Earned Value Management

PMI CTT

Vision and Value Symposium

Kitchener, 2002

www.p3mconsulting.ca

Fernando Santiago MBA PMP

Presentation Objectives

- Discuss EVM for Shareholders
- Present EVM use in Portfolio Management
- Discuss ideas on how to make EVM work

EVM for Shareholders

- Executives want information that is:
  - Condensed
  - Measurable (KPIs)
  - Financially and cash flow oriented
- EVM provides all the above, but…

Basic Concept of EVM

- **Objective measurement** of how much **work** has been **accomplished** on a project.
- **Improves** on the **spend plan concept** (budget versus actual incurred cost) by **including the work in process**.
- Integrates cost, schedule and scope

A simple example of EV

- Paint a room (four even walls)
- Single task
- Two resources: Labour and paint
- Estimates are:
  - Duration: One side per day
  - Labour cost is $500/day
  - Paint cost is $200/wall

A simple example of EV (cont)

- The Schedule is:

End of Day	1	2	3	4
Progress	25%	50%	75%	100%
Cost of Labour	$500	$1,000	$1,500	$2,000
Cost of Paint	$200	$400	$600	$800
Total Cost	$700	$1,400	$2,100	$2,800

A simple example of EV (cont)

- Actual at end of day one

End of Day	1	2	3	4
Progress	25%	50%	75%	100%
Cost of Labour	$500	$1,000	$1,500	$2,000
Cost of Paint	$200	$400	$600	$800
BCWS	$700	$1,400	$2,100	$2,800
Actual Progress	80%			
Cost of Labour	$500			
Cost of paint	$120			
ACWP	$620			
BCWP (EV)	$560			
CPI	0.90			
[illegible]	[illegible]			

Basic Concept of EVM

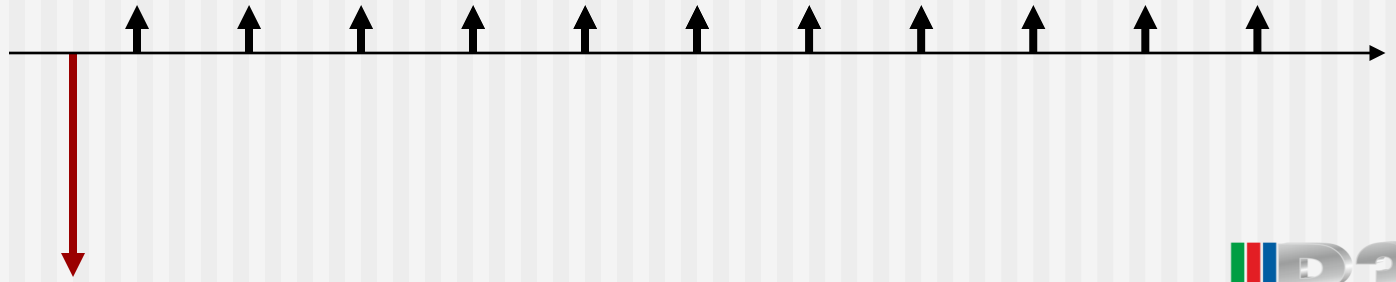
- Single task with two resources example illustrates
  - Limitation of Spend Plan Method: $620 spent VS $700 planned could represent anything:
    - On schedule and under budget
    - Behind schedule and under budget
    - Ahead of schedule and under budget
    - Behind schedule and over budget (real status)
- With hundreds of tasks and resources…..

Back to EVM for Shareholders

- What matters to Shareholders is business value
- Focus on financials, specially cash management
- Financials/cash basis for performance evaluation and compensation

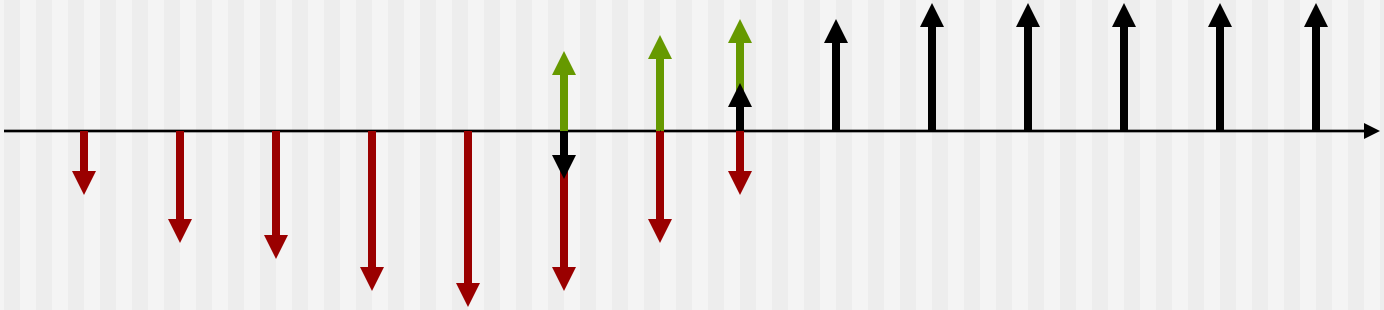
EVM and Financial Value

- Financial value of an asset/investment is the capacity to generate profits over a time period
- Example: value of an annuity that generates $50,000/year at a rate of 5% is $1,000,000



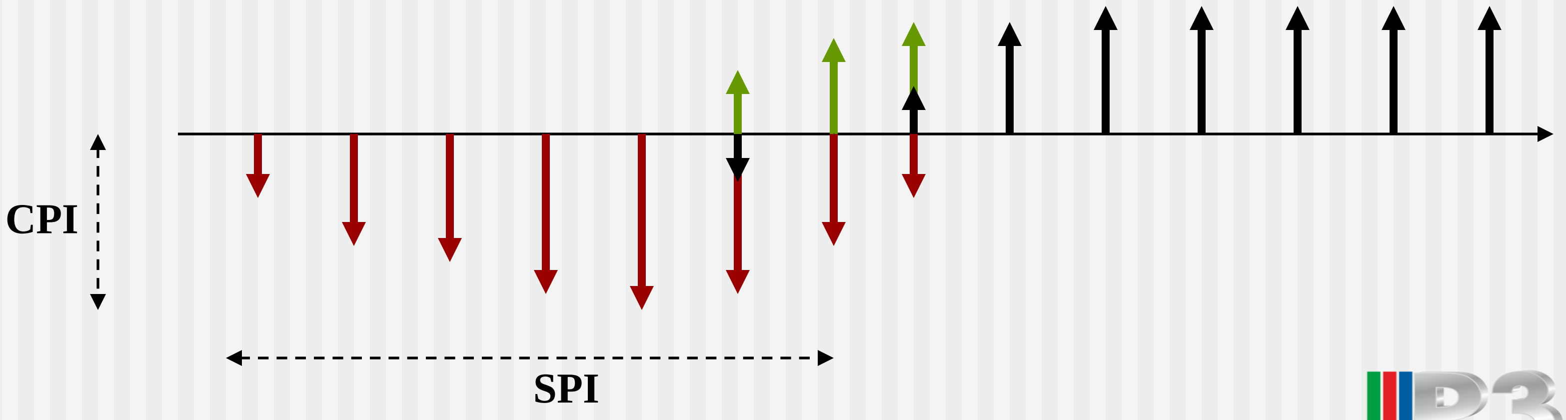
EVM and Financial Value

- Financial Value of a Project is measured by:
  - Expected cost savings plus
  - margin on additional revenue compared to
  - planned investment



EVM and Financial Value

- Relationship to EVM
  - CPI measures the cost component
  - SPI measures the time component:
    - When disbursements will actually occur
    - When the project will start generating profits



EVM and Financial Value

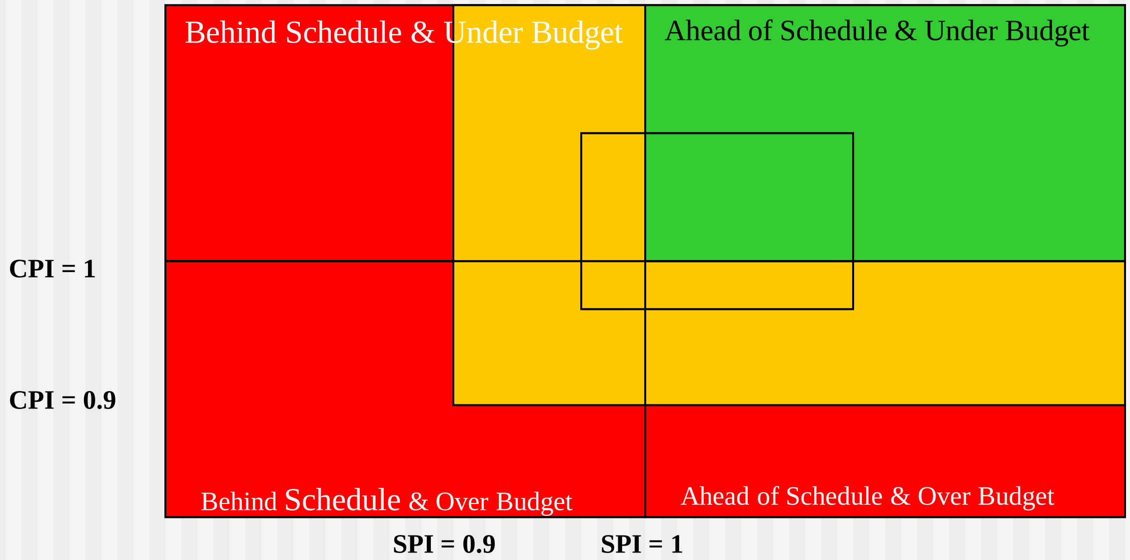
- To make EVM understandable to executives
  - Present it as a series of cash flows
  - Start with a baseline value of the project:
    - NPV, Return period
    - Cash flow of investments, savings and/or revenues
  - In executive meetings (monthly, quarterly)
    - Use CPI and SPI to adjust cash flows
    - Adjust expected savings/returns
    - Present adjusted cash flow, NPV and return period

EVM and Portfolio Management

- CPI and SPI are aggregate indicators
  - Within a project (different levels of the WBS)
  - To measure and manage sub-contractors
  - To compare projects in a portfolio
  - To measure performance at the portfolio level

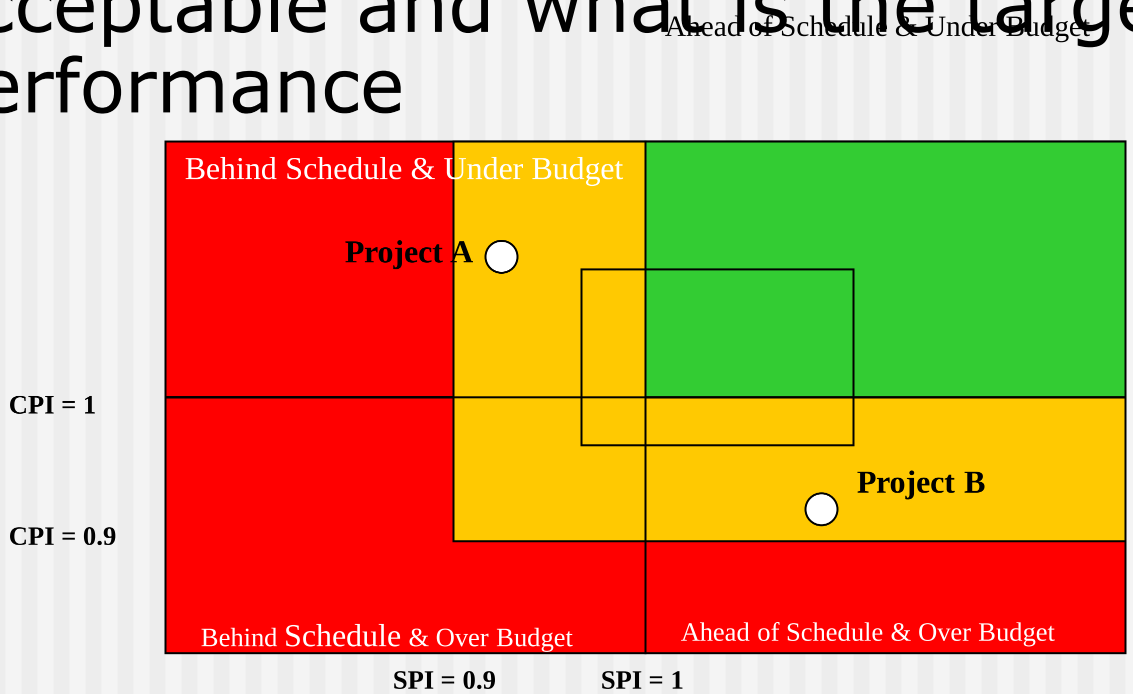
EVM and Portfolio Management

- Bull's Eye Chart provides view of each project and overall performance of the portfolio



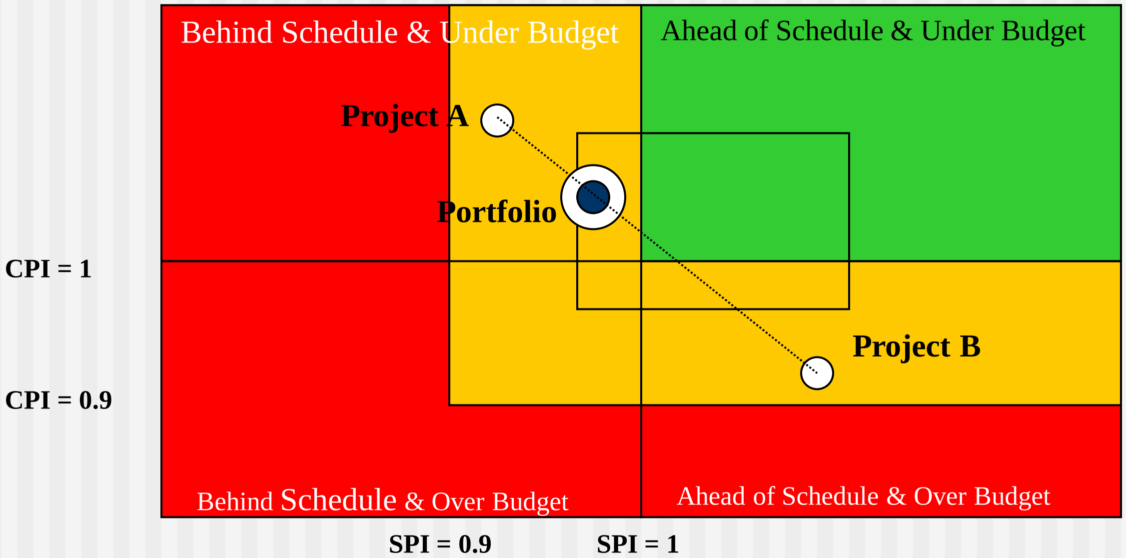
EVM and Portfolio Management

- Each project is mapped using its CPI and SPI
- The Corporate PMO defines what is acceptable and what is the target project performance



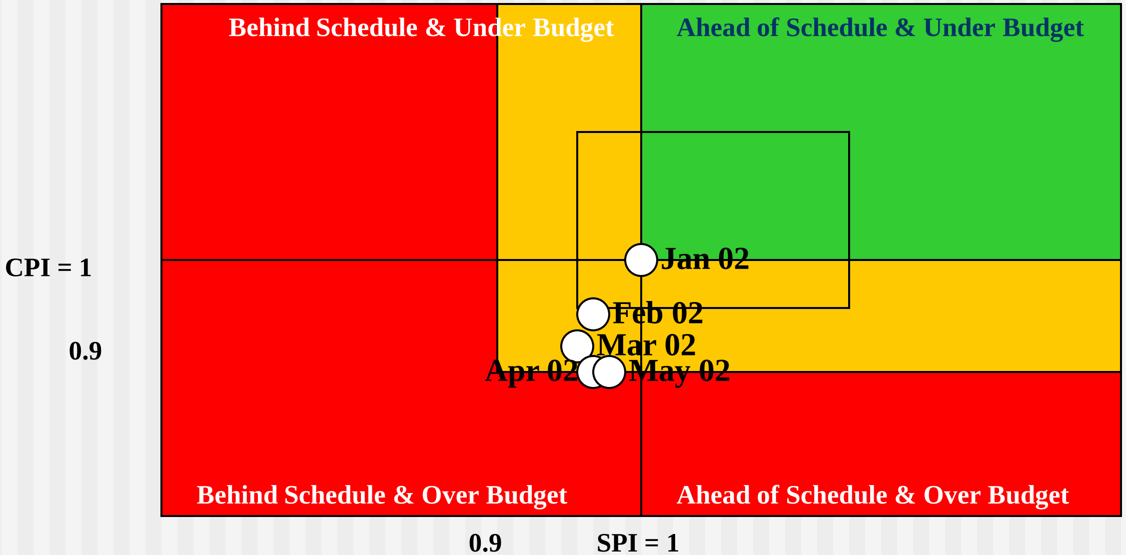
EVM and Portfolio Management

- CPI and SPI values for the portfolio should be weighted on expected NPV, total budget, etc.
- They should not be based on aggregated values



EVM and Portfolio Management

- Bull's Eye Chart also used to show trend of a project or portfolio



EVM – How to make it work

- Two Key Elements to make EVM work:
  - Baseline Management
  - Objective Reporting of Progress

EVM – How to make it work

- A Project Baseline should:
  - Created by key team members
  - Reflect expectations of PM/s and Executives
  - Defined early in the project but only when requirements are understood
  - At level of detail that allows objective reporting

EVM – How to make it work

- Objective Reporting
  - Verification of progress (show me) a must
  - Define the reporting technique that better suits each work package
  - Discrete reporting techniques are:
    - Milestone Method
    - 50/50
    - 0/100
    - Percent Complete
    - Level of Effort

EVM – How to make it work

- Milestone Method:
  - Preferred over all other techniques
  - Pre-defined milestones have % progress assigned
  - Clear/objective criteria to verify completion:
    - "Drawings complete" is ambiguous
    - "Drawings released to manufacturing" is clear
  - A milestone has a single owner, others support
  - Use of one or two milestones per month minimizes costs and distortions
  - Start is not a milestone (no progress) completion is 100%

EVM – How to make it work

- 50/50 Reporting Technique:
  - For simple work packages that do not justify milestone method
  - Preferred for work packages that start and complete within two accounting periods
  - 50% of progress at start and 50% at completion
  - Planner can make variations (40/60, 30/70, etc.) when planning, not reporting

EVM – How to make it work

- 0/100 Reporting Technique:
  - Similar to 50/50 technique
  - Preferred for work packages that start and complete within a single accounting period
  - Take 100% of progress at completion
  - Typical use of this technique is for kick-off meetings, technical reviews, etc.

EVM – How to make it work

- Percent Complete:
  - The task owner decides the % complete
  - Because it is subjective, it is the least desirable technique
  - Better when task owner estimates the remaining resources to complete the task
  - Verification of deliverables is even more critical

EVM – How to make it work

- Level of Effort Technique
  - LOE does not classify as an EVT
  - Not based on progress, but "as-needed" effort to support the execution of the plan
  - No schedule variance, only cost variance
  - Typical examples of LOE are:
    - Project Management Office
    - Field Support Engineering

EVM – How to make it work

- The plan should use the right combination of EVT:
  - Maximize Milestone Method in a cost effective way by using standards
  - The PMO should set limits to % Complete or Level of Effort packages

EVM – Conclusions

- EVM provides the information executives need
- It is up to the PM and PMO to present EVM in a way executives can understand
- EVM works, when done properly
- EVM can make a difference in your projects