

WHITE PAPER



AN EARNED VALUE MANAGEMENT (EVM) SUCCESS STORY

An Earned Value Management (EVM) Success Story

By Dan Norrish, Vice President of Sales, IFS North America

Earned Value Management (EVM) is not a new concept, having its origins in United States government agencies during the 1960s as a way to ensure accountability among contractors working on long-term, complex projects.

But it was not until 1989, when the Undersecretary of Defense for Acquisition took over responsibility for ensuring EVM compliance that the management methodology gained serious inroads among government contractors. In the first few years of the new century, EVM was becoming standard required practice for companies like Seattle-based Todd Pacific Shipyards, and the ability to handle this project management and reporting methodology was one of the primary things the shipbuilder looked for when it selected IFS Applications to replace its legacy IT systems, going live on their new software environment in 2001.

“We did not produce any EVM-style reports before we implemented IFS,” Todd Pacific Shipyards Senior Business Analyst Scott Arndt said. “That was one of our goals for our implementation of IFS Applications.”

While Todd Pacific Shipyards has long been up and running on IFS Applications, and received a letter of approval from the US Navy for their EVM system in 2003, changes and enhancements are an ongoing process, according to Arndt.

“We made our most recent change a few months ago,” Arndt said, stressing that EVM entails regular dialog with the government customer. “There is an ongoing process involved in order to keep up that certification. A government agency can be expected to continually ask for more and better documentation, and our goal is to deliver on those requests quickly in order to keep them happy. Contractors working within an EVM framework should expect to be asked for continuing improvements.”

More often than not, ongoing work on an EVM initiative is driven by a desire to eliminate ambiguity in progress reports and provide ever-greater visibility on performance against the budget and timeline.

Communication important from the start

But when it comes to the actual requirements placed upon an EVM contractor, ambiguity as to how to go about meeting the 32 specific EVM requirements is the order of the day, according to Arndt.

“When we went about implementing IFS Applications, we put a team together with each person filling specific roles,” Arndt said. “I concentrated on figuring out what IFS could do. Our government program manager went through the 39 EVM criteria (the number has since been reduced to 32) to be met, and figured out how to meet those criteria. And one of our government project managers helped validate the data once we started generating reports, to make sure the resulting data made sense. As we saw how the IFS project module works, we saw ways we could leverage it to collect data from our planning software, which happens to be P3, and merge that data with data in IFS Applications to complete the budgeting and progressing necessary for these reports.”

Even at this stage, Todd Pacific Shipyards worked closely with a federal liaison officer to coordinate communications with the Navy contracting officer.

“They would audit our reports and come back comments about things we needed to improve on,” Arndt said. “Even now we have regular meetings and our liaison officer will make requests on behalf of the government for changes to our reporting.”

In the vast majority of these cases, these changes can be accommodated internally as Todd Pacific Shipyards staff reconfigures or makes changes to their instance of IFS Applications. In some cases, changes to the source code have been necessary,

and according to Arndt these changes have been rolled back into the core product in subsequent releases of IFS Applications.

“The hardest part is to get everyone to agree on things,” Arndt said. “A lot of these EVM criteria leave a lot of room for interpretation, and that can result in a lot of long meetings as you determine the way things should be.”

“Sometimes we have had to have IFS make changes,” Arndt said. “Recently, we needed to have additional fields added so we could include some new information in our reports. Other times it is a simple calculation change or format change that would not require any outside assistance.”

Coming to consensus on what is required is perhaps the most challenging aspect of EVM compliance, according to Arndt.

“The hardest part is getting everything to agree on things,” Arndt said. “A lot of these EVM criteria leave a lot of room for interpretation, and that can result in a lot of long meetings as you determine the way things should be. One example of this is the actual cost of work performed calculation and how we calculate that figure for our subcontract work. Our subs do their work before they invoice us, so if we wait until they invoice us to record the expense, it always look like you are way ahead of schedule because the work is done but it is not reflected in the actuals. So we decided to do a schedule with progress to date and estimated completion – more accurate reflection. For a number of years, this was a topic of debate with our government customers as they were not sure that estimate was accurate.”

Nonregulatory benefits

Going through the process of implementing EVM practices has brought Todd Pacific Shipyards benefits apart from the immediate priority of conforming to the needs of its government customers.

“At the time we implemented IFS Applications, we had three separate government contracts,” Arndt said. “One of the benefits was that we wound up with a standard report that all three contracts would use instead of each project manager developing a separate report.”

The visibility and real-time project management capabilities that flow from EVM also help Todd Pacific Shipyards with its commercial shipbuilding work.

“Right now here at Todd, we are doing some new construction work on some ferries and determining how we can use EVM on these projects,” Arndt said. “Our commercial side is interested in using some of the same reports and the same thinking. Of course some work is so short term that it does not make sense to leverage EVM. If you are 70 percent done in two to three weeks, it’s not a fit. But for longer term, multi-year projects, EVM can be a big help. A lot of what the government is asking for is not specific to government, but has to do with how you are performing against cost and schedule, and that is something anyone who runs a project would be interested in seeing. Done right, EVM lets you look at a two-page report to see if you are slipping your schedule and cost. We have some reports that just show us the exceptions so we can see those things and get them back under control.”

Tips and advice

Arndt offers the following tips to government contractors preparing to deliver projects under EVM contracts.

- As you develop or make enhancements to an EVM system, make sure that the customer is involved up front. If you are making assumptions, they may not be the same assumption your customer is making. Some of the EVM requirements are pretty vague, and coming to consensus on how to meet them before you start work can be important.
- When you are making a changes to an EVM system, do it at the lowest level of detail possible. At one point our customer wanted us to report on cost adjustments for estimated completion. When we first did that, we tracked just the single value – estimated completion. But later the customer came back and wanted to see a breakdown of that in a number of different areas. Planning for the more granular level of detail would have saved us time and effort.
- Look for enterprise software with a strong project costing module. It is also important to find a flexible system that can change with your business. Each contract will place new demands on enterprise software, and you need to be able to adjust to those project elements.

- The rule of Garbage In, Garbage Out (GIGO) applies to EVM, and EVM is really designed to ensure that good, concrete information is being used to drive timeline and budget data. That is why when you progress work, going down to the shop floor and asking someone what percentage of the work is done is not a reliable method. Expect to break down any job into discrete tasks and report when each specific task is completed. In some cases you might report whether the task is complete or incomplete, and in others, you may have to report whether the task has not been started, has been started or has been completed.

For your convenience, here are the 32 criteria used to determine EVM compliance ...

32 Earned Value Management Criteria

The 32 criteria can be broken down into five categories, including Organization, Planning Scheduling and Budgeting, Accounting Considerations, Analysis and Management Reports and Revisions and Data Maintenance.

Organization

1. Define the authorized work elements for the program. A work breakdown structure (WBS), tailored for effective internal management control, is commonly used in this process.
2. Identify the program organizational structure including the major subcontractors responsible for accomplishing the authorized work, and define the organizational elements in which work will be planned and controlled.
3. Provide for the integration of the company's planning, scheduling, budgeting, work authorization and cost accumulation processes with each other, and as appropriate, the program work breakdown structure and the program organizational structure.
4. Identify the company organization or function responsible for controlling overhead (indirect costs).
5. Provide for integration of the program work breakdown structure and the program organizational structure in a manner that permits cost and schedule performance measurement by elements of either or both structures as needed.

Planning, Scheduling and Budgeting

6. Schedule the authorized work in a manner which describes the sequence of work and identifies significant task interdependencies required to meet the requirements of the program.
7. Identify physical products, milestones, technical performance goals, or other indicators that will be used to measure progress.
8. Establish and maintain a time-phased budget baseline, at the control account level, against which program performance can be measured. Initial budgets established for performance measurement will be based on either internal management goals or the external customer negotiated target cost including estimates for authorized but undefinitized work. Budget for far-term efforts may be held in higher level accounts until an appropriate time for allocation at the control account level. On government contracts, if an over target baseline is used for performance measurement reporting purposes; prior notification must be provided to the customer.
9. Establish budgets for authorized work with identification of significant cost elements (labor, material, etc.) as needed for internal management and for control of subcontractors.
10. To the extent it is practicable to identify the authorized work in discrete work packages, establish budgets for this work in terms of dollars, hours, or other measurable units. Where the entire control account is not subdivided into work packages, identify the far term effort in larger planning packages for budget and scheduling purposes.
11. Provide that the sum of all work package budgets plus planning package budgets within a control account equals the control account budget.
12. Identify and control level of effort activity by time-phased budgets established for this purpose. Only that effort which is unmeasurable or for which measurement is impractical may be classified as level of effort.
13. Establish overhead budgets for each significant organizational component of the company for expenses which will become indirect costs. Reflect in the program budgets, at the appropriate level, the amounts in overhead pools that are planned to be allocated to the program as indirect costs.
14. Identify management reserves and undistributed budget.
15. Provide that the program target cost goal is reconciled with the sum of all internal program budgets and management reserves.

Accounting Considerations

16. Record direct costs in a manner consistent with the budgets in a formal system controlled by the general books of account.
17. When a work breakdown structure is used, summarize direct costs from control accounts into the work breakdown structure without allocation of a single control account to two or more work breakdown structure elements.
18. Summarize direct costs from the control accounts into the contractor's organizational elements without allocation of a single control account to two or more organizational elements.
19. Record all indirect costs which will be allocated to the contract.
20. Identify unit costs, equivalent units costs, or lot costs when needed.
21. For EVMS, the material accounting system will provide for:
 - Accurate cost accumulation and assignment of costs to control accounts in a manner consistent with the budgets using recognized, acceptable, costing techniques.
 - Cost performance measurement at the point in time most suitable for the category of material involved, but no earlier than the time of progress payments or actual receipt of material.
 - Full accountability of all material purchased for the program including the residual inventory.

Analysis and Management Reports

22. At least on a monthly basis, generate the following information at the control account and other levels as necessary for management control using actual cost data from, or reconcilable with, the accounting system:
 - Comparison of the amount of planned budget and the amount of budget earned for work accomplished. This comparison provides the schedule variance.
 - Comparison of the amount of the budget earned the actual (applied where appropriate) direct costs for the same work. This comparison provides the cost variance.
23. Identify, at least monthly, the significant differences between both planned and actual schedule performance and planned and actual cost performance, and provide the reasons for the variances in the detail needed by program management.
24. Identify budgeted and applied (or actual) indirect costs at the level and frequency needed by management for effective control, along with the reasons for any significant variances.
25. Summarize the data elements and associated variances through the program organization and/or work breakdown structure to support management needs and any customer reporting specified in the contract.
26. Implement managerial actions taken as the result of earned value information.

Analysis and Management Continued ...

27. Develop revised estimates of cost at completion based on performance to date, commitment values for material, and estimates of future conditions. Compare this information with the performance measurement baseline to identify variances at completion important to company management and any applicable customer reporting requirements including statements of funding requirements.

Revisions and Data Maintenance

28. Incorporate authorized changes in a timely manner, recording the effects of such changes in budgets and schedules. In the directed effort prior to negotiation of a change, base such revisions on the amount estimated and budgeted to the program organizations.
29. Reconcile current budgets to prior budgets in terms of changes to the authorized work and internal replanning in the detail needed by management for effective control.
30. Control retroactive changes to records pertaining to work performed that would change previously reported amounts for actual costs, earned value, or budgets. Adjustments should be made only for 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.
31. Prevent revisions to the program budget except for authorized changes.
32. Document changes to the performance measurement baseline.

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About IFS

IFS, the global enterprise applications company, provides solutions that enable organizations to respond quickly to market changes, allowing resources to be used in a more agile way to achieve better business performance and competitive advantage.

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IFS Applications provides extended ERP functionality, including supply chain management (SCM); enterprise asset management (EAM); maintenance, repair, and overhaul (MRO); product lifecycle management (PLM); customer relationship management (CRM); and corporate performance management (CPM) capabilities.

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