Earned Value Management

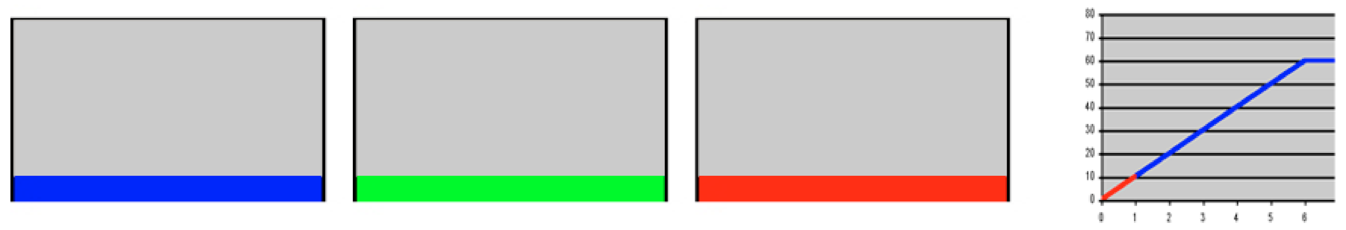
The Basic Earned Value Concept

Although the formulas associated with Earned Value are fairly simple, the concept has proven difficult to grasp for many people. Here is a simple example to make sure the concept is well understood.
The following graphic illustrates the progress and cost of building a wall. A plan is set and represented by the Planned Value Budget (BCWS). Progress Earned Value (BCWP) is monitored and Actual Costs (ACWP) are collected . You can see that trends have been plotted graphically on the right hand side. These charts compare our original plan with the progress made and costs incurred.

<u>Accidents will happen:</u>

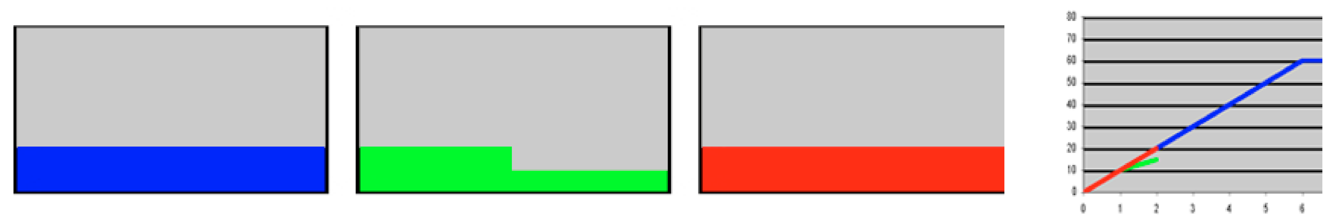
Week 1: The first course of bricks is planned and that's what we do. It costs what we planned. We earned what we planned.

Budget (BCWS) Progress (BCWP) Cost (ACWP)
Planned Value (PV) Earned (EV) Actual Costs (AC)



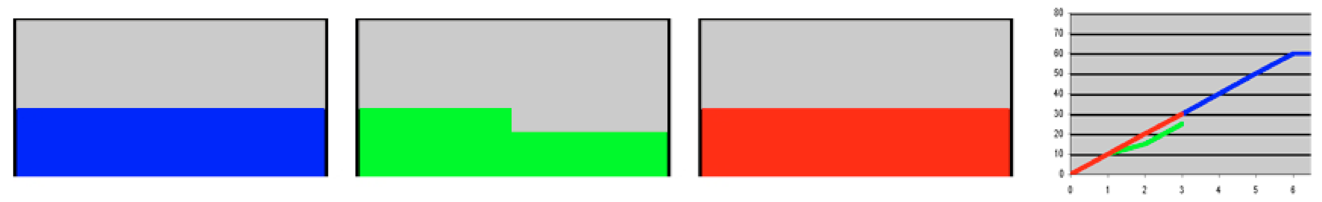
Week 2: The second course of bricks is planned. But due to the football being on we somehow only manage to complete half of what we planned. So it's cost what we planned (we were still there), but we've earned less. And we lost.

Budget (BCWS) Progress (BCWP) Cost (ACWP)



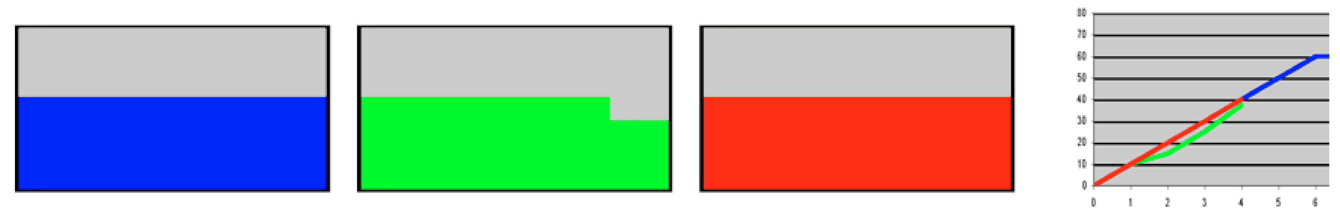
Week 3: The third course is planned. And there being no football we work at our usual fine pace. At the end of the week we're still half a course behind. So we haven't slipped any more. But we still earned less than we planned.

Budget (BCWS) Progress (BCWP) Cost (ACWP)



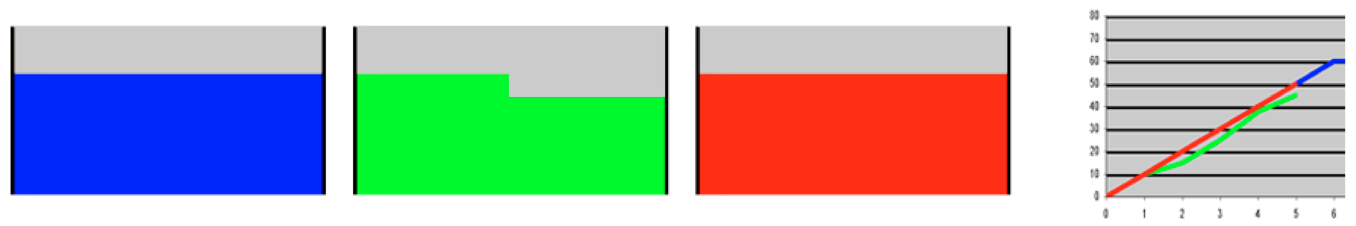
Week 4: The fourth course is planned. The boss suggests I take both hands out of my pockets simultaneously. This novelty speeds up my output and we catch up a little. But we're still behind.

Budget (BCWS) Progress (BCWP) Cost (ACWP)



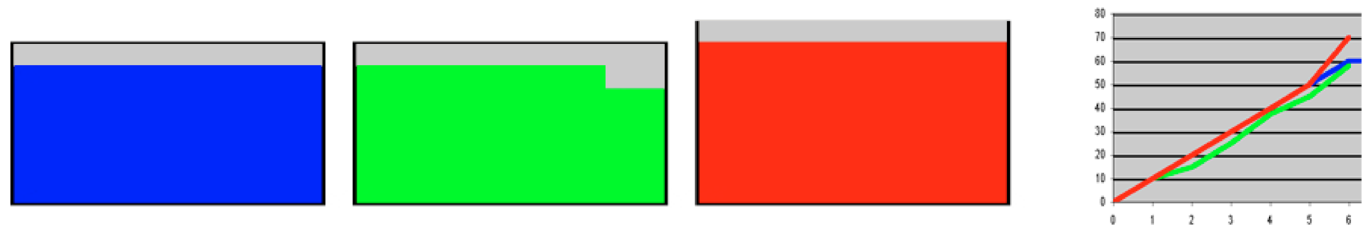
Week 5: The last planned week. We've spent all the money. Not convinced that two hands is a sustainable technique in the long term. So revert to one and my comfortable tempo. The miracle didn't happen and we still haven't finished. Don't know what all the fuss is about. We're nearly there. And next week is clear anyway.

Budget (BCWS) Progress (BCWP) Cost (ACWP)



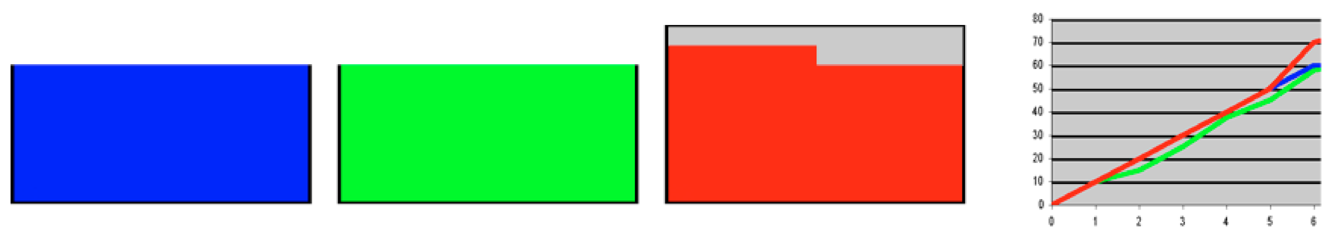
Week 6: Still not finished. Our nice customer found a whole week's extra money to finish the job. We feel really bad about letting him down again. Still haven't found anything to do next week.

Budget (BCWS) Progress (BCWP) Cost (ACWP)enefits of Earned Value



Week 7: Well we finally finished. And the customer found even more money. Again. Personally we'd sack the project manager. It was obvious from week 2 that something was up. He just stood there, took notes and watched the accident happen.

Budget (BCWS) Progress (BCWP) Cost (ACWP)



<u>What Could Have Happened:</u>

Whilst this shows a simple and therefore intuitive example, it also powerfully demonstrates the value of collecting this information on a more complex project where the outcome may not seem as obvious.

It was evident by looking at the data from week 2 that without some kind of management intervention the project was unlikely to complete on time and that this would have an adverse impact on the overall cost. It was also possible to predict what that final cost might be.

Faced with this information so early, the pro-active project manager has at their disposal information to allow effective management decision making: perhaps the completion date was not paramount, but the contract terms could have been renegotiated, or a better performing contractor found; or if cost was less important than schedule, additional resources may have been applied to ensure the completion date; alternatively the wall quality may have been sacrificed to both cost and schedule.

Only the Project Manager has the background to make the appropriate trade off but with Earned Value information, correctly understood, the Project Manager can be in a position to reliably make those decisions very early whilst the impact may still be mitigated (in this case after only 2 weeks!)

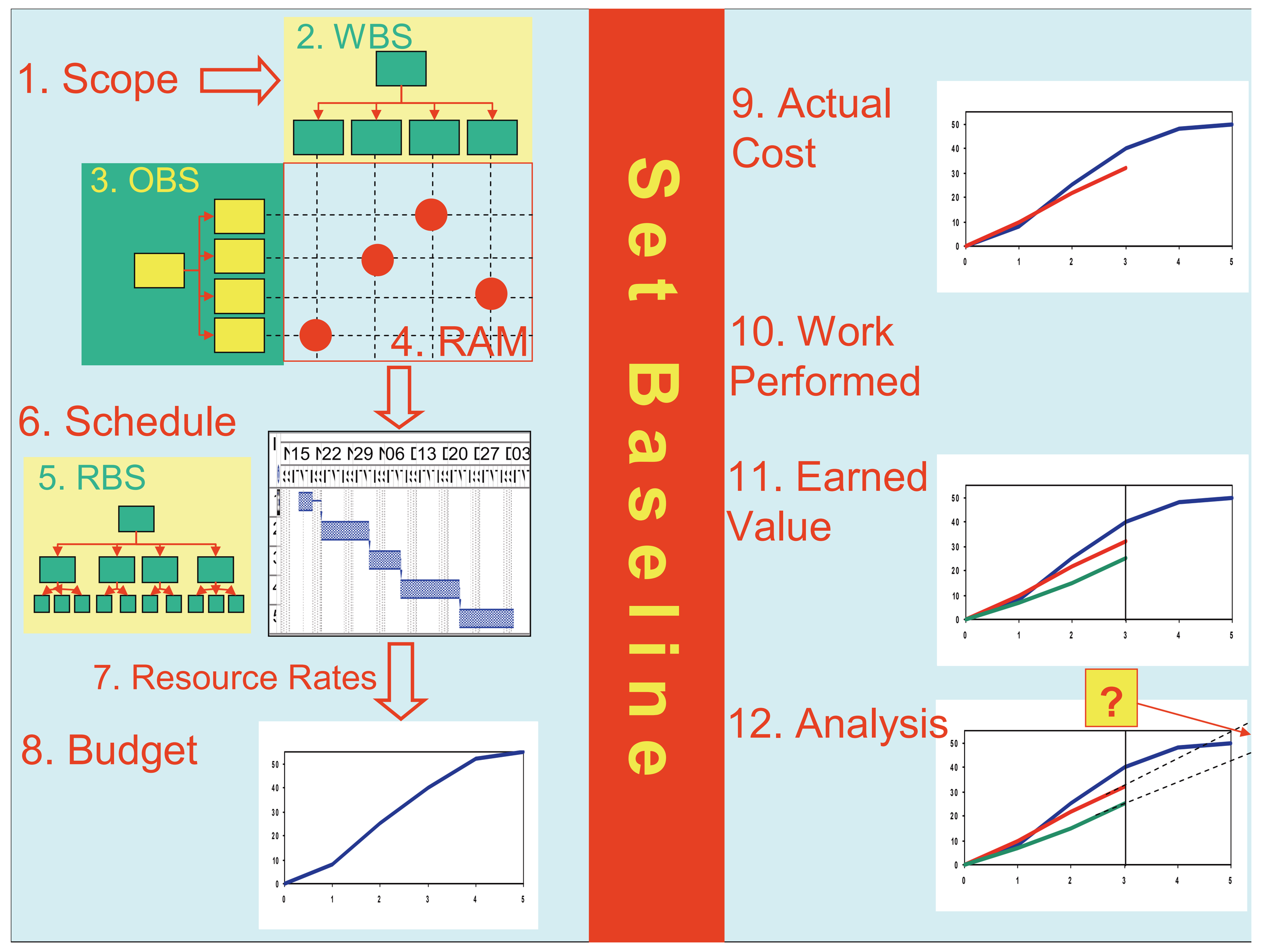
Benefits of Earned Value

EVM is the best way to determine the real status of a project. As well as telling you how much you have spent, it shows you how much you have achieved. Further, it tells you how much you still need to do and provides a good indication of final costs and expected completion dates.

- EVM builds on, and therefore enforces good Project Management practice and underpins good corporate governance. Its introduction can drive the cultural and organizational change key to supporting these objectives.
- EVM provides and objective measurement of what has been achieved on a project.
- EVM enables accurate forecasting.
- EVM provides project management information in a format that is easy for all stakeholders to understand and act upon.
- EVM is an Early Warning System that allows the timely identification and analysis of progress and cost issues and corrective actions to be identified.
- EVM shows stakeholders whether they're getting Value For Money.
- EVM enables detailed project comparisons across programmes.
- EVM can be used on a wide range of project sizes and complexity.

The Project Management Process with Earned Value

Here is another way of looking at how Earned Value is part of the Project Management process.

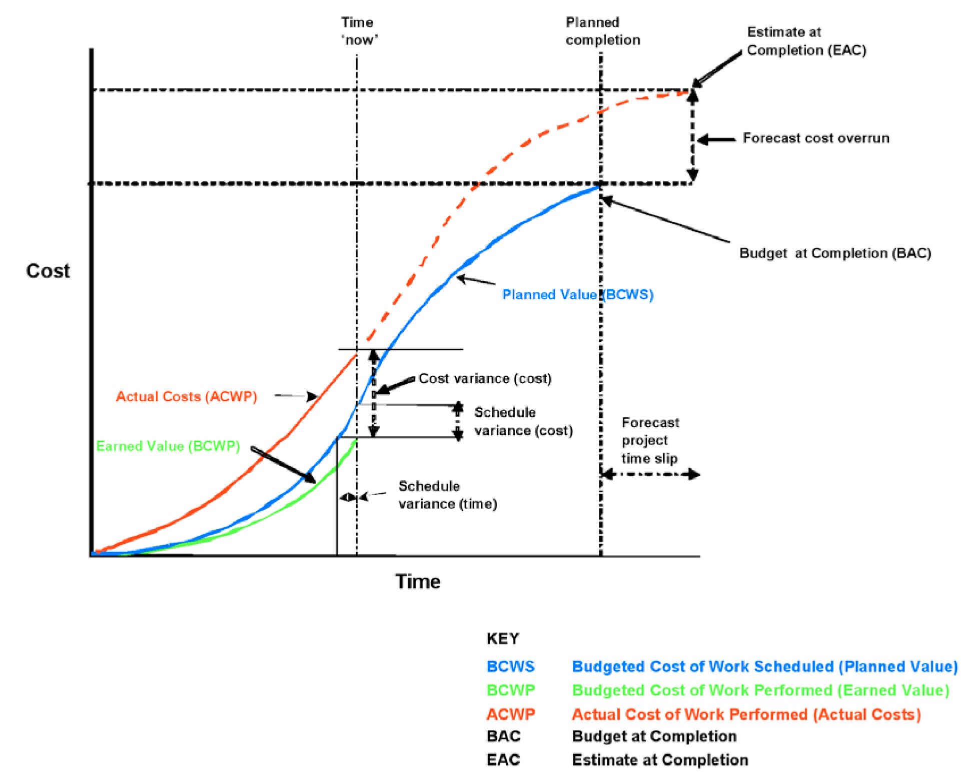


Steps 1- 8 are Project Set up. At this point you have a Performance Measurement Baseline.
Steps 9 – 12 are Controlling the Project
The amount of set up work must be appropriate to the size of project. EVA does NOT require massive software upgrades or investment. Simple implementations have been shown to be possible with no special software. Training is necessary to encourage the use of EVA output. Some companies have quoted a small number of man days used to set up EVA systems, based on company written spreadsheets. Similarly time is spent producing weekly reports, but this is not additional time, but time that would be spent on whatever the non EVA control tool is.

Fundamentals of Applying EV to Projects

1. Define Scope.
2. Develop the WBS.
3. Schedule the work.
4. Apply budget estimates to the programme.
5. Profile the budget.
6. Do the work.
7. Measure performance.
8. Analyse results.
9. Forecast future outcomes.
10. Take preventative or corrective action.

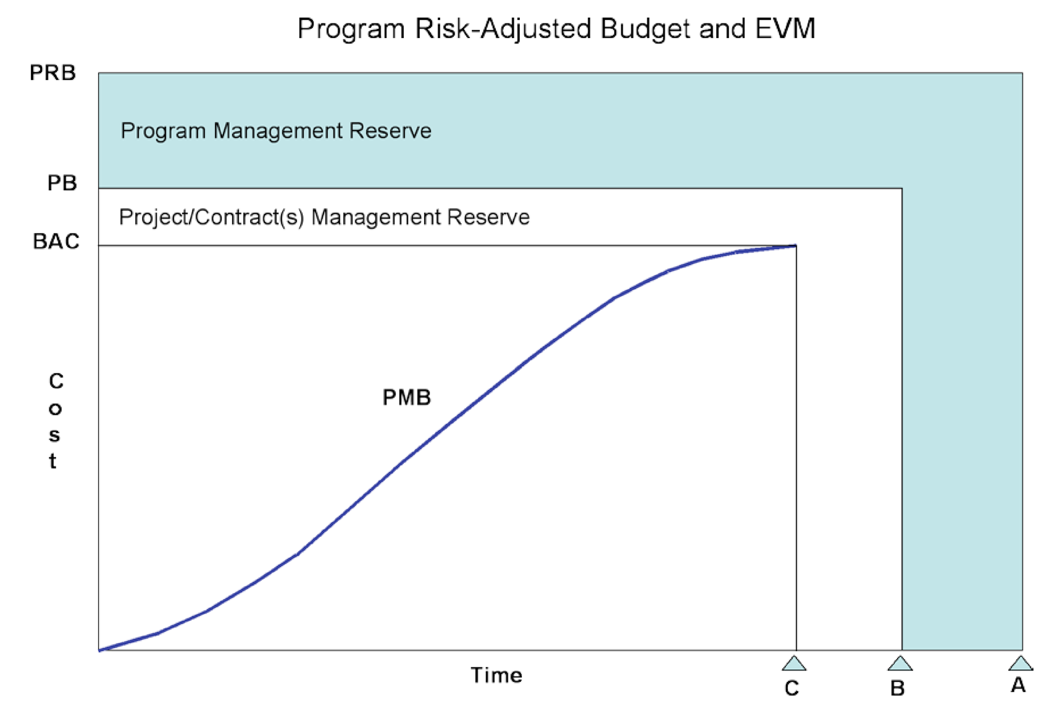
Earned Value Terms and Methodology



The above graphic is a simplified version of the classic representation of everything you need to know about Earned Value. It is reproduced with the kind permission of the UK Association for Project Management Specific Interest Group on Earned Value. As you can see there are a few abbreviations to get to grips with.

Interpretation

The above example shows a project in trouble. The Earned Value is below the plan and the actual costs exceed the budgeted costs of that planned work. So there is every reason to believe that the project is in trouble. But, before you start to react, make sure that you check the data. Is the Actual data accurate? Do you now know the estimate to be flawed? What is an acceptable variance? Is the picture you're looking at appropriate for the assessment you're trying to make? What intrinsic knowledge does the Project Manager have that might belie the data? Is it pitched at the right level? Often high-level summaries can give a false sense of security, masking problems at lower levels of detai



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