

Controlling agile and distributed projects

A new Paradigm for Success

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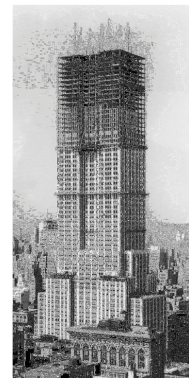


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Introduction

- Traditional 'hard' projects have been managed using CPM and/or EVM for decades
- These tools can provide a reasonable level of control
- **Provided the tools are used appropriately**



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Introduction

- But there is a class of project, where CPM cannot provide a solution
- **Projects where there is no particular requirement to undertake most of the work in any sequence**
- These are defined as 'Class 3 Projects*'
 - Distributed projects, and
 - Soft projects



*See: *Scheduling Challenges in Agile & Distributed Projects*:

https://mosaicprojects.com.au/PDF_Papers/P208_Scheduling_Challenges_in_Agile_+_Distributed_Projects.pdf

Introduction

- **Soft projects have largely abandoned CPM and gone 'agile'**
- There are many different forms of agile involving different tools and techniques: Scrum, SAFe®, Disciplined Agile, Kanban, etc.
- Across all of these different methodologies, the essence of agile remains:
 - Intelligent flexibility; the people doing the work choose what to work on next
 - Scope changes are welcome as long as the change increases the overall value
 - Focus is on deliverables (early and often) and the project stakeholders



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Introduction

- Managing distributed projects is more complex

The degree of constraint on the sequencing of work varies across a spectrum

Very few constraints

Highly constrained

Almost any sequence of work is acceptable



Agile approaches to management work well

Considerable flexibility in some aspects of the work but not others



Overall work flow needs deterministic planning but agility is required to optimize some aspects

The sequence of work is largely predetermined



Traditional deterministic (CPM) planning works well

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Class 3 Projects

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Introduction

- Class 3 construction projects respond well to techniques such as 'Lean' and 'Last Planner'
- But applying agile and lean approaches to optimizing production means:
 - There are only limited controls tools to measure progress
 - Virtually none to consistently predict the expected completion
- EVM augmented with Earned Schedule is one option
 - But most projects don't use EVM
- **A simpler solution is Work Performance Management (WPM)**

Work Performance Management Concepts

- WPM uses an impartial measure of the quantum of work planned and achieved at a point in time
 - The amount of work planned to have been achieved at a point in time
 - The amount of work actually achieved at that time
- Any convenient metric can be used to measure 'work':
 - \$, Story Points, Units installed, etc.
- All that's needed is consistency and ease of data collection

For more on WPM see:
<https://mosaicprojects.com.au/PMKI-SCH-041.php#WPM>

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Work Performance Management Concepts

- WPM focuses on the core elements of the work, peripheral and support elements can generally be ignored
- WPM is a pragmatic tool designed to give reasonably reliable information about the current status and predicted completion of a project
- Don't let perfection be the enemy of pragmatic management
 - WPM is designed to generate useful information quickly

“A good plan, violently executed now, is better than a perfect plan next week” — George Patton



Applying Work Performance Management

The inevitable acronyms are:

- **WP** = Work Planned (measured in an appropriate unit – cumulative over time)
- **WA** = Work achieved (measured on the same basis as WP)
- **PC** = Planned completion (number of time units, days, weeks, months)
- **TN** = Time Now (number of PC time units to the date of assessment)
- **TE** = Time Earned (the number of PC time units to the point where WA = WP)
- **WPV** = Work Performed Variance (TE - TN negative values show schedule slip)
- **WPI** = Work Performed Index (TE/TN values less than 1.0 show schedule slip)
- **EC** = Expected completion (calculated by $PC/WPI = EC$)



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Applying Work Performance Management

So how does this work? The following example is based on the 'Telecom Pit Project*'

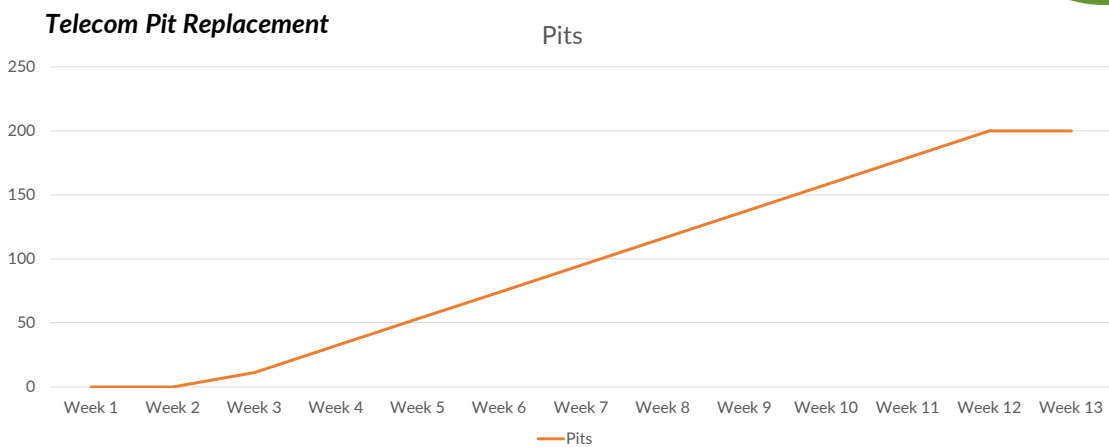
1. Plot the measure of performance to create a project baseline:
200 Telecom pits replaced
2. Using previously planned durations:
 - Contract period 13 weeks (3 months)
 - Allow 2 weeks for initial procurement and training
 - Allow 1 week for initial learning (11 pits only)
 - Allow 9 weeks to install 190 pits at 21 per week
 - Allow 1 week for project finalization



*The **Telecom Pit Project** is one of the three sample projects to download from: https://mosaicprojects.com.au/shop-easy-WPM_WS.php



Applying Work Performance Management



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Applying Work Performance Management

Measured progress at the end of Week 8:

Time Now = 8

TN = 8

The actual progress is measured at 90 pits complete

WA = 90

The planned progress at Week 8 was 116 pits complete

WP = 116

90 pits were planned to be achieved during week 7
 74 at the end of week 6 + $16/21 = 0.76$ of week 7

TE = 6.76

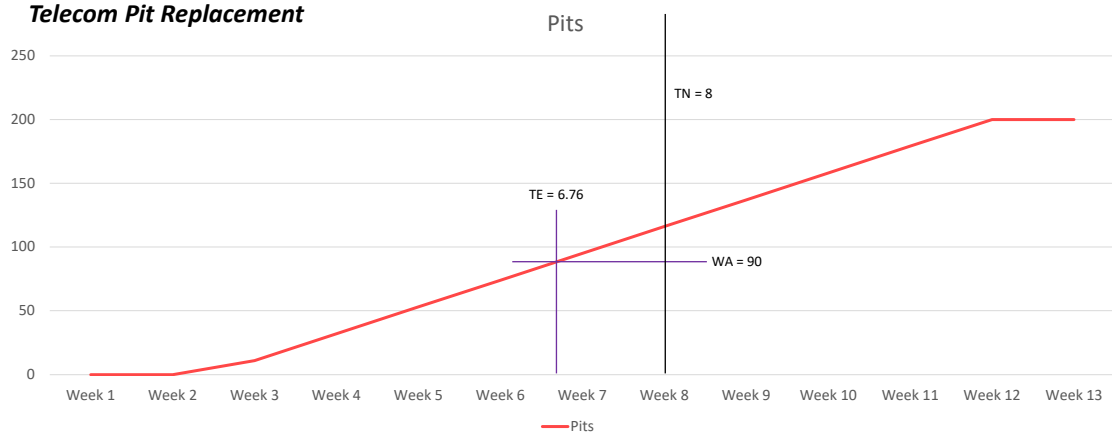
WPV = $6.76 - 8 = -1.24$ weeks behind schedule

WPI = $6.76/8.0 = 0.845$



Applying Work Performance Management

Telecom Pit Replacement



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Applying Work Performance Management

The predicted project completion is calculated as:

$$EC = PC/WPI \quad 13/0.845 = 15.38 \text{ weeks}$$

The project is expected to complete 2.38 week (or 2 weeks 2 days) late

WPM is a simple robust performance measurement system that provides an accurate assessment of the project's status from a time management perspective

The two requirements to implement WPM are:

- A consistent measure of work planned and accomplished (it is not necessary to include everything)
- A simple but robust assessment of when the work is planned to be done



Applying Work Performance Management

- Or you can just use the spreadsheet:



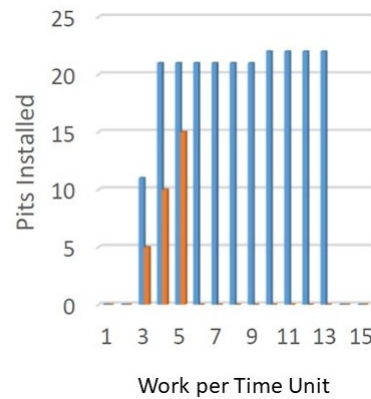
Telstra Pit Replacement

Time Now = 02-Jun-23

Planned Completion	14 Weeks	
Time Now	5 Weeks	
Time Earned	3.9048 Weeks	
Work Performance Variance	-1.0952 Weeks	(-5.5 Working Days)
Work Performance Index	0.7810	
Expected Completion	17.9268 Weeks	
Variance At Completion	-3.9268 Weeks	(-27.5 Calendar Days)
Expected Completion Date	03-Sep-23	

Note: This date is an approximation, WPM does not include a detailed calendar.

WPM Update Report



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Conclusions

- WPM provides a robust, simple system to measure the performance of work and assess the likely project completion
- The metric used can be a core deliverable (eg, 2000 computers replaced in an organization) or a representation of work such as the \$ value of the components to be delivered
- Peripheral and support activities can be ignored, they rarely impact the project delivery independently – failures in the support areas typically manifest in the primary delivery metric

Conclusions

- WPM is not an alternative to EVM and CPM on major complex projects
- WPM can provide a cost efficient, simple, rigorous controls tool for the many projects that are either:
 - Relatively small requiring a straightforward controls tool, or
 - Large, but with a single primary deliverable that is easy to measure, or
 - Fall into the **Class 3** classification of agile or distributed projects (but choose not to apply EVM & ES)

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Conclusions

- There is a lot of work needed in this area:
 - Contract improvements are required to allow the use of WPM
 - Protocols need to be developed for dealing with the issues pragmatically within existing forms of contract
 - For the contractor
 - For the superintendent / client
 - Processes for determining delay and disruption need to be developed
- **But agile project management is a fact**, and CPM does not work in an agile project
- Distributed projects (and those using Lean) are no different



Conclusions

- **More resources:**
 - Schedule Control in Agile and Distributed projects
<https://mosaicprojects.com.au/PMKI-SCH-041.php#Overview>
 - Work Performance Management (WPM)
<https://mosaicprojects.com.au/PMKI-SCH-041.php#WPM>
 - Assessing Delays in Agile and Distributed Projects
<https://mosaicprojects.com.au/PMKI-SCH-041.php#Delay>



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Questions

Contact the presenter at:
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