be compared against schedules, cost actuals and other information to answer critical project controls questions, like:

1. How much have we completed so far?
2. Are we on schedule?
3. Are we within budget?



Progress visualization

EVM can turn progress data into a detailed picture of how projects are tracking against initial plans.

The result? A clear answer to the question: "So, is 45% complete good?"

Organizations can employ a number of methods to accurately track progress and percentage complete within a project, from milestones to schedule driven, and more.

Knowing what work is scheduled for completion by a specific date enables you to determine Planned Value (PV) and compare it to EV. If $EV < PV$, the project is behind schedule. If $EV > PV$, the project is ahead. EV can also be compared against Actual Costs (AC) to determine whether project costs are exceeding the budgeted amount.

The true benefit EVM unlocks is enabling users to understand the distinct relationship between project cost and schedules. This enables smarter decision making—and when regularly updated, allows users to distinguish between minor, expected fluctuations and major discrepancies that warrant attention.

Here's an example: Imagine a project that's behind schedule and accumulating higher-than expected costs. Variance measurements are typically calculated in the form of an Index, where a measurement that exceeds a given threshold can signal problems worthy of attention. Cost Performance Index (CPI): EV/AC . If EV is \$90 and actuals are \$100, CPI is 0.9

- Schedule Performance Index (SPI): EV/PV . If EV is \$110 and PV is \$100, SPI is 1.1

Knowing this, we can see that actuals diverted from the predicted curve very early on, and evaluation of the CPI would have identified the problem at that point.

When implemented successfully, EVM can provide a set of guidelines or metrics that can trigger alerts at various thresholds, prompting project managers and/or other users to take corrective actions as needed.

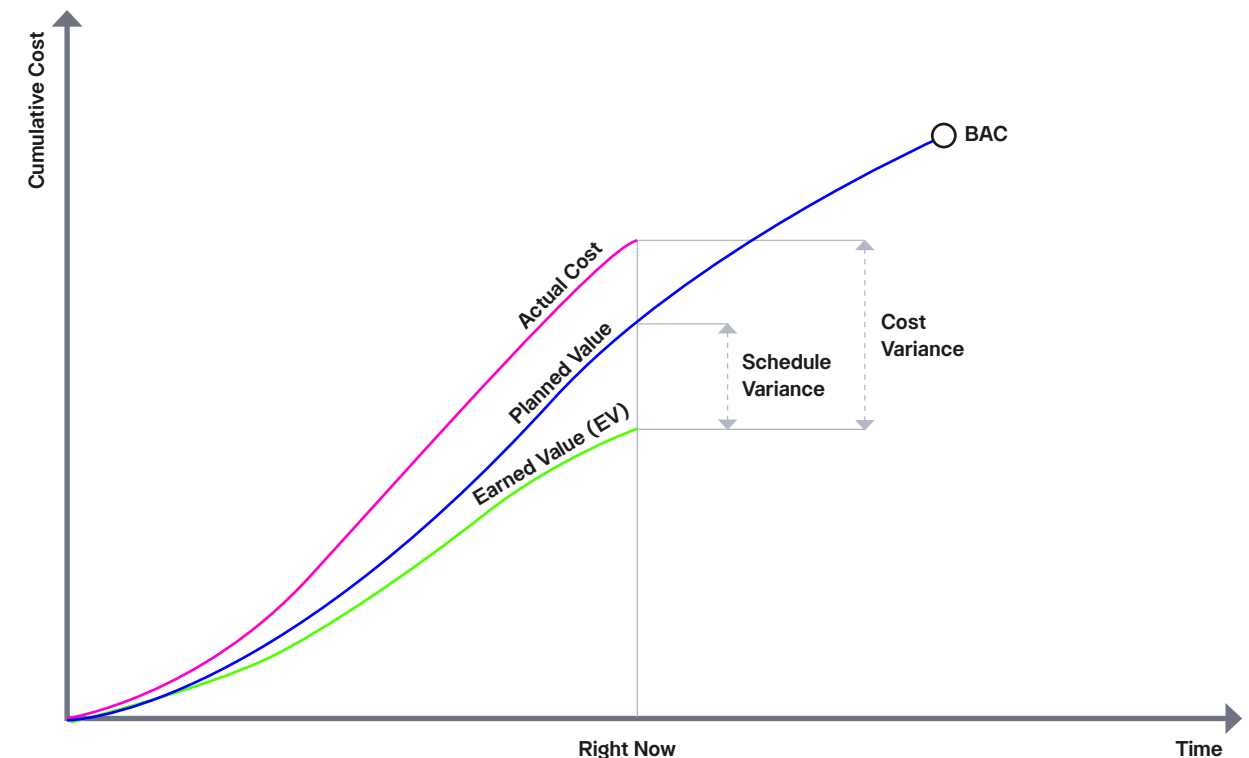


Figure 1: Cost and schedule variance

Accurate predictions

EVM can generate highly accurate predictions based on past performance. This information provides a valuable forecasting tool and can serve as an early warning system across the project lifecycle. In fact, at 20% completion, EVM methods can be applied to a forecast that's accurate within $\pm 10\%$ of final project costs.

As the illustration below demonstrates, forecasts can be built based on CPI and/or SPI to create an estimate at completion (EAC), which in turn is compared to the planned budget at completion (BAC).

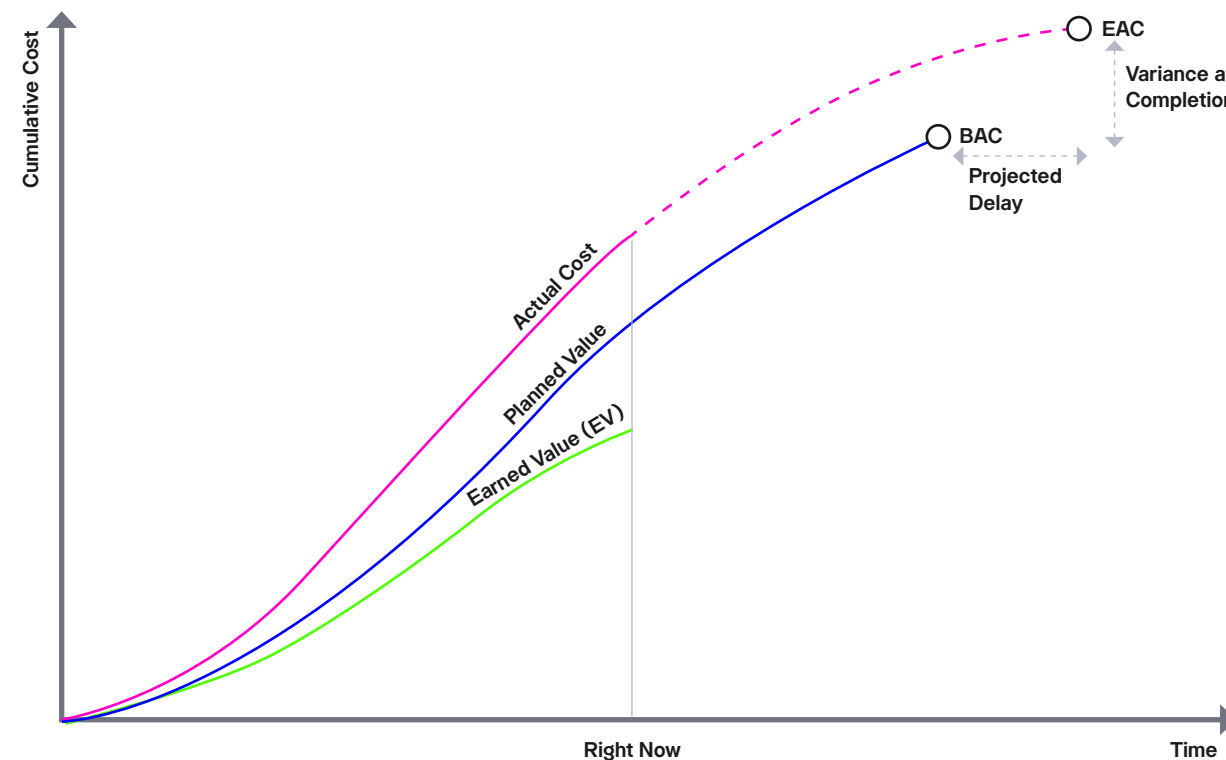


Figure 2: EVM forecasting



Four common EVM misconceptions

Despite the significant benefits EVM delivers, it's not uncommon for executives to be skeptical.

While they may be aware of the value, many have also heard stories of rigid standards, high costs and unsuccessful onboarding. These perceptions can fuel a false understanding of what it takes to adopt and implement EVM.

In truth, these stories often reflect a failure not of EVM itself, but of organizational process. Let's break down four of the top misconceptions that get in the way of executive buy-in.

01

Extreme compliance complexity due to EIA-748 standard

Possibly the most significant misconception is the frequent conflation of EVM with the rigorous systems designed to comply with the EIA-748 standard, which is often mandated by government agencies and contractors on projects of a significant size.

Many assume that a particularly complex type of EVM must be implemented to meet these standards. As a result, organizations may avoid implementing EVM altogether, fearing the cost and effort needed to fulfill the level of rigidity and the extensive tracking details prescribed by EIA-748.

02

High investment costs that don't pay out standard

The overhead expense of EVM system implementation, in both financial and labor resources, is an understandable concern for many organizations.

In addition, the adoption of a new, potentially costly expense for performance measurement is often looked upon as an unwelcome additional cost, rather than what it is: an upfront investment leading toward overall cost reduction.

03

Lack of efficient data collection will get in the way

The requirements of an EIA-748 compliant system imply a laborious level of detail. For example, performance must be recorded and tracked in specific ways to ensure precise EV measures.

Organizations new to EVM, or those with immature processes, may find this level of detail challenging. As EVM relies on employees to accurately track productivity to measure progress, a lack of efficient reporting processes can quickly lead to a mess of fragmented information.

However, there are simple, effective methods for collecting data that can streamline the process. In addition, a greater level of detail doesn't always mean greater value, and it's often not necessary to collect as much detail as organizations may assume.

These concerns can get in the way of the executive support project controls professionals need for the implementation of EVM at their organization.

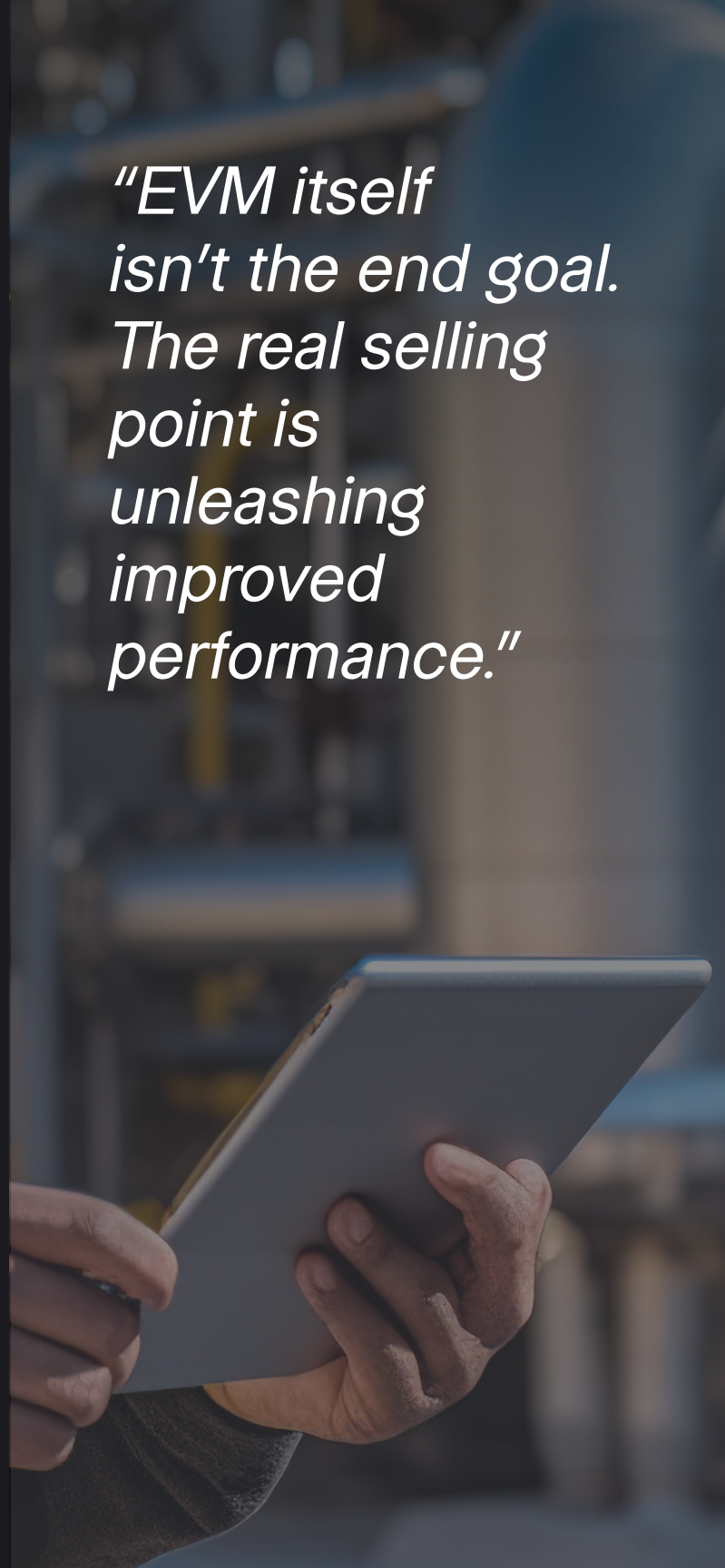
However, it's possible to position EVM as applicable, practical and actionable for leaders. By showing that implementation is not only approachable, but highly valuable for executives and decision-makers within an organization—not just practitioners of project controls.

04

Burdensome training and onboarding process

Another obstacle voiced by many is the unfamiliar terminology and formulas necessary to execute EV metrics, making it difficult to train employees and difficult to translate findings for executive consumption.

However, flexible EVM offers the ability to configure and customize language to align with standard organizational practices. In addition, intuitive workflows and user-friendly interfaces that ease onboarding can be prioritized when making decisions.

A person's hands are holding a tablet computer. The background is a blurred industrial setting, likely a factory or manufacturing plant, with various pieces of machinery and equipment visible.

"EVM itself isn't the end goal. The real selling point is unleashing improved performance."

Selling EVM to executives

When making a case to executives, it's important to remember that EVM itself isn't the end goal. The real selling point is unleashing improved performance.

Encourage executives to look closer at the metrics and actionable insights. Think productivity and performance, over CPI and SPI.

As we noted earlier, the perceived complexity of adding EVM can distract from its value as a business tool for effective decision making. The insights EVM generates are ideal for the executive level, but must be positioned in a way that makes it feel accessible and not something solely for the "back office."

Streamlining technical terminology

When it comes to sparking executive interest, simple and streamlined beats technical complexity every time.

An effective, modern EVM system provides project information through summaries, graphics, reports, dashboards and drilldown views. Be mindful of unnecessarily technical terminology that can unintentionally reinforce the perception that EVM is overly complex. Instead, use descriptive language that communicates value in a direct, approachable way. This can help executives quickly lock into what's important, keeping their focus on clear benefits, not added noise.

Showcasing the portfolio perspective

EVM value amplifies when it can be viewed from an enterprise or program portfolio perspective—a benefit that many executives find particularly compelling.

By rolling up project-level EV data into broader insights, organizations can gain visibility into enterprise-wide performance. The consolidation of data—measured, tracked and easily viewable in a single platform—equips decision-makers with key metrics and actionable insights at scale.

For example: Picture an organization that employs a variety of contractors and sub-contractors across multiple projects. EVM solutions can enable decision-makers to view and compare contractor performance, so they can prioritize future work for those who consistently deliver.

While executive buy-in can be challenging to secure, it's essential to the process. An EVM only succeeds when leadership understands its value and actively supports the initiative.

Key foundations of EVM success

A strong EVM integrates with and builds on existing project controls frameworks by adding process standards and performance networks. But first, it requires a strong foundation.

Before attempting to harness the power of EVM, organizations must first evaluate readiness to deliver the following fundamental elements:

Scope

To effectively calculate earned value for a project, organizations must first clearly understand the scope of work to be done. A clear scope starts with a well-formed work breakdown structure (WBS). The challenge? Identifying the correct level of detail to capture.

Organizations often make the mistake of thinking that more detail is always better. But too much detail can create unwarranted inefficiency. Don't track details just because it's possible. If it's no longer adding value to project management or decision-making, it's better to leave it off the WBS entirely. When in doubt, we recommend organizations err on the side of sharper, fewer details over a glut of unnecessary information.

Budget over time

Because EVM compares work completed against work planned, the next step is to create a time-phased budget for the project to determine when costs will be paid. Time and budget work together to give organizations a benchmark that can be measured against to determine EV.

Progress data

Similar to scope, measuring progress at too fine a level of detail can be problematic. This is an area where the perceived overhead involved with EVM can be disconcerting. Just because progress can be measured by tracking all the activities of all resources assigned to all tasks applied against a project's WBS, doesn't mean it needs to be. While some projects may require this level of precision, it's overkill (and overly costly) for most.

With complex projects, there is sometimes simply too much data or too many different departments involved to safely track measurements without risking error. And with smaller-scale projects, there's often understandable opposition to overly cumbersome levels of rigor. Instead, simpler methods can be used to determine progress, for example:

- Defining rules of credit, such that a certain percent complete is marked on a task based on specific milestones achieved
- Self-reporting of percent complete by contractors or subcontractors
- Progress based on physical work accomplished (e.g. having laid 10 miles of piping on a 20-mile project would yield 50% complete)



Actuals

Measures such as cost variance and schedule variance require actual cost data. These real-time measurements, whether they come from commercial enterprise resource planning (ERP) systems or any internal cost tracking system, are critical for accurate EV measurements.

Effective change management

An effective EVM requires effective change management. Throughout the life of a project, there will be pivots and unforeseen events.

A methodology to identify, approve and allocate funds to address these changes should be built directly within the EVMS.

Changing budgets within a separate system is a waste of time and resources. Instead, tools should support initiating, reviewing and approving budget change requests, pulling information for distinctive contingencies and outlining the justification required in change management.

Five critical EVM capabilities

Choosing the right EVM solution means evaluating a wide range of offerings, from nice-to-have to non-negotiable.

When narrowing your options, here are five critical capabilities to prioritize:

01

Comparing performance against multiple baselines.

The ability to understand how current performance measures against key baselines like the original budget, approved budget and latest forecast, while identifying what's driving any differences.

02

Forecasting EAC and ETC with confidence.

The ability to generate accurate Estimate at Completion (EAC) and Estimate to Complete (ETC) projections based on current costs, progress and performance trends.

03

Analyzing change scenario impacts.

The ability to model how shifts in scope, design, resources and scheduling may affect project cost and timeline before big decisions are made.

04

Tracking performance trends over time.

The ability to go beyond performance to date to analyze how performance has evolved over time (i.e., looking at the past month or quarter of a multi-year project).

05

Identifying risk and driving proactive corrections.

The ability to surface risks, trends and early warning signs so that the right stakeholders can take correct action to improve outcomes and keep performance on track.

Calibrating right-sized EVM

Outside the constraints of compliance, EVM offers a wide range of configurations that depend heavily on the needs of your projects and enterprise.

So, with such a range to choose from, how do you know what the “right amount” of EVM is for your organization?

For most, the goal isn’t to implement every possible EVM process. Instead, it’s to establish enough structure to generate meaningful insight, without getting bogged down in unnecessary complexity.

In the following guide, we’ve put together everything you should consider when determining the right-sized configuration for your organization.

At minimum, the EVM should achieve the following:



Establish a strong foundation

- Build a solid platform for budgeting, forecasting and change management
- Use templates for WBS and progress measurement rules
- Standardize reports and views for periodic and cumulative trends



Turn insight into action

- Document variance analysis and justification. Reporting on trends and variances alone is insufficient. Having a central record of why variances are occurring provides a stronger tool for current and future performance improvements



Make it work for your organization

- Match EV terminology to the culture of an organization to make it accessible, user-friendly and better understood. (For example, PI can be named “Earned/Burned” or “Productivity.”)
- Avoid the burden of using the EIA standards when an organization has already developed its own processes and expertise.
- Create a full project performance picture by monitoring non-EV key performance indicators (KPIs) in conjunction with EV metrics.
- Develop EV metrics on a cross-section of data as appropriate – not just costs, but also hours or quantities that roll up EV accordingly.

Unleashing EVM success with software

Much of the effort associated with EVM implementation can be mitigated by the right software.

When evaluating enterprise project performance software, consider the following capabilities:

Accessibility: How easily can users access and interact with the system in their day-to-day workflow? What kind of requirements do they need? Can field teams update data in real time? Are there limitations that may cause delays in collecting accurate cost and schedule information?

Scalability: Will the solution perform consistently across the enterprise, or is it limited to pilot-level implementation? Can it support growth in project volume, complexity and user base without losing impact?

Speed: How quickly can the platform be deployed and configured to support cost control processes for different levels of EV maturity?

Ease of use: Does the interface feel intuitive and familiar to users? What design elements or workflows encourage adoption and reduce training burdens?

System integration (APIs): How seamlessly does the platform connect with other existing scheduling and accounting systems?

Configurability: Can terminology, EV/Credit rules and progress cycles be fully tailored to fit the organization? Will the software allow approaches beyond strict EIA compliance and techniques? (I.e. - the ability to provide cumulative and time phased/periodic EV).

Reporting and visualization: Does the platform provide comprehensive, flexible reporting tools, including dashboards, graphs and performance views that support both detailed analysis and executive-level insight?

Versioning and snapshots: Does the system maintain robust historical snapshots and version control to enable accurate tracking of performance over time? (I.e. - productivity trends and cost/schedule forecasting).

Flexible EVM with Octave Sequence Enterprise (formerly EcoSys)

Introducing Sequence Enterprise, an Enterprise Project Performance (EPP) solution that doesn't miss a beat.

Sequence Enterprise establishes a centralized hub for all project and opportunity related information—delivering project portfolio management, project management and controls in a single platform.

While many organizations have put Sequence Enterprise to work to facilitate full EIA-748 compliance for large government contracts, those same organizations (and many others) have also taken advantage of the platform's flexibility to adopt right-sized EVM for every project.

In addition to sharper efficiency and stronger communication, Sequence Enterprise provides a range of powerful capabilities that elevate EVM at every level:



Customizable threshold control

Define customized performance thresholds at the project or sub-project level—including monetary, percentage-based or both.



Accurate progress measurement

Apply best practice progress measurement techniques across different project elements (i.e., the work breakdown structure) for accurate percent-complete reporting.



Seamless system integration

Integrate effortlessly and reliably with scheduling and ERP systems to pull project and WBS-level dates and costs—while also supporting data and time phased curve management.



Real-time intelligence

Access real-time EV analytics, including four best-practice Independent Estimate at Complete (IEAC) calculations.



Scalable project architecture

Support both highly complex projects and simplified environments in parallel, with configurable levels of detail that enable teams to focus resources where it matters most.



Multi-format progress capture

Import progress measurement from multiple data formats or enter it directly into the system, with built-in approval workflows to ensure consistency and control.



Advanced analytics and collaboration

Configure EV-specific dashboards with deep drill-down capabilities for rapid root-cause analysis, while enabling seamless collaboration across stakeholders on risk, RFIs, cost and schedule analysis and change management—all in one unified solution.

Success stories

Nuclear power contractor

The organization: A large nuclear power contractor with several projects in R&D, construction and services across North America.

The outcome: Standardized on industry-leading ERP and scheduling systems, the company needed a centralized source of project data that would provide accurate forecasts for a high-profile project while enabling visibility into performance for customers.

To accomplish this, the company implemented a project controls platform that integrated with existing systems and served as the EV reporting engine. The company was already tracking percent complete in the scheduling system, which served as the source for progress measurement. Resource loading was also supplied from the scheduling system, and actual costs and commitments were sent to Sequence Enterprise from the ERP. Approved change order and time sheet data from contractors were then integrated within the EPP hub, which became its EVM environment.



Project highlights:

- Enabling EV techniques to vary by work packages, ensuring the right tracking method is applied to the right type of work.
- Maintaining a full time-phased history of EV performance, allowing users to visualize how performance evolved over a month, year and project life to highlight long-term and local trends.
- Integrated change management into current budget and forecasts, with EV reporting not only on baseline but also current budget and current forecast, enabling seamless changes and adaptations in real time. This gave them the ability to analyze performance not just by work breakdown structure but by discipline, by alternate breakdown structure of different sorts.



Federal transportation agency

The organization: A multi-billion dollar agency within the U.S. federal transportation system, working to modernize core transportation infrastructure across the country.

The outcome: The goals for this EVM program were: standardizing progress measurement, milestone percent completion and the ability to use standard project templates in its scheduling system.

For this project, it was important to consolidate funding information, budget commitments and obligations that were coming out of its enterprise financial system. It was also vital for the agency to check what vendors were reporting so it could submit Cost Performance reports based on standard percent completion templates from its contractors.

With real-time data being added into the system, it was able reconcile what its vendors were submitting for payment with and what it was reporting in terms of performance and progress.



Engineering and construction firm

The organization: A direct-hire contractor with a 40-year resumé and construction expertise in power, oil & gas and petrochemical industries

The outcome: For large cost-plus or time-and-materials contracts, this contractor firm utilizes an EVM approach that fully complies with the 32 EIA-748 guidelines.

For medium projects and Firm Fixed Price (FFP) projects, it uses a risk-based and scalable EVM system that complies with the seven principles of EVMS contained in EIA-748, and adopt selected EIA-748 guidelines. For small projects, it creates a document that outlines how work and performance will be measured. In this simpler approach, the organization would track CPI and SPI as its key performance indicators.

When performing according to plan, these metrics equal 1. With designated thresholds (i.e., below 0.9, signaling lower than planned productivity), this triggers a red flag that needs to be investigated right away. These measures are also used in revising the periodically updated forecast.

So, how much EVM do you need?

As we've established in this eBook, EVM is not a one-size-fits-all concept. Every organization must determine what the "right amount" of EVM is, based on its unique project portfolio, internal processes and goals.

Fundamentally, this means delivering on the central principals of EVM (measuring, forecasting and improving project performance) while cutting down overhead and processes to only what is essential. With this approach, project controls professionals can focus EVM where it creates the most value: supporting better decisions and optimizing outcomes without added complexity.

Ready to put right-sized EVM to work?

Sequence Enterprise gives your organization the flexibility to adopt EVM at the right scale — without unnecessary complexity. Whether you're managing a single high-stakes program or a global portfolio, the platform configures to fit the way you work.

[Learn more](#)[Contact us](#)

About Octave

Octave is a leader in enterprise software, turning data into decisive action and intelligence into your edge. Our software solves for and simplifies complexity, from the design and build to operations and protection of people, property and assets – for any scope, at any scale. For decades, we've partnered with customers to sharpen performance, elevate efficiency and amplify results. From factory floors to entire cities, our solutions are tuned to scale up what's possible from day one onward.

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