PGCS PROJECT AND PROGRAM MANAGEMENT SYMPOSIUM
Better Management • Better Projects
UNSW CANBERRA

Implementing AS4817-2019 ISO 21508 (MOD) Earned Value in Project and Programme Management

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Agenda

- What is EVM?
- The abridged history of EVM (AUS centric)
- The competing views of EVM
- Why does EVM persist?
- The biggest barrier to EVM
- Ten Benefits of EVMS
- How will AS4817-2019 / ISO 21508:2018 (MOD) affect the application of EVM (in AUS)?
- Close including Q&A

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What is EVM?

- Poorly understood!

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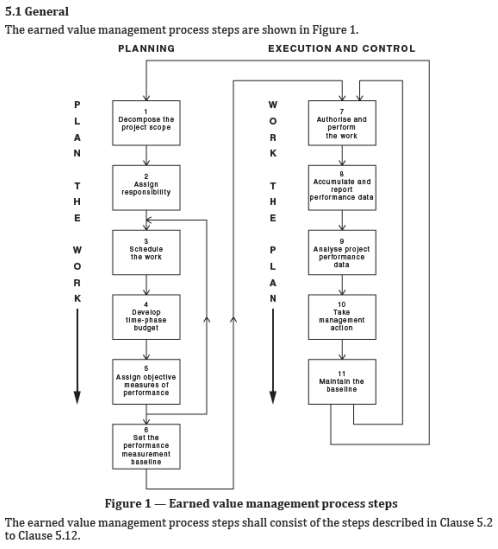
What is EVM?, Part 1 of 3

- Project management methodology
  - Pre-dates PMI (**1969**)
  - C/SCSC (**1967**)
- AS4817-2003, 2006 and 2019 process model of EVM depicted
  - **Adopted by ISO EVM Standard 21508:2018**
- AUS process model of EVM developed due to perceived overheads of USA "criteria based" EVM



5.1 General

The earned value management process steps are shown in Figure 1.

Figure 1 — Earned value management process steps

The earned value management process steps shall consist of the steps described in Clause 5.2 to Clause 5.12.

PGCS What is EVM?, Part 1 of 3

- The language of **"Control Accounts and Work Packages"**
  - *Is the language of Earned Value Project Management (EVPM)*
- EVPM is so embedded into the DMO, now CASG way of doing business
  - *Most people in CASG probably don't even realise they are using EVPM **WHEN THEY ARE!***

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PGCS What is EVM?, Part 2 of 3

- EVM is a System – EVMS
  - Software toolset which collates the required inputs (mostly data) and produces:
    - S Curve and other graphical charts
    - EVMS Reports
      - Formats 1 through 5
    - **Format 5 (Variance Analysis) reports require human thought, input, effort and action**
      - ***Describe cause(s) of and Corrective Action Plan to address over threshold variances***

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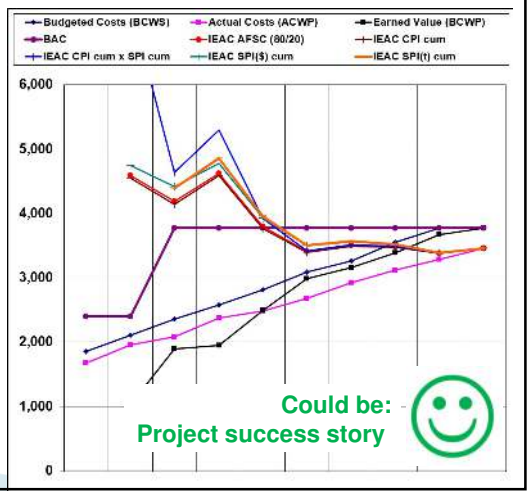
PGCS What is EVM?, Part 3 of 3

- EVM is the measure(s) and metrics
  - S Curve charts
  - Variance Charts,
    - CV, SV and SV(t)
  - Efficiency Indexes
    - CPI, SPI and SPI(t)
  - Completion Predictors
    - IEAC, IEAC(t) and IECD
  - Future efficiency indicators
  - TCPI (BAC and EAC)
  - TSPI (PD and ED)



PGCS The competing views of EVM

- A valuable methodology
- Modest cost and effort
- Provides useful project performance metrics
- Improves PM decision making
  - *If intelligently applied*

- The greatest project management method and toolset since sliced bread
- Does everything for you on a project except make the morning coffee
- "The EV Religion"

- Time consuming and costly
- A reporting overhead
- Doesn't provide useful information for managing a project

"Doing EVM" (by itself) has no intrinsic value

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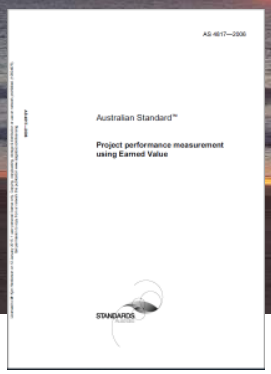
PGCS The AUS centric abridged history of EVM



1967: USAF published Cost/Schedule Control System Criteria, US DoD Instruction 7000.1

1989: Adoption by Australian DoD C/SCSC and CSSR ("EVM lite")

1998: ANSI EIA Standard 748-A (USA) (32) "criteria based" EVM

2003: AS4817-2003 (AUS)

2005: PMI Practice Standard for EVM 1st edition

2006: AS4817-2006 (AUS)
11 step "process model" of EVM
Developed in response to perceived overheads of USA "criteria" based EVM

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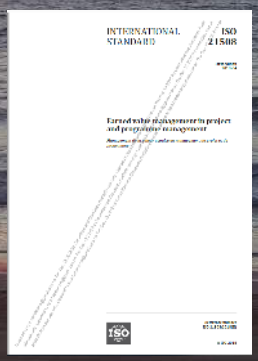
PGCS The AUS centric abridged history of EVM



2012: PMI Practice Standard for EVM 2nd edition
Complete rewrite from 1st edition
Included Earned Schedule (Lipke: 2003)

2018: ISO EVM Standard (21508:2018)
Global EVM standard (informative)
Adopted AUS 11 step process model of EVM
Included Earned Schedule (Lipke: 2003)

2019: AS4817-2019 Modified adoption of 21508:2018
Approved, publication expected mid Sep 2019
Reinstated AS4817-2006 normative req'ts

2019: ISO EVM Implementation Guide project
Global EVM Implementation Guide
Kick-off teleconference scheduled 29 Aug 19

Update: AS4817-2019 is available for sale from the SAI Global website at:
https://infostore.saiglobal.com/en-au/Standards/AS-4817-2019-121505_SAIG_AS_AS_2761048/

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PGCS Why does EVM persist?

- Nobody has invented anything better
  - Uniquely integrates cost, schedule and technical performance metrics into a single consolidated Project Management Information System (PMIS)
- EVM predictive capabilities are the only ones currently in existence with a capacity to address "Fitzgerald's Law" of major programs
  - *Too early to tell*
  - *Too late to stop*

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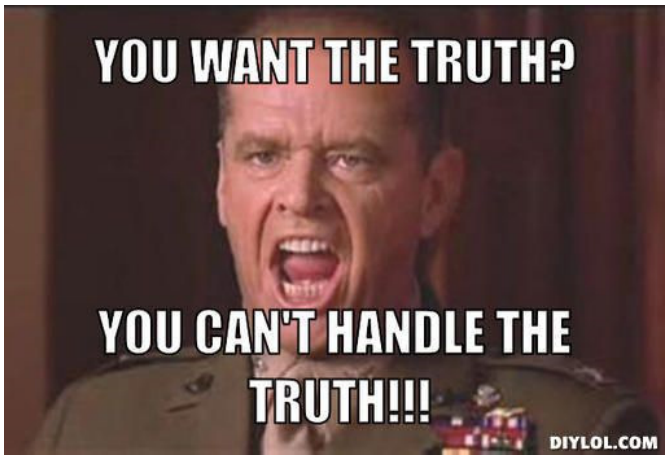
PGCS The biggest barrier to EVM?



A Few Good Men, Movie (1992)

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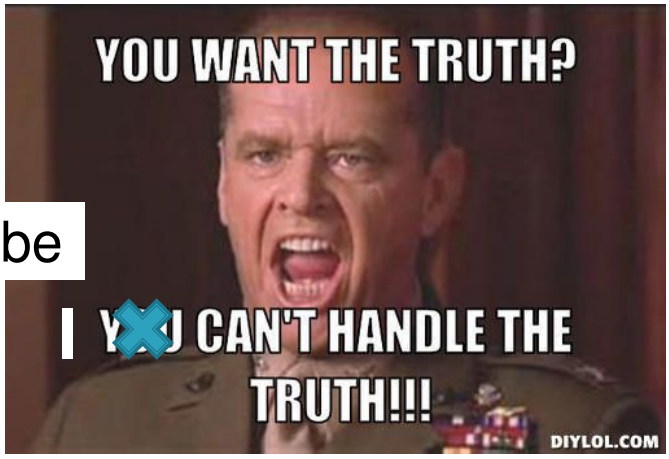
PGCS The biggest barrier to EVM?

Or maybe



A Few Good Men, Movie (1992)

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Source: The Costs And Benefits Of The Earned Value Management Process; David S. Christensen, Ph.D. Acquisition Quarterly Fall 1998 http://www.dau.mil/pubs/arq/98arq/chrisevm.pdf or http://www.suu.edu/faculty/christensend/cbaevms.pdf

Ten Benefits of EVMS

1. It is a single management control system that provides reliable data
2. It integrates work, schedule, and cost using a work breakdown structure
3. *The associated database of completed projects is useful for comparative analysis*
4. The cumulative cost performance index (CPI) provides an early warning signal
5. The schedule performance index provides an early warning signal
6. The CPI is a predictor for the final cost of the project
7. *It uses an index-based method to forecast the final cost of the project*
8. The "to-complete" performance index allows evaluation of the forecasted final cost
9. The periodic (e.g., weekly or monthly) CPI is a benchmark
10. The management by exception principle can reduce information overload
11. Earned Value has developed a large body of public domain knowledge and Government case studies. These studies includes information that would be extremely sensitive and classified "commercial in confidence" in the private sector

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PGCS First Principles Review of Defence Perspective

- Policy and Procedures
  - There has been no consistent application of **fundamental tools** such as Earned Value Management. ***Such tools will be required to support the new leadership team***.
- The preceding statement was most remarkable
  - In an organisation which routinely manages complex projects and programs we found it remarkable that there is no common project management architecture or artefacts to support it. ***There are no standardised reporting mechanisms (reporting is informal, anecdotal, local or crisis based)*** or management processes, with all divisions having different methodologies and management systems.
    - **First Principles Review Creating One Defence p40**

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PGCS How will AS4817-2019 affect the practice of EVM [in AUS]?

- The standard EVM answer: **"it all depends"**
- One possibility: **NO CHANGE**
  - ISO adopted the AUS 11 step process model of EVM
  - The normative requirements in AS4817-2006 have been reinstated **unchanged** into AS 4817-2019
    - Substitute Chapter 5
    - Important for obtaining all important Defence agreement for Australia's modified adoption of ISO EVM Standard
- It might (possibly, maybe, hopefully …) make EVM a more attractive option for adoption
  - ***When you don't have to!***

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How will AS4817-2019 affect the practice of EVM [in AUS]?

- Another possibility: **Opportunity(s) in the guidance for advances to practice**
- ISO EVM Standard guidance reflects the global consensus on EVM best practice
- The language of the standard has been updated to the 21st century
  - Brevity
  - Assumed knowledge of EVM
    - "Tutorial aspects" explaining EVM removed
  - **More discussion on benefits of EVM**

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The importance of schedule Two quotes

- Dr. Steve Gumley, [then] CEO of [then] DMO

  "We need to maintain our attention on schedule delivery. Data tells us that since July 2003, real cost increase in projects accounted for less than 3 percent of the total cost growth. …*Therefore, our problem is not cost, it is SCHEDULE*."

  - **DMO Bulletin, July 2006, Issue 61, page 3**
- LTGEN Hans "Whitey" Driessnack USAF
- "Engineering problems will first manifest themselves in a schedule slip someplace. Generally, as I have learned since then, if you have a technical problem someplace, or some kind of a problem, it will manifest itself first as a schedule slip. Then, it will eventually become a cost problem. If you wait to see the cost problem, something has already happened over which you have long since lost control. I always believed in the old adage, 'Time is money'; ***but if you could control the schedule, you could in fact control the cost ultimately in what was going on."***
  - **Source: GAO Expert Meeting Minutes, September 29, 2015, page 9**

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PGCS Closing Thought

- The **Global** ISO EVM Standard 21508:2018 includes Earned Schedule (Annex B)
- AS4817-2019 – 21508:2018 (MOD) includes Earned Schedule
- The approved scope for the ISO EVM Implementation Guide includes Earned Schedule
- While the paradigm shift would be massive due to the "cost-centric" legacy of EVM
  - ***The value proposition for Earned Schedule is such that it could/should become the primary focus of EVM over time***

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PGCS Takeaways and Q&A

- **EVM is here to stay**
  - Recent developments should make that clear
- **ISO 21508:2018, AS4817-2019 and ISO EVM Implementation Guide**
  - Offer opportunities for [much needed] advances to practice
- **Questons**

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