

EVOLUTION

Earned Value Management, Earned Schedule, and Science

PRESENTED BY:





Walt Lipke



PROJECT CONTROL
— SUMMIT —

Walt Lipke



-  Career – automated test (development and management)
-  Creator of Earned Schedule ...an extension to EVM
-  Author – EVM & ES articles, 2 books on ES
-  Awards –
 - ◉ 2007 PMI Eric Jenett Project Management Excellence Award
 - ◉ 2014 College of Performance Management Driessnack Distinguished Service Award

Outline

- ④ Importance of schedule performance
- ④ Background of Earned Schedule
- ④ Resistance to Earned Schedule
- ④ Schedule analysis capabilities of Earned Schedule
- ④ Application assistance for the method
- ④ Performance measures and organizational improvement

Oklahoma





Oklahoma



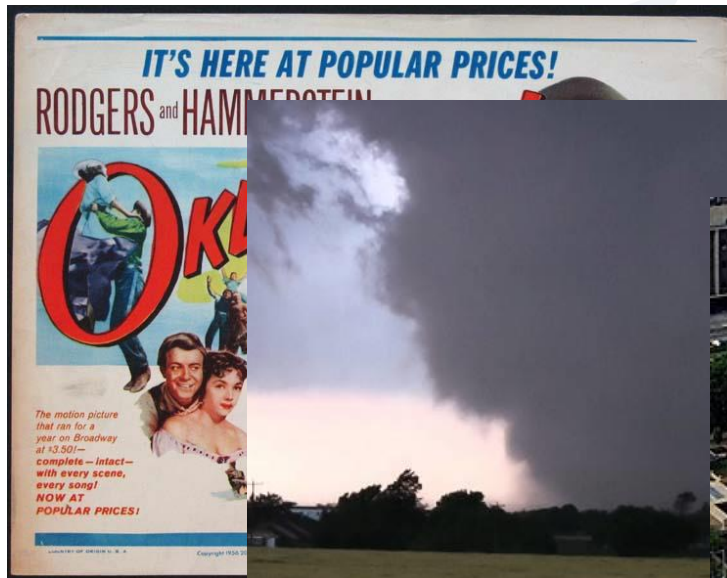


Oklahoma



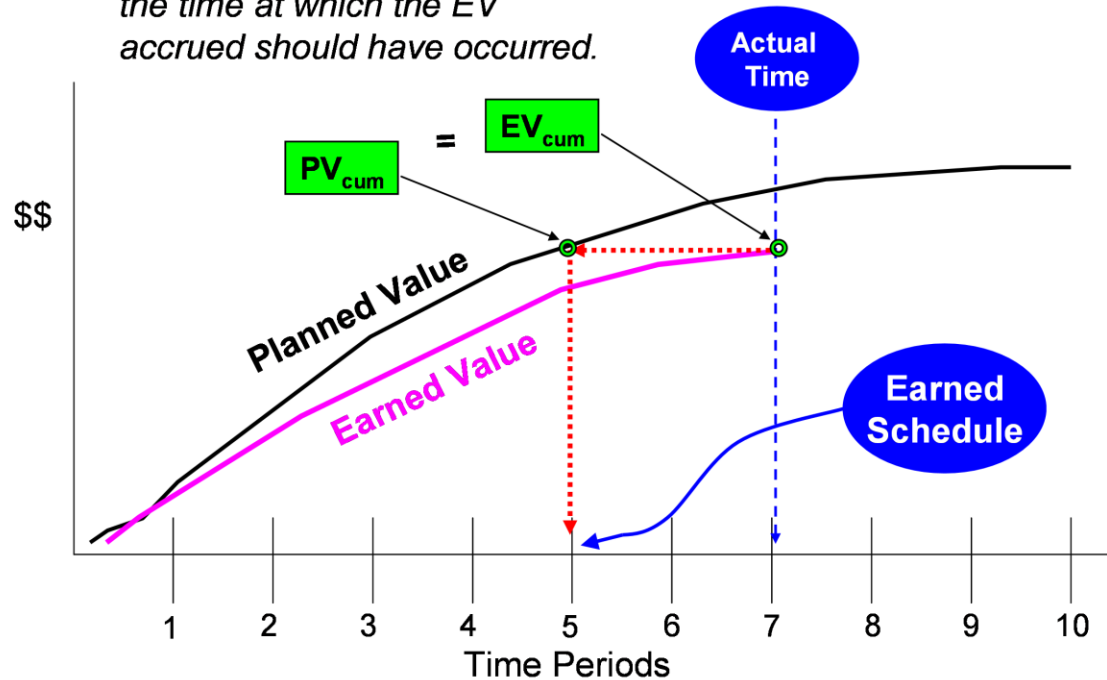


Oklahoma



Earned Schedule

The ES idea is to determine the time at which the EV accrued should have occurred.



Managing Schedule

- “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 (emphasis added). 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.”

Lt Gen “Whitey” Driesnack, USAF
GAO Expert Meeting Minutes, 29 Sep 2015

- “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.”

Dr. Steve Gumley, CEO
Defence Materiel Organization (Australia)
DMO Bulletin, July 2006, Issue 61

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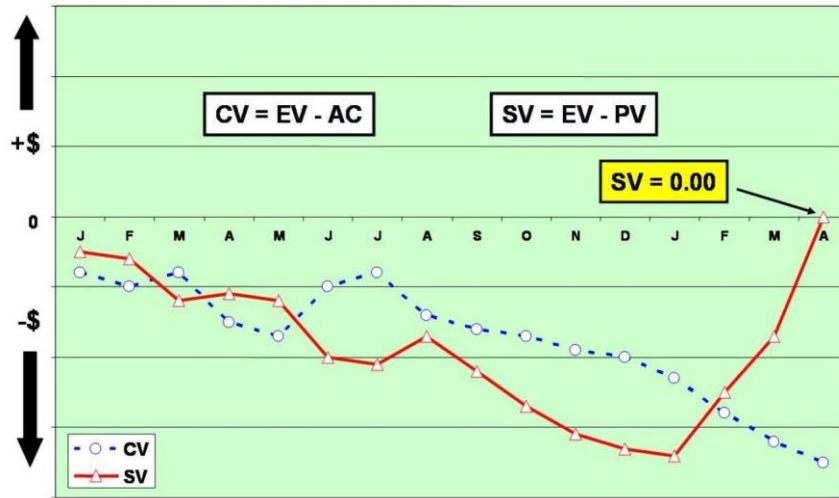
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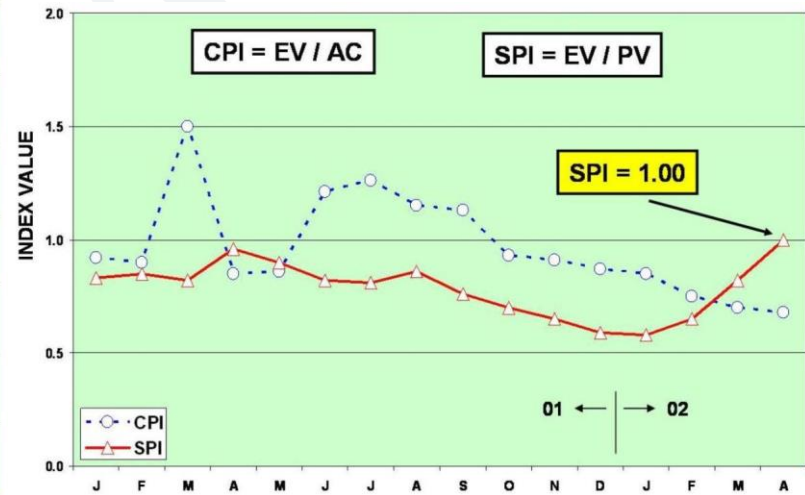
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EVM Schedule Indicators Flaw



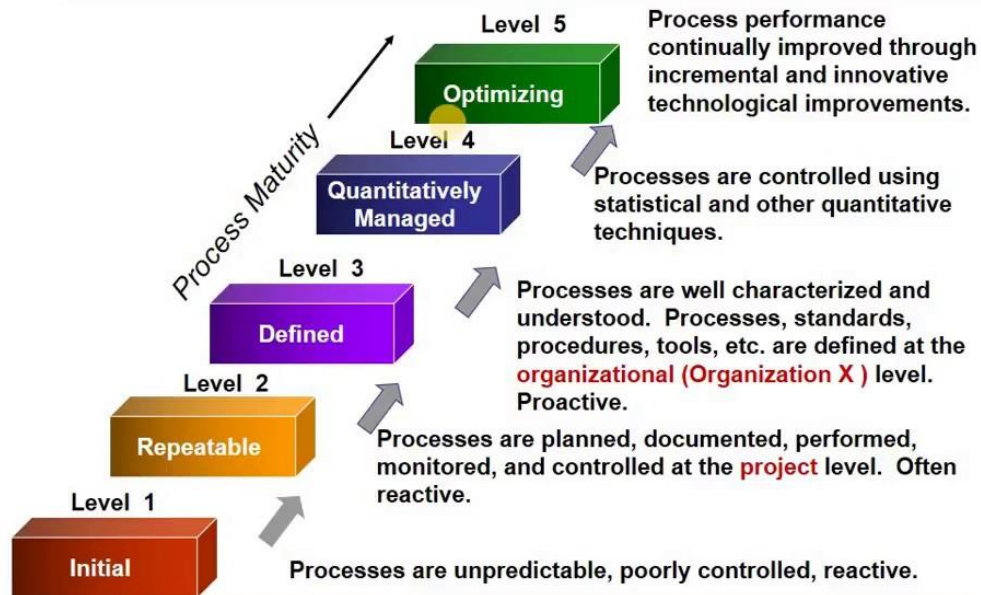
SV returns to 0.00



SPI returns to 1.00

Capability Maturity Model

CMM - 5 Maturity Levels





“Schedule Is Different”

Schedule Is Different

By Walt Lipke, Software Division, Oklahoma City Air Logistics Center

Abstract

Earned Value Management (EVM) is a wonderful management system, integrating, in a very intriguing way, cost ...schedule ...and technical performance. It is a system, however, that causes difficulty to those just being introduced to its concepts. EVM measures schedule performance not in units of time, but rather in cost, i.e. dollars. After overcoming this mental obstacle, we later discover another quirk of EVM: at the completion of a project which is behind schedule, Schedule Variance (SV) is equal to zero, and the Schedule Performance Index (SPI) equals unity. We know the project completed late, yet the indicator values say the project has had ...perfect schedule performance!! A senior executive receiving the project performance report, minimally knowledgeable of EVM, cannot understand why he has an angry customer screaming, “Your product delivery is late!” This paper discusses the dilemma with the EVM schedule indicators, SV and SPI. A method we are using to resolve the problem is presented in the paper. It is shown that the result from the method is schedule indicators having the same behavior as those for cost.

Within the Software Division at Tinker AFB we have used Earned Value Management (EVM) for several years. It has proven to be a tremendous aid to our project planning, tracking, and decision-making. And, the reporting methods of EVM serve as a good tool for communicating with management. Over the years, we have evolved our application of EVM. We now apply statistical techniques to predict project outcomes, and are using historical data for new project planning.

To confidently apply EVM data for outcome prediction and project planning, the



CPM-The Measurable News
March 2003

Kym Henderson

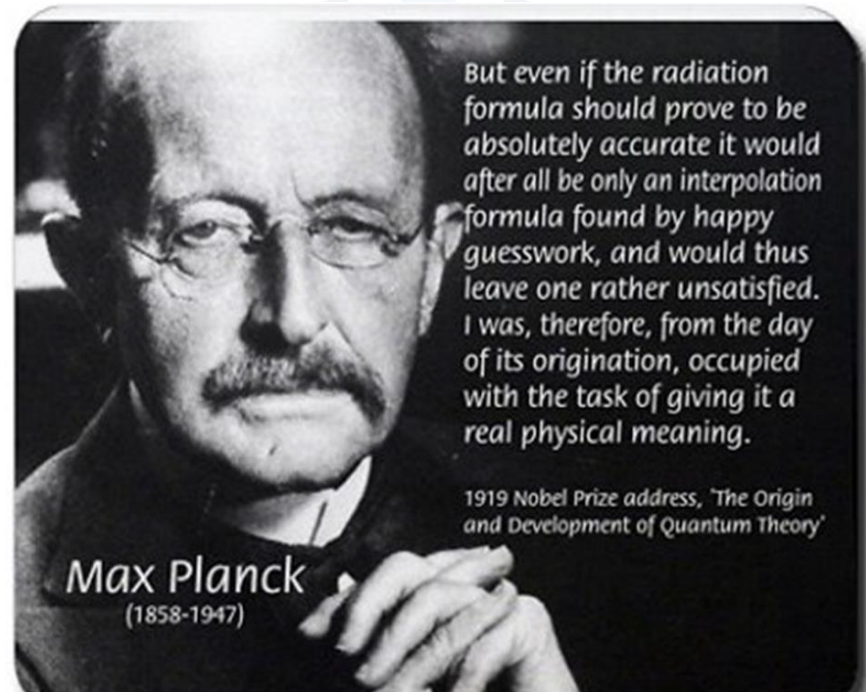
Belgian Research



Stephan Vandevoorde

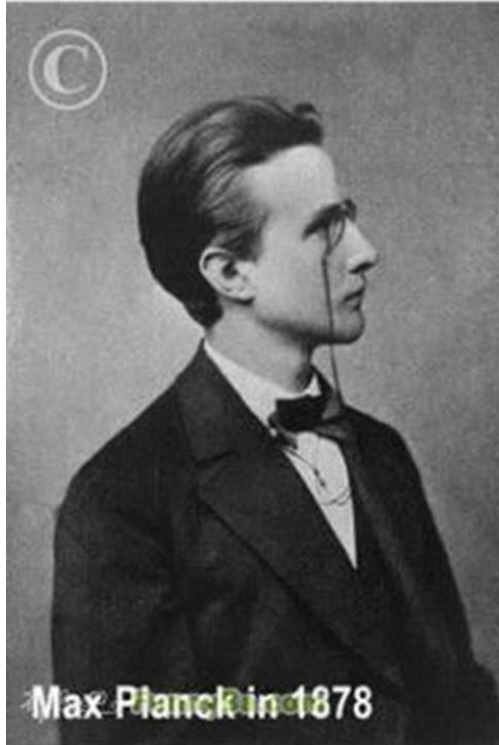
Dr. Mario Vanhoucke

Science History

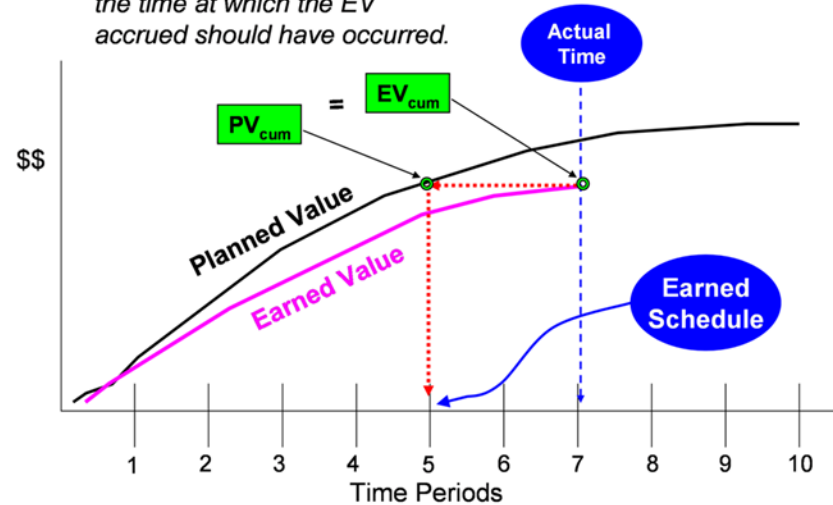


$$h = 6.62607004 \times 10^{-34} \text{ m}^2 \text{ kg} / \text{ s}$$

Planck's Constant and



The ES idea is to determine the time at which the EV accrued should have occurred.

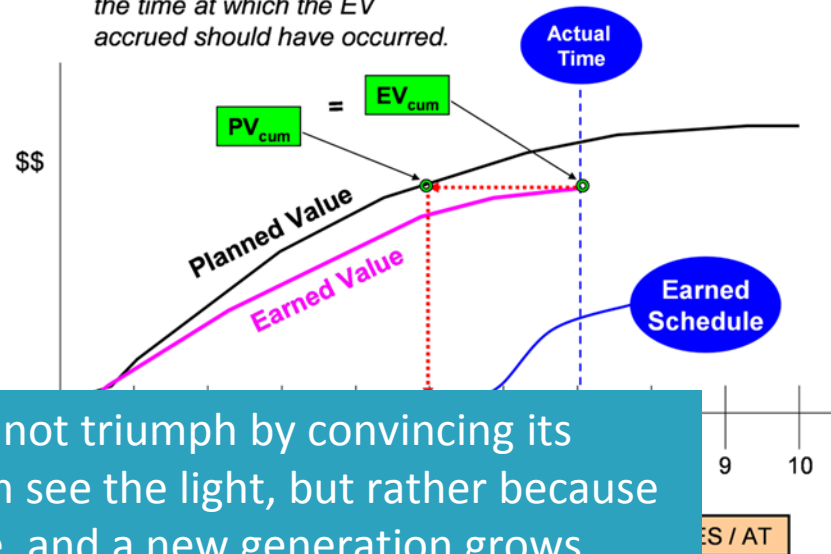


Time based schedule performance efficiency: $SPI(t) = ES / AT$

Planck's Constant and



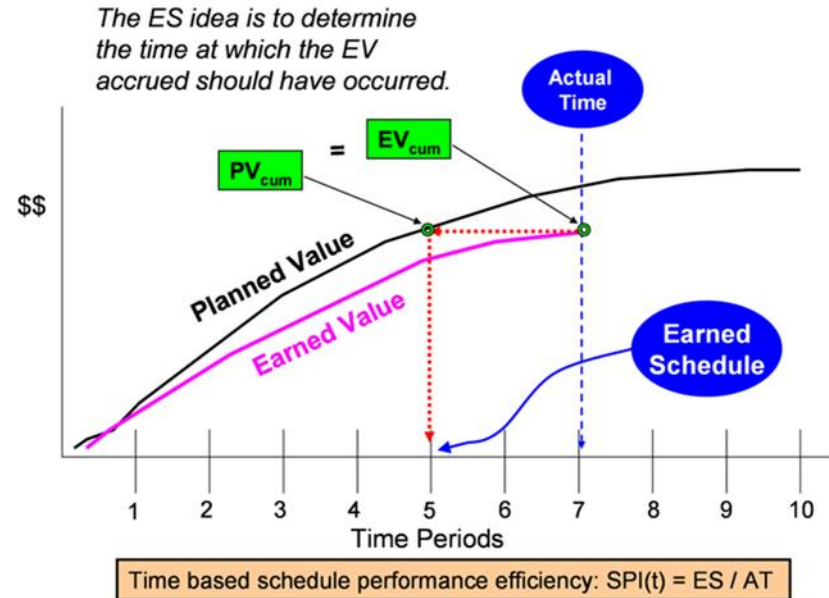
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“A new scientific truth does not triumph by convincing its opponents and making them see the light, but rather because its opponents eventually die, and a new generation grows up that is familiar with it.” - Max Planck

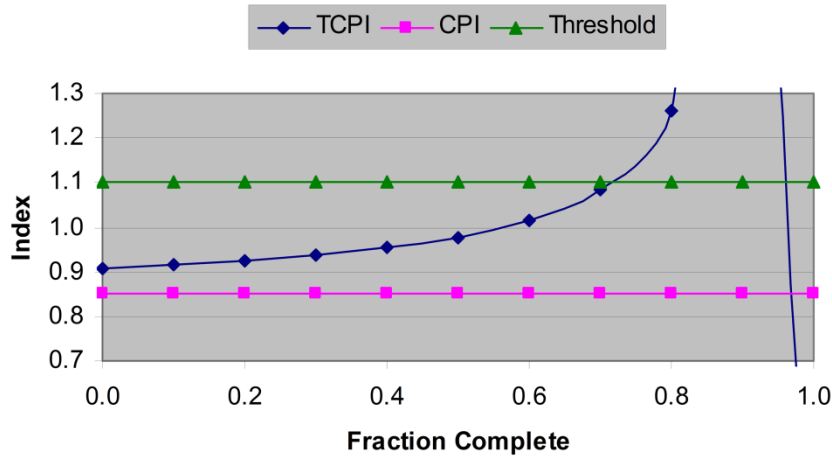
- 🕒 Schedule Measure & Performance Indicators
- 🕒 Duration & Completion Date Forecasting
- 🕒 Critical Path/Milestone Analysis
- 🕒 Schedule Adherence ...rework and impact analysis
- 🕒 Stop Work & Down Time

- 🕒 Longest Path
- 🕒 Statistical Forecasting
- 🕒 Outcome Prediction
- 🕒 Period of Opportunity
- 🕒 Probability of Recovery

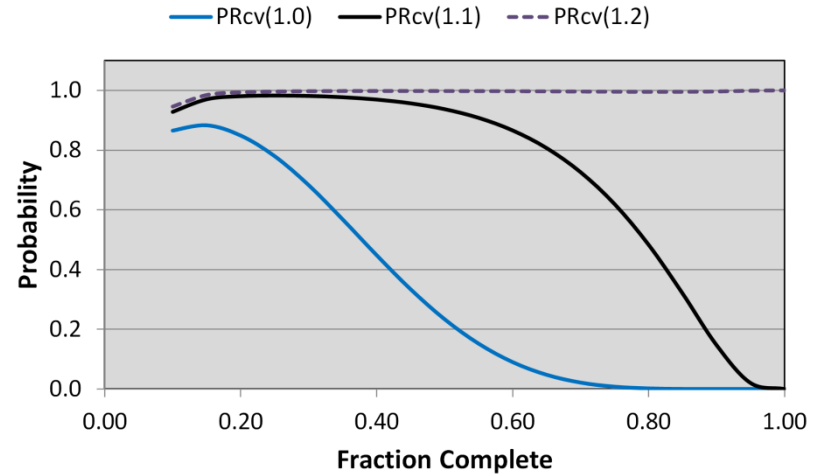




Prediction & Probability



Performance Prediction

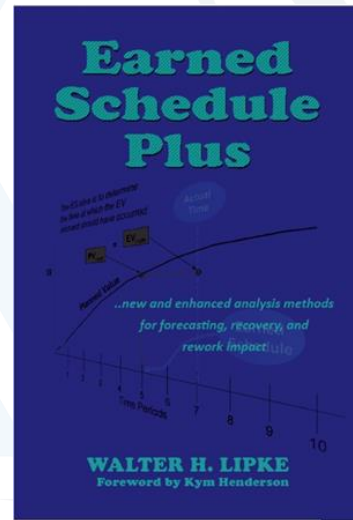


Probability of Recovery

Assistance

 Website ➡ www.earnedschedule.com

 Books ➡

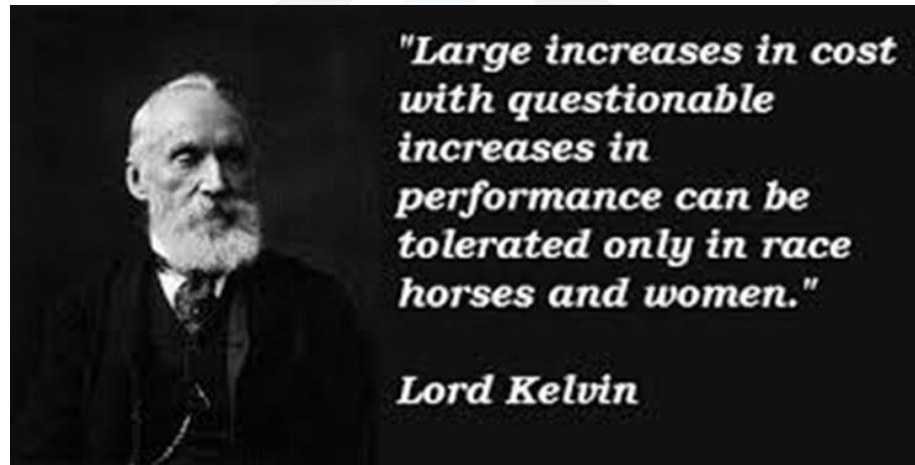


Paperback
E-book
Kindle
pdf

Japanese
Portuguese
Spanish

 Email ➡ waltlipke@cox.net

Measures



"I often say that when you can measure what you are speaking about, and express it in numbers, you know something about it; but when you cannot measure it, when you cannot express it in numbers, your knowledge is of a meager and unsatisfactory kind."



SEI/IEEE Software Process Award



Improvement & Rework

- 🔗 Rework costs time and money
- 🔗 Introspection brings focus to improving
- 🔗 Capture the impact of rework
- 🔗 Expect resistance – persist
- 🔗 Good information for improving quality & process
- 🔗 In time – Success!! ...Organizational Improvement



Improvement & Rework

 Rework

 Introduction

 Capturing








 Experience

 Good

 In time



It's a Wrap!

-   is an extension to EVM
-  Measures are important
-  EVM &  measures → project control
-  Measure rework
-  Improve organizational behavior

Hopefully you are inspired to ...

Initiate an improvement!!

- ⦿ Give EVM & Earned Schedule a try
- ⦿ Experiment with Earned Schedule capabilities
- ⦿ Prototype and measure outcomes
- ⦿ See where it leads



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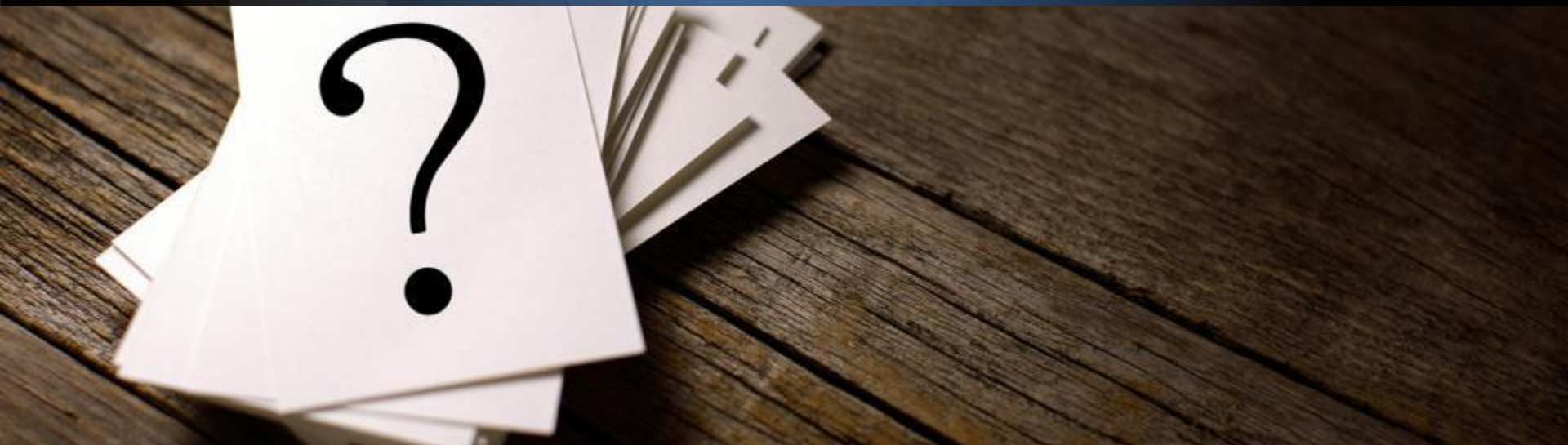
PCS
Thank You!!

TM



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QUESTIONS?





PROJECT CONTROL — S U M M I T —

Thank You For Joining This Session

Walt Lipke

ProjectControlSummit.com