



The aim of this presentation is to share lessons learned from using a project performance management system that is based on Earned Schedule Management.

Earned Schedule Management is a new method created by Walt Lipke in 2003.

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In the last couple of years, 68% of the projects were cancelled, or faced cost overruns, schedule overruns or were not fit for purpose.

If this number is true, this means that every time any of us start a new project, we will only have one in three chances to succeed...that is pretty scary.

The project that I will talk about today was part of this statistic , but a new project management team was brought over to turn around the project and deliver it on time.



In the next twenty minutes, I will talk about lessons learned from using a new technique called Earned Schedule Management and it was first released in 2003 by Walt Lipke.

First I will quickly talk about the challenges we found in the project and the dashboard used.

Then I will explain why Earned Schedule Management is a method that delivers better results than Earned Value Management.

Finally, I will share some lessons learned.

As this a quick 20 minute presentation, I would suggest to go through the presentation and then open a Q&A session.



First let me talk about the Northern Network Alliance or NNA

NNA is delivering \$450 million of water infrastructure, to provide water supply between Noosa and North Pine, as an extension of the South East Queensland water grid.

NNA includes design, construction and commissioning of a 48 km water pipeline, pump stations, water quality management facilities.

There are three projects under the Alliance:

- Design
 - Construction
 - Corridor

Design and Construction are pretty straightforward. The scope of the Corridor project is to acquire the land needed to build the pipe, obtain the necessary government approvals, ensure all the environmental permits are in place. Additional teams form part of the Corridor project, they provide support such as satellite mapping, community liaison, structural surveys, etc.

I will talk about the Corridor project, I was assigned as Deputy Project Manager in early 2009.



Back in early 2009, these were the challenges that the new project management team found.

First, a detailed scope statement was not available. This does not mean that each team leader did not know what to do, but it means that the project did not have an integrated view of all the effort and verifiable pieces of work

Then, a schedule was in place but with not a lot of detail. Level-of-effort bars were put into the programme but with long durations, in my opinion it did not help to identify relevant gates of a sequence of activities.

Also, the Construction team had a bunch of dates when they planned to start but there was no way we could forecast whether those target dates could be achieved or not.

As a consequence, it was not possible to “marry” progress vs specific deliverables.

As you may imagine stakeholders did not have visibility on the progress or problems to tackle...

Five fundamental questions



What is the current progress? (...I mean, *real* progress)

How productively are we using our time ?

How many weeks is the project ahead/behind plan?

How are key deliverables going?

Will the project need more time to finish?

We knew we had to be able to answer these questions in a consistent manner to turn things around.

(Make a pause)

By doing this, we would be able to gain trust from the client and influence a change of behaviour in the eight teams that formed the Corridor project.

So, planning started from scratch using a deliverable-based approach and then we ended up identifying approximately 3 thousand deliverables.

Examples of deliverables are: construction licences, tunneling permits, environmental plans, etc.

A deliverable-based planning approach was used because the only way to answer these questions was using Earned Value Management...but an additional step was made...we used a very new technique called Earned Schedule Management

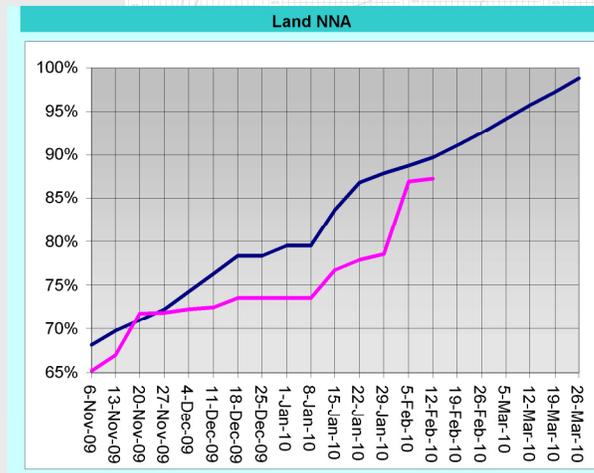


So this is the way the five fundamental questions are answered on a weekly basis.

Every week, I sit down individually with each of the eight team leaders to check progress on the activities finished and, if necessary reforecast. Then, the dashboard is produced.

The next day, Friday morning, the team leaders, myself and the Corridor project management discuss progress, performance and next steps.

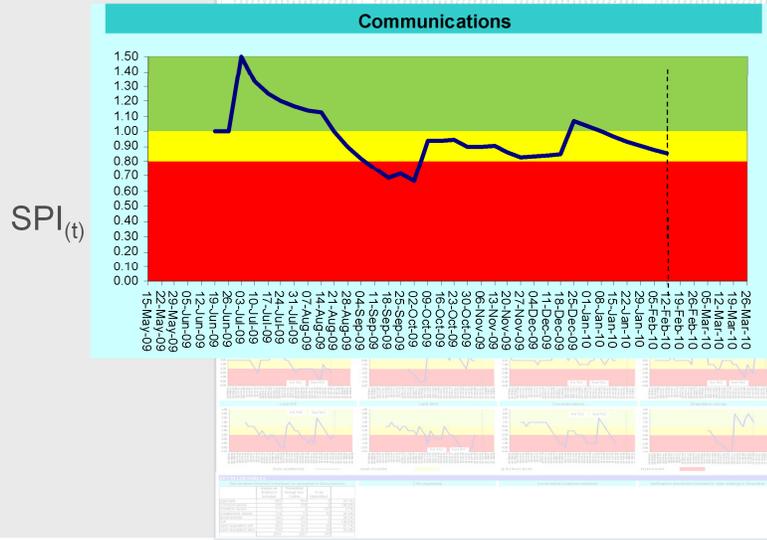
Current progress



(SHOW SNAPSHOTS)

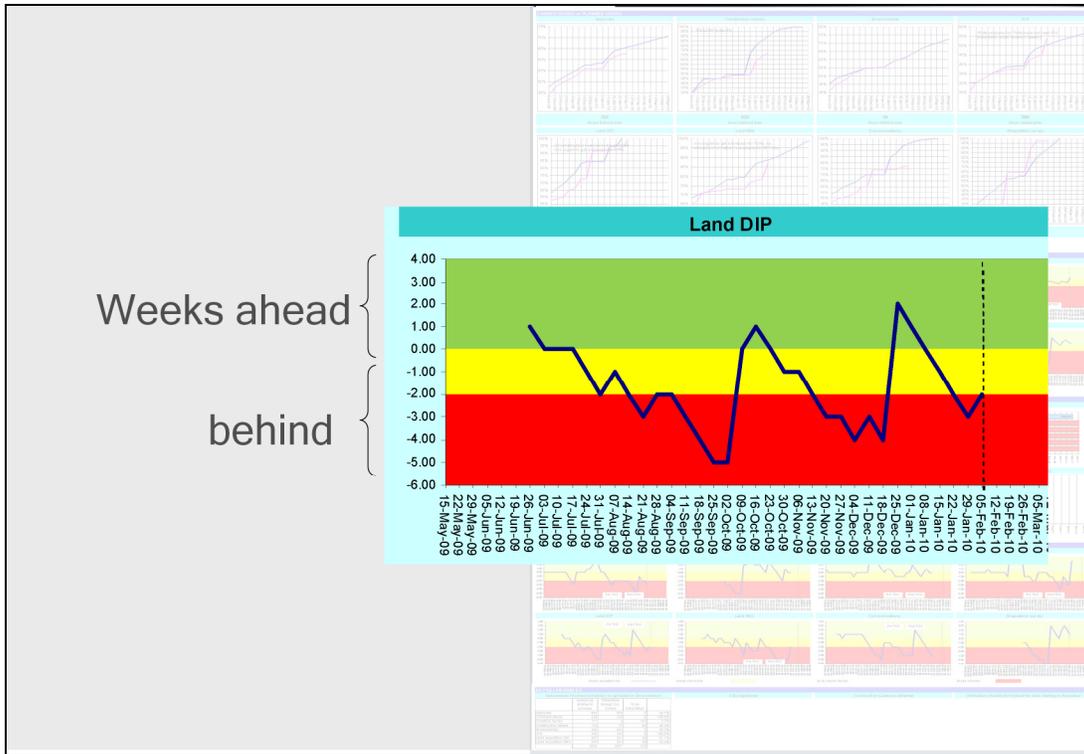
Real progress: This section in the dashboard shows this week's progress vs. planned progress (or EV vs PV)

Schedule Performance



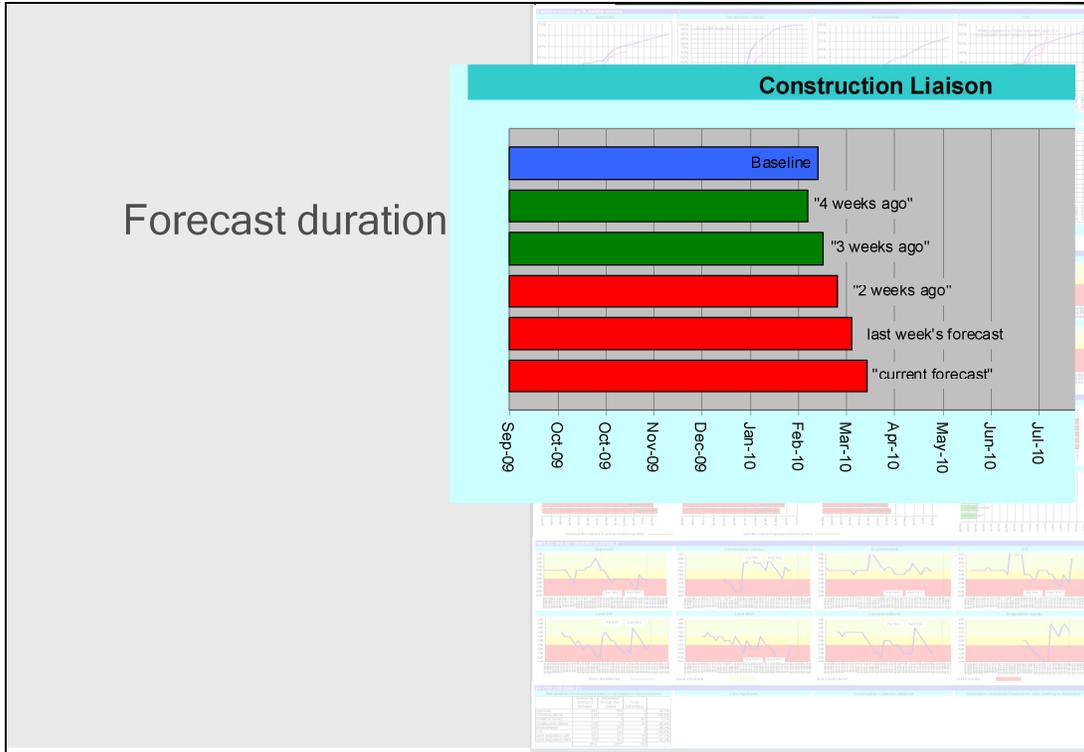
(SHOW SNAPSHOTS)

Performance: This is SPI(t), the project manager defined that underperformance of more than 20% was enough to enter into the “red zone” and take corrective action.



(SHOW SNAPSHOTS)

Weeks ahead/behind: this is $SV(t)$ using earned schedule. The “red zone” starts with a delay of three weeks.



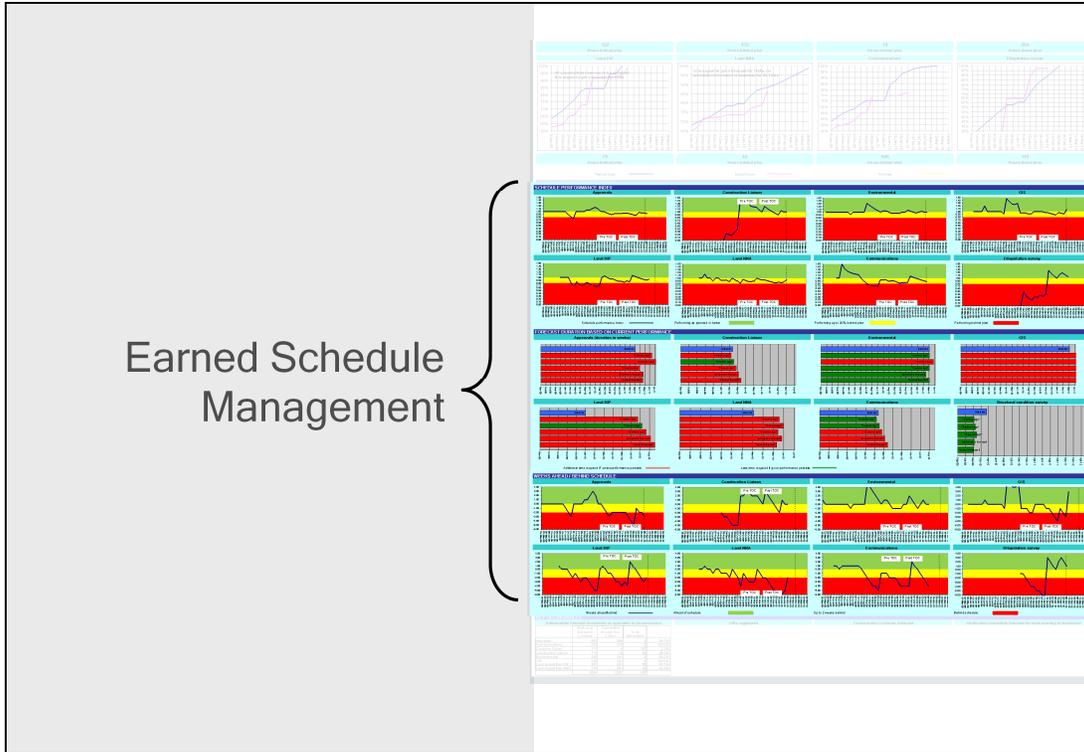
(SHOW SNAPSHOTS)

Forecast duration: this calculates completion date based on current performance.



(SHOW SNAPSHOTS)

This section shows specific deliverables we want to follow up



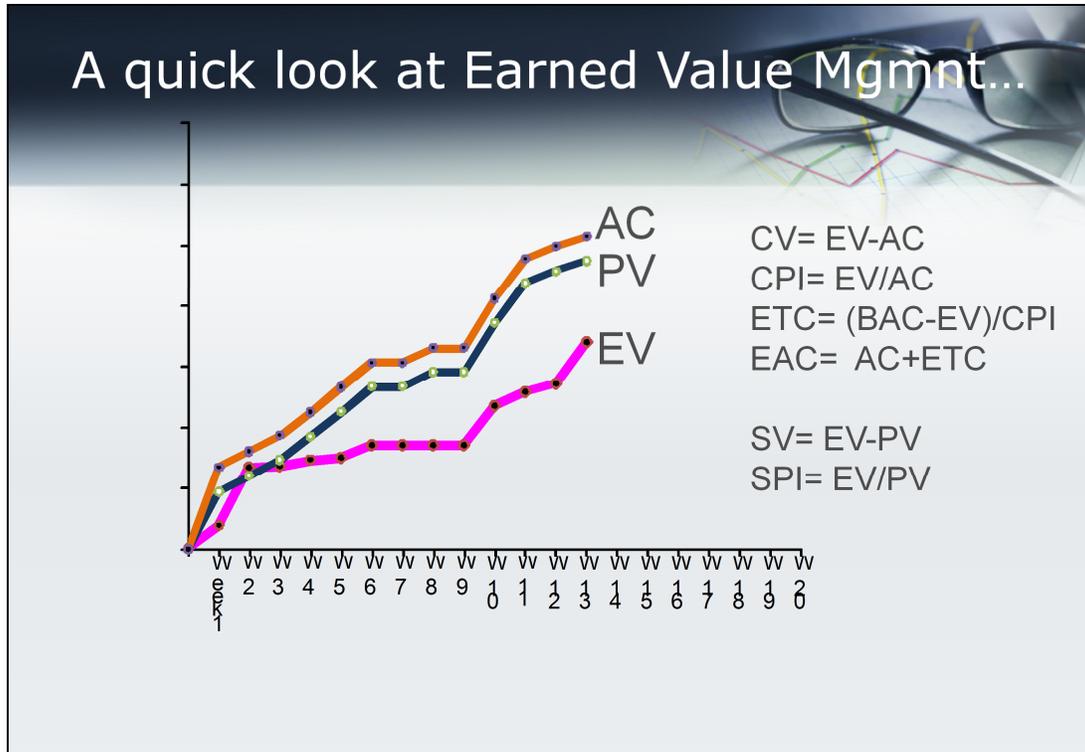
(SHOW SNAPSHOTS)

Please note that this section of the dashboard is calculated using Earned Schedule



Ok, so we talked about the five fundamental questions we have been answering using Earned Schedule Management.

Now it is time to take a look at Earned Schedule Management and how it is different from Earned Value Management.



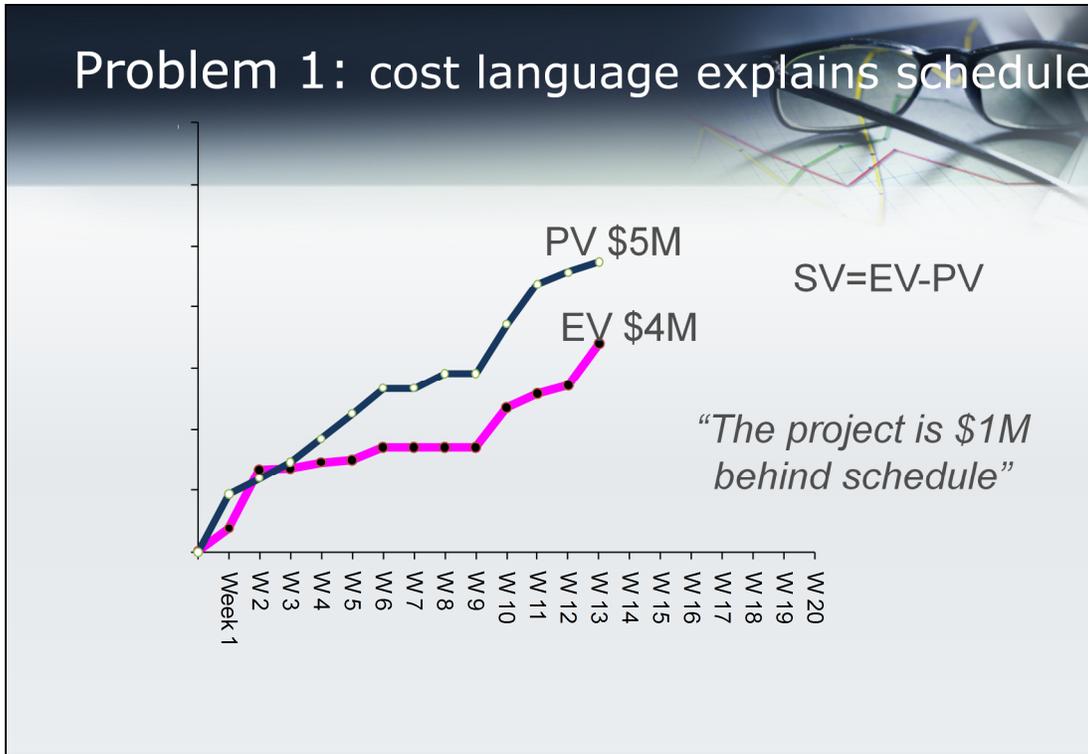
So, how is Earned Schedule Management different from Earned Value Management and how does it work?

First, I need to take a quick look to Earned Value Management

As you may remember, there are always three parameters present in EVM: Planned Value, Actual Cost and Earned Value

With these three parameters a series of indexes and ratios can be obtained (show CV, CPI, EAC, ETC, SV, SPI)

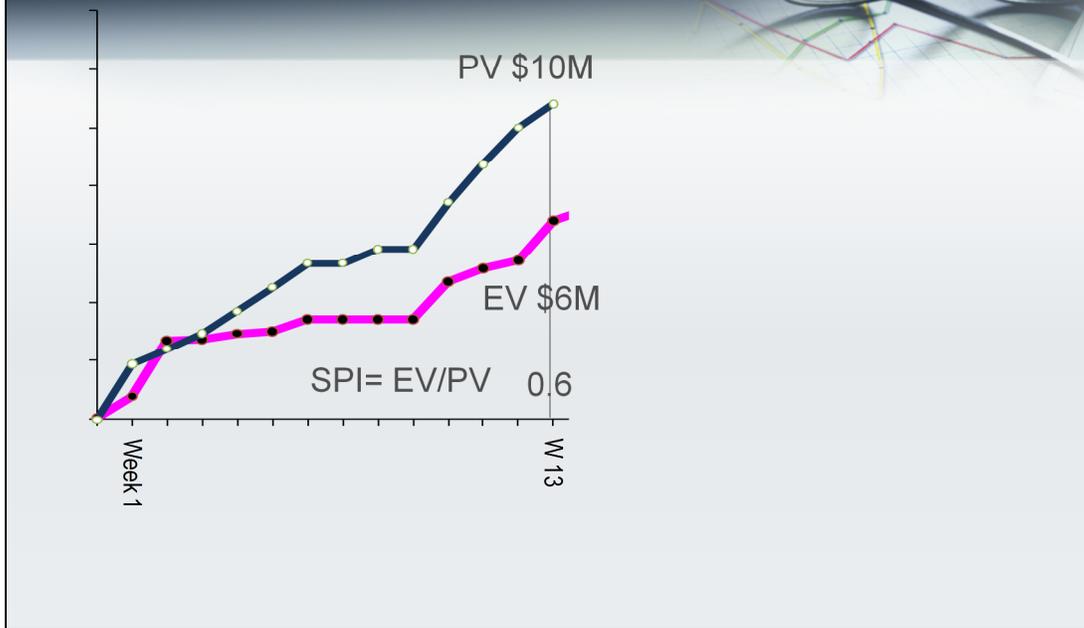
It has been documented that CV, CPI, ETC, EAC (all these are indexes from the cost side of the project) are very accurate but there is a problem with the schedule side.



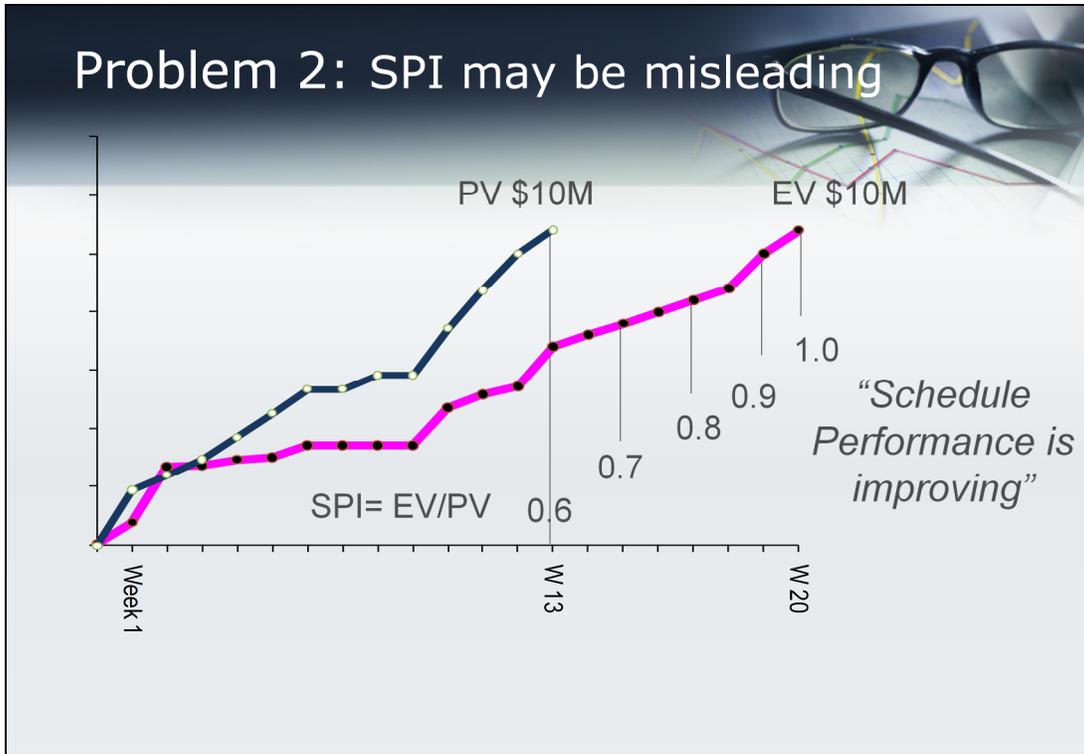
Problem 1 is that schedule indexes are not clear: in this example EV is \$4M vs a PV of \$5M. Using the “traditional technique” ($SV = EV - PV$), Schedule Variance is \$1M.

So, the project is \$1M behind schedule...I guess it is confusing because it uses “cost language” to explain schedule.

Problem 2: SPI may be misleading

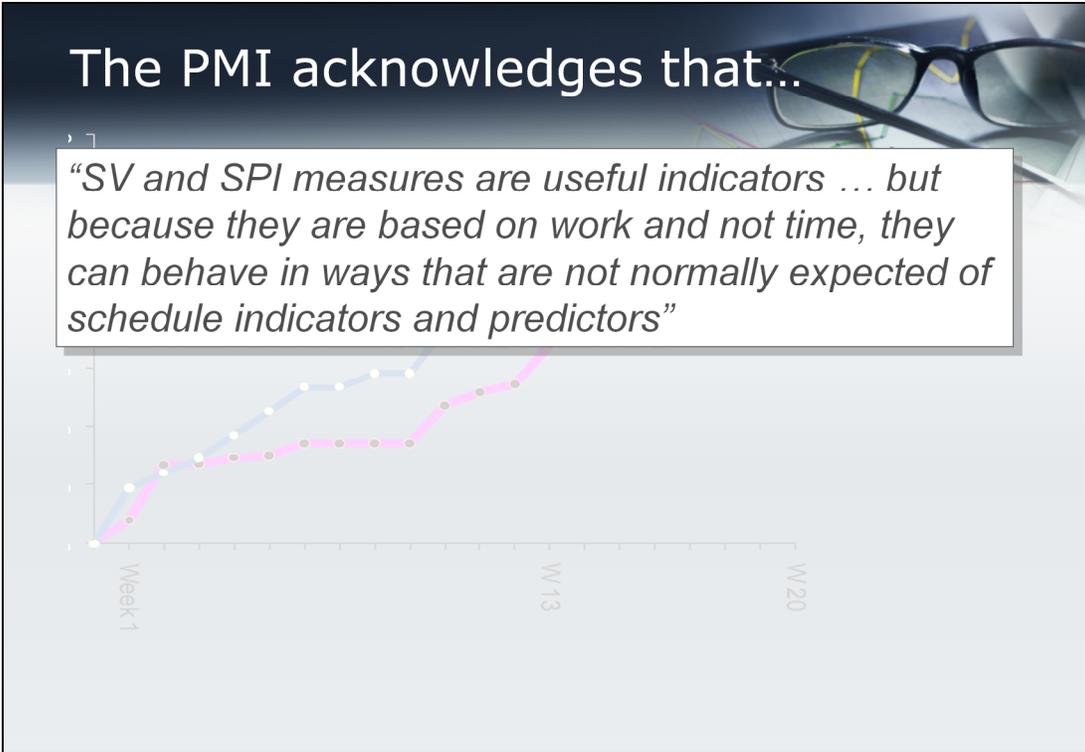


Problem 2 is that SPI becomes irrelevant when a project faces serious delays. In the second example, the project should have finished but is running late with a SPI of 0.6.



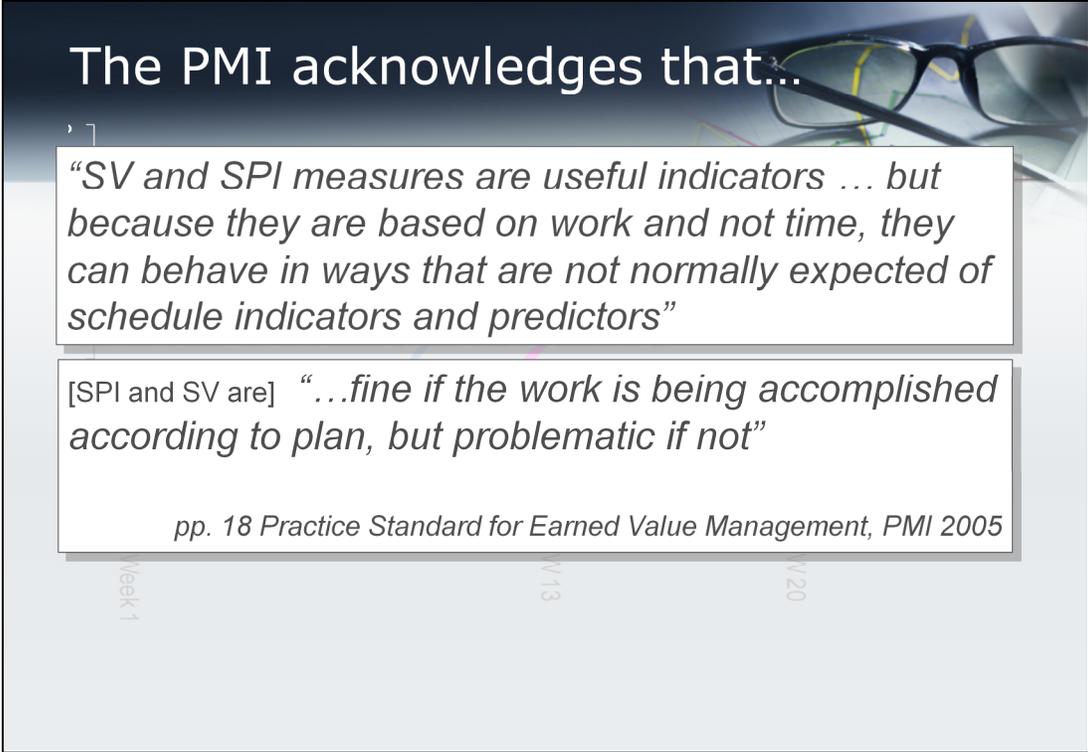
Then the problem appears in the following reporting periods because SPI shows performance is improving.

How can performance improve if the project is already late? The answer is in the way the “traditional” SPI is calculated...because it always tends to 1.0



These problems are not new, they have even been acknowledged in PMI's EVM Standard....”

These SV and SPI measures are useful indicators.... But because they are based on work and not time, they can behave in ways that are not normally expected of schedule indicators and predictors”



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“SV and SPI measures are useful indicators ... but because they are based on work and not time, they can behave in ways that are not normally expected of schedule indicators and predictors”

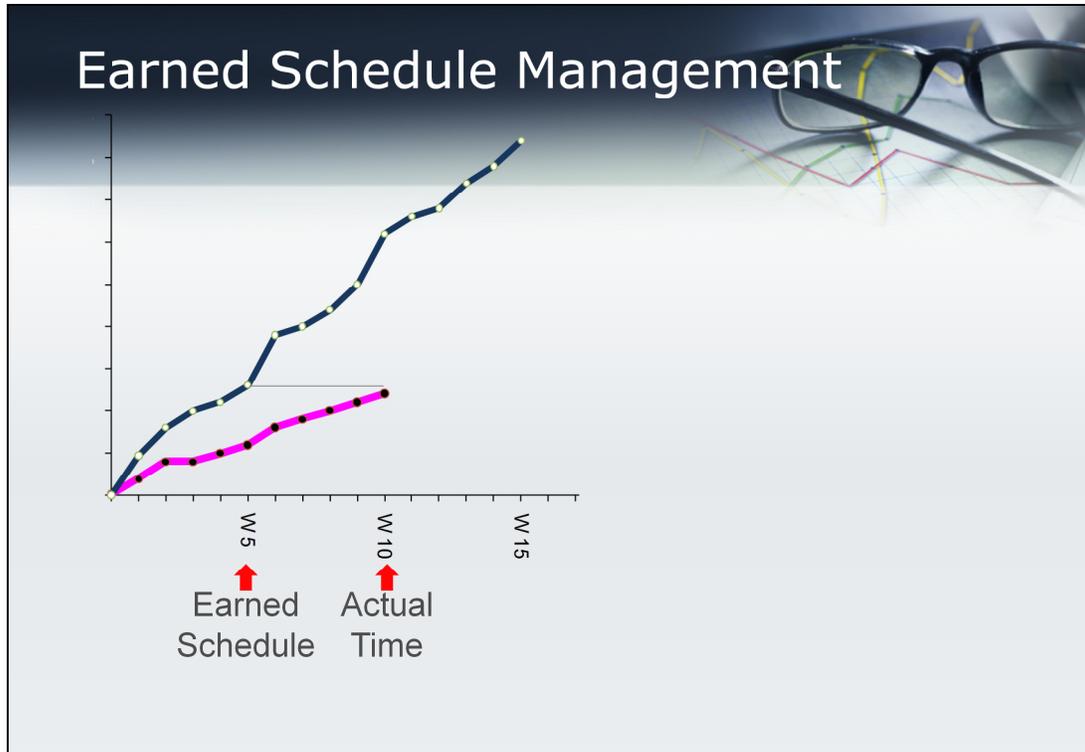
[SPI and SV are] “...fine if the work is being accomplished according to plan, but problematic if not”

pp. 18 Practice Standard for Earned Value Management, PMI 2005

Week 1 V13 V20

Additionally, the Standard says SPI and SV are “...fine if the work is being accomplished according to plan, but problematic if not”

I guess with this evidence we can say that EVM works fine for cost but not for the schedule dimension of the project.



Lets take a look at how Earned Schedule management works and how, combined with EVM, can be a very powerful tool for project managers.

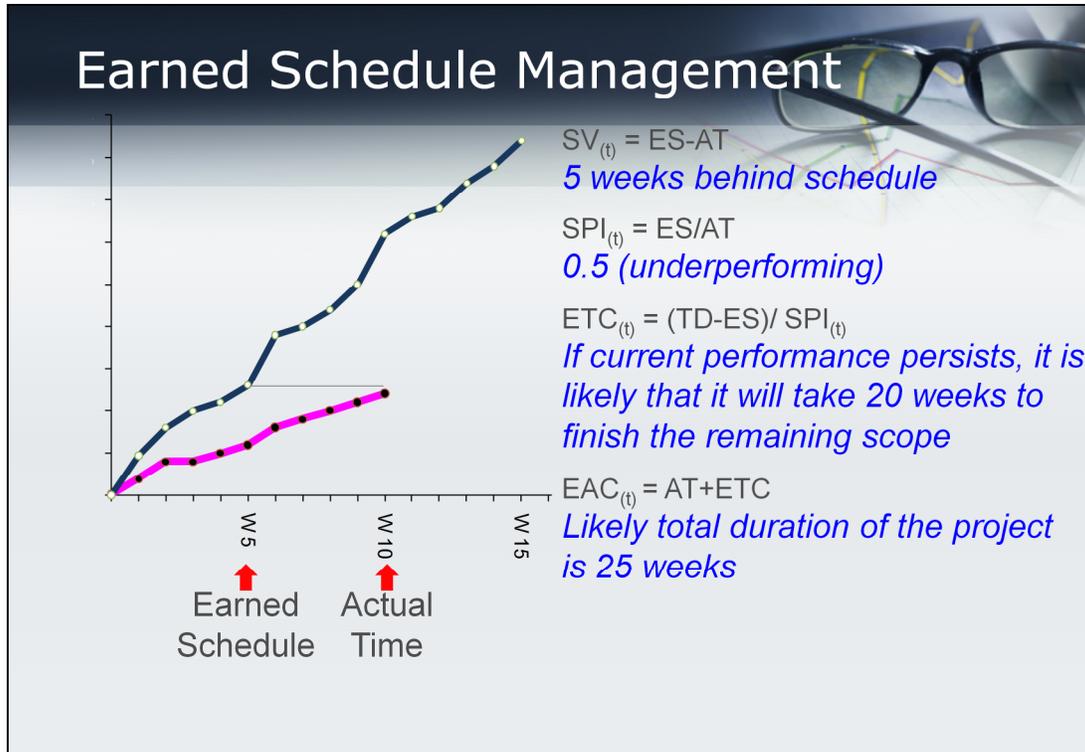
First, I need to say that Earned Schedule Management can not exist without the three basic parameters discussed previously. So if you hear someone saying that ESM will eliminate the need for EVM, you can tell that person he is wrong.

Earned Schedule Management is an alternative and more accurate way to measure and forecast the schedule dimension of a project. It was created by Walk Lipke in 2003.

ESM uses two concepts: Actual time and Earned schedule. These two concepts are the basis for measuring performance and forecasting duration.

Actual time is easy, it reflects how many weeks have passed since the beginning of the project. There may be cases where a project is updated monthly, so Actual Time will represent the number of months since the project started

Earned schedule is also easy, it represents the number of weeks that, according to the plan, would have taken to achieve the current progress...or Earned Value...



This technique also calculates Schedule Variance. So in order to differentiate Schedule Variance from the EVM technique, a (t) is added to SV(t). Schedule variance is calculated subtracting actual time less earned schedule $SV(t) = ES - AT$. If SV(t) shows a negative result, it means the project is weeks behind schedule, if the number is positive it means the project is ahead of schedule.

Schedule Performance Index also has a (t) and tells us how productive we are in terms use of time.

Similar to EVM, it is possible to determine Estimate To Complete ETC(t) and Estimate At Completion EAC(t) using time units rather than cost units.



Ok, so we talked about how Earned Schedule Management provides better results than Earned Value Management when we need to calculate the schedule side of the project.

The next step is to talk about some lessons learned during the last year with the use of the dashboard and Earned Schedule Management.

But first, let me ask you something:

Please raise your hands those who have worked in a project that used a dashboard to monitor performance?

Ok, now please raise your hand those who found the dashboard useful and reliable source of information?

You know? I believe one of the reasons of this is that reporting project performance can be too complicated...

Lesson learned 1 Keep things simple



The first lesson I learned is to keep it simple

The first versions of the dashboard had all these data...and more than one team leader looked at the dashboard and gave me the “what are you talking about” look.

For people like us, project managers who like project performance, all these metrics are very interesting....but the rest of the people do not care. The Corridor team was formed by accomplished environmental scientists, intelligent urban planners, experienced engineers, etc...the weekly dashboard had to be customised to suit their needs.

We kept it simple by only using the essential information...but the “aha!” moment came when the team leaders started developing their own language to these metrics.

LL #2 Transparency leads to accountability



...expect some pushback

Transparency leads to accountability and some people will be happy and some people will not be happy because underperformance can not be hidden anymore...so expect some pushback.

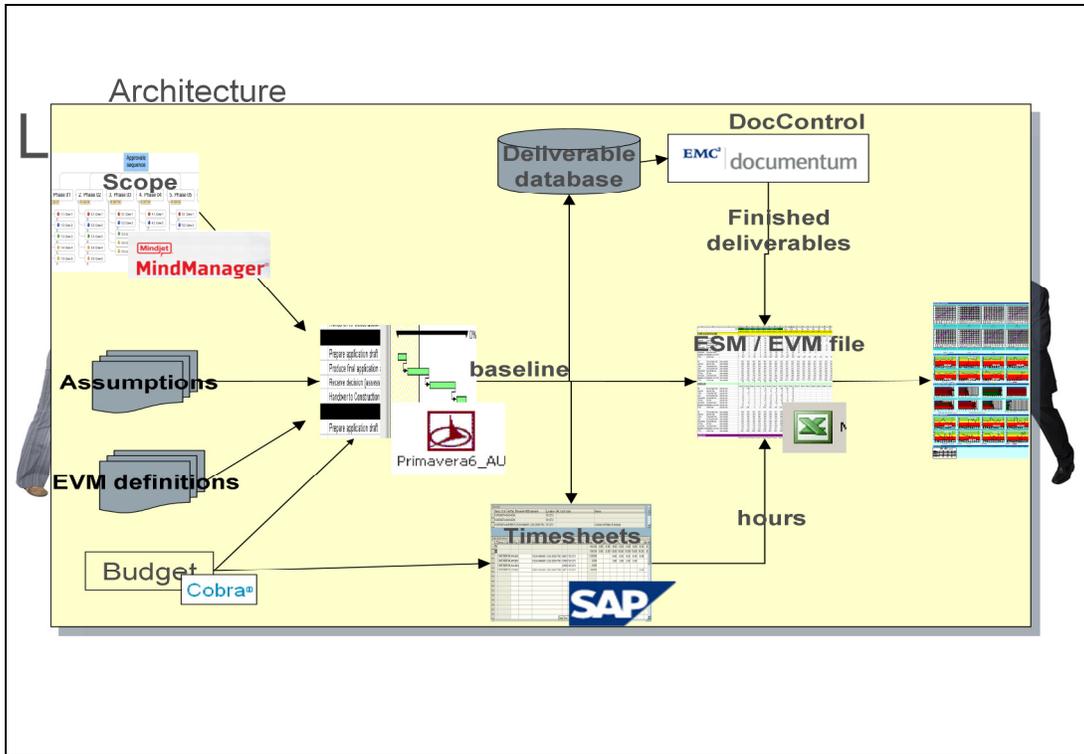
I remember when a team leader said his scope could not be measured because his process was too complex...but if you think about it, massive military projects use these techniques to measure performance. Project managers need to be willing to really read between the lines to understand why a person is resisting. It turned out that that he was worried because part of his scope was to obtain approvals from local and federal agencies and in some cases it could take between 3 weeks and 3 months to get the decision. He was worried about how his performance would look like if the worst case scenario happened.

In my experience, everybody is happy if numbers show a good performance, but project managers need to be prepare to demonstrate that metrics are solid because when performance goes to the “red zone” the honeymoon is over.

LL #3 it takes time and patience



It takes time, patience and a huge team work effort to put together the necessary pieces to set up a project performance management system. So, project managers, if you want to implement something like this you must be willing to invest the time at the beginning to define scope up to a deliverable level, define and challenge assumptions, resource the schedule of works, and to constantly challenge the numbers...



It took weeks, between 3 and 4, to set up the project performance system with the following architecture (show architecture).

LL#4 Active support from the top



Communicate

Help

Be involved

Be consistent

Challenge

The only way a performance management mechanism like this can work is through hands-on, active managerial support.

In my view, what I would expect from a project manager like you is the following:

- Communicate early in the project the way you plan to monitor performance. This will define expectations.
- Help to define the scope and provide input to build sound assumptions.
- Be involved when explaining to team members how project performance management works. If team members perceive that you understand and value this method they will feel it is not only fancy graphs and nice colors.
- Be consistent when reviewing performance. If you defined weekly reviews, attend the weekly reviews and use the information. (Lead by example)
- Be prepared to challenge constantly the assumptions, numbers, and trends...this will help to strengthen the project performance measurement system.



Happy to discuss, anytime...

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Finally, I would like to add that I believe Earned Schedule Management will continue as an emerging trend and will become a very powerful tool for all of us. IF we embrace this technique, it will give us a competitive advantage over the rest of the project practitioners.

Please feel free to send me an email to talk about this topic, consulting opportunities, or whatever you want to discuss.

Thank you for your time