

EPM Tools & Cost; Something is missing

By Martin Vaughan

2 March 2015

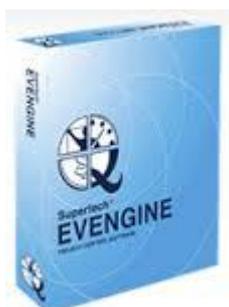
Overview

This whitepaper explores why organisations struggle integrating cost reporting with EPM tools and offers insight into the missing link – the cost engine.

Author

Martin Vaughan is the Managing Director and Senior Consultant with Core Consulting Group (CCG). He has been involved with a number of implementations of Enterprise Project Management tools such as Microsoft Project Server.

Martin has had 25 year long association with Roland Horat, Managing Director of Supertech, suppliers of EEngine, a cost engine for financial reporting.



Introduction

Today's Enterprise Project Management (EPM) Tools such as Microsoft Project Server, Primavera and Clarity can trace their roots back to scheduling tools of the late 1980s / early 1990s. Built initially to share schedules and resources, they evolved to include controls such as Issues/Risks, Documentation, Reporting and Performance dashboards. Resource Management, Timesheeting and Portfolio optimisation functions as well as workflow and automation are also common to them.

Although many claim to include cost reporting, they are usually simplistic (repeating manually entered data) and rarely integrated (to resource models, schedules etc.).

This paper explores Cost Management and reporting in EPM tools and suggests a workable, powerful model.

Multiple Data sources

Large Organisations will typically have a finance system which amongst other things keeps track of **Actual Costs**, accruals and usually approved **Funding** too. These systems are the primary data source for this data.

There is less consistency in where the **Estimate to Complete** is derived and maintained. Many organisations use spreadsheets, particularly those derived from an independent estimate (e.g. Bill of Quantities). Timing of expenditure as well as resource effort over time is often not integrated to Schedules. Other organisations use their schedules to derive the Estimate to Complete, particularly labour. So it is possible for the primary source of ETC to be a spreadsheet, the schedule or a combination of the two.

There is also less consistency in where the **Budget** is kept and maintained, in fact there is often misunderstanding as to what the word Budget actually means. Sometimes Budget maps directly to funding, other times the Budget is an independent set of cost data. Again the primary source of budget information can vary, sometimes a spreadsheet, sometimes the finance system, sometimes some other tool such as the schedule.

Data sources change from organisation to organisation, there will be at least two.

Why tools struggle with cost

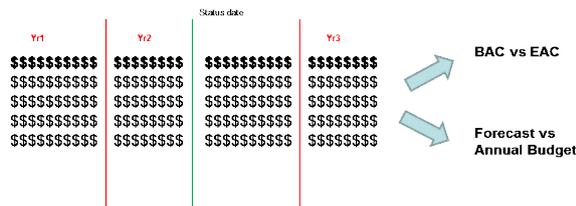
Terminology is particularly confusing, especially where an organisation may use terminology different from what industry uses. For example, an organisation may call the budget "Planned cost". Tools are often hard coded to use certain terms, whereas organisations may wish to use different terms or worse still terms in a different context to that used by industry.

Important tip – map the use of words within an organisation back to industry terminology. Ideally align an organisation to common use in industry – e.g. PMBOK terminology.

Data matching is only possible if data in the various systems shares a common key. In most project cost systems, this key is usually dictated by the finance system. Unfortunately the finance system often splits costs based on a taxation approach (e.g. CAPEX vs OPEX, by department etc.) whereas projects often like to break down by some other basis (e.g. WBS, labour/materials etc.). For any sort of integrated cost reporting a common key must be used, a **cost control account**. It is important to realise that the finance system will be

broken down one way, the schedule another. The only way to integrate is via common coding.

Time phasing of data is the other area of complexity. Government organisations in particular like to report monthly on "year to date" whereas many Project Managers wish to report monthly on "at complete". At the extreme, budgets may be split by cost control account then by month.



Time phasing of cost data is very difficult for EPM tools as their database just isn't set up for it.

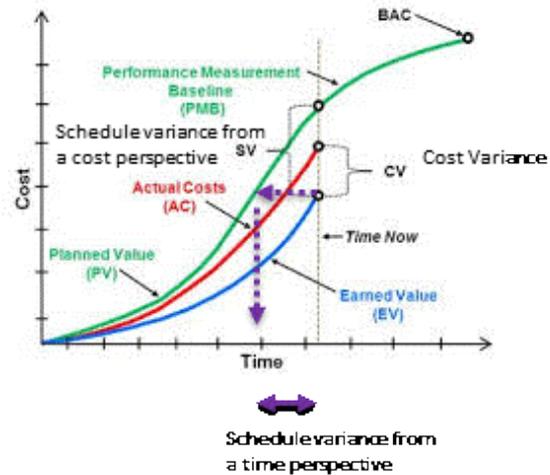
Cyclic data is another area people don't really understand. Actual costs are the output of the financial accounting process, which typically is monthly. Typically financial data will be made available several days after month end.

If the Estimate to Complete is schedule driven, the end of period status update must occur. This is typically done end of week, not necessarily end of month. Alignment will be needed.

So financial data is typically "published" monthly, not available in real time. EPM tools often champion real time access of data, unfortunately costs don't work that way.

Earned Value is probably the "Holy Grail" of cost management, introducing a third data element (derived from Budget and a measure of completion), which is compared to Actual and Planned Value (the time phased budget) to determine cost performance. It requires

maintenance of a Budget, especially changes to it, as well as alignment of Actual costs with the Earned value in the same reporting period. For tools, it requires keeping historical records of Earned Value for the reporting purposes.



Integration of the Cost Model to the Resource Model, to the Schedule, to the Timesheeting system and to the Risk log is a logical requirement. This may be difficult to do however if the data is split. For this reason, the Schedule, the Timesheeting and the Resource Model should all live in the EPM tool with the schedule driving them (ideally using "bucket tasks"). If fixed costs are allocated too (ideally using Milestones) then the schedule can provide time phased cost data.

Human nature is probably one of the greatest areas of complexity. People's approaches to not wanting to report bad news, to not allowing contingency, to playing funding games and many, many other games people play when it comes to cost makes it an area of complexity when it comes to trying to configure a tool to suit.

Tool and user limitations are another area of complexity to consider. Many organisations use MS Project for

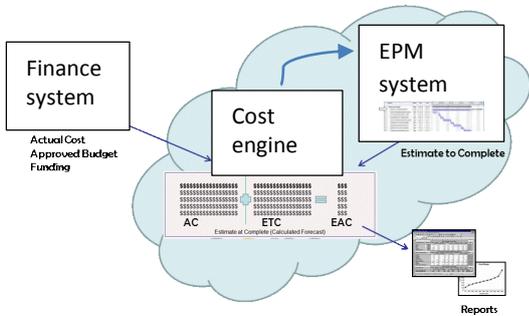
scheduling however the cost side of MS Project is quite limited and not robust enough for consistent cost reporting. There are limitations with every tool, not just MS Project.

There are the limitations with users' skills and knowledge. We see regularly inconsistent use of MS Project, poor scheduling practice, poor updating skills and limited capability when it comes to float analysis. To add an expectation of resource and costing in the tool, standards and training will be needed to uplift capability and consistency.

Important tip – Don't let Actual costs go anywhere near MS Project

The role of the cost engine

We have discussed complexity, it is now time to discuss solutions. Basically there is a requirement for a dedicated tool to sit between the Finance system and the EPM system.



Important to note in the diagram above is that the resulting reports and data (e.g. the Estimate at Complete or Forecast cost) can be sent back to the EPM System for reporting and summarisation purposes.

Case study 1 – The bespoke solution

One option many organisations consider is to build a bespoke solution for calculation and reporting. In a recent implementation of MS Project Server for a large corporate

customer of ours, a bespoke solution was built in the SharePoint database and Reporting solution by the EPM Implementation partner. A clever solution, it took the Actual Costs and Budgets from the Finance system and the Estimate to Complete from the MS Project schedule, combined them and provided reporting capability to a control account level.

Project Rolling Forecast Report

Project	Actual	Budget	ETC	EAC	AC	Budget	ETC	EAC
EST-001	100000	100000	100000	100000	100000	100000	100000	100000
EST-002	200000	200000	200000	200000	200000	200000	200000	200000
EST-003	300000	300000	300000	300000	300000	300000	300000	300000
EST-004	400000	400000	400000	400000	400000	400000	400000	400000
EST-005	500000	500000	500000	500000	500000	500000	500000	500000

What should be noted however, is that it required a significant level of scheduling discipline, customised coding of schedule items and consistent, defined statusing techniques.

A bespoke solution can be expensive and difficult to maintain, be careful.

Case study 2 – off the shelf tool (EVEngine from Supertech)

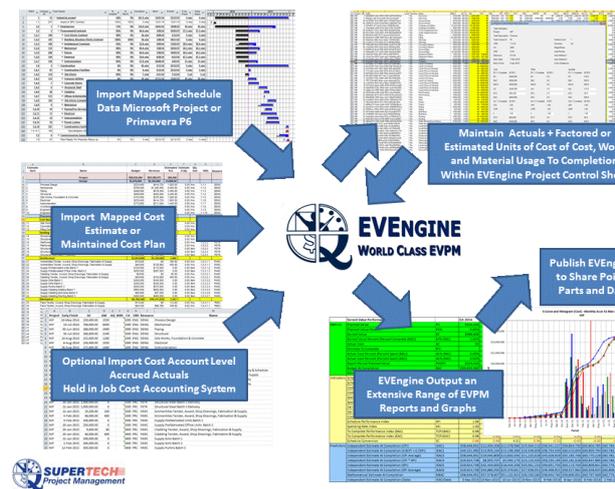
There aren't too many off the shelf cost engine tools. EVEngine from Supertech is one of them, a widely recognised, Excel "add-in" tool.

At the same large corporate customer that had the MS Project Server bespoke solution, they had a very large program of work with sophisticated cost reporting requirements including Earned Value. These requirements were way beyond the bespoke solution to deliver.

EVEngine was chosen to integrate units of cost, work and material usage plus schedule data held and maintained in

separate data silos. Accrued actuals were imported from a Job Cost Accounting system (or they could have been updated from within the EVEngine Project Control sheet). Estimates to Complete were derived from Budgets, factored based on performance to date (or they could have been entered directly). The solution then provides all the financial and EVM reporting, including metrics, performance indices and most importantly cash flow forecasts.

The same approach is being used successfully on a range of Government and Private Initiative Infrastructure and Industrial projects in Australia and Internationally.



Note the reports are published from EVEngine via SharePoint. Data could also be sent back to EPM, populating various data fields ready for summary reporting.

Tip – When determining tool requirements for cost, start with the reporting requirements and then work backwards.

Conclusion

If you wish to have anything more than simplistic cost reporting, you will need a cost engine of some sort. Build one (if you can), alternatively buy one. But be

careful, why re-invent the wheel when for much less effort and cost you can purchase something that will meet your needs.

Regardless of what you buy or build, there will be a need to define and agree terminology, define standards (for managing cost), train and support people.

If you need assistance, please don't hesitate to ring us.

References:

PMBOK 5th edition (2013) – In particular Section 7 “Project Cost Management”

PMI Practice Standard for Scheduling

AS4817 Australian Standard “Project Performance Measurement using Earned Value”

Supertech web site
<http://www.suptec.com.au/>

Core Consulting Group web site
<http://coreconsulting.com.au/>

Dwyer, C. (2011). SharePoint based Project and Portfolio Management tools.
www.coreconsulting.com.au/sharepoint-ppm-tools/