



Earned Value Management



Xi'an Jiaotong-Liverpool University
西交利物浦大學



International
Business School
Suzhou at XJTLU
西浦国际商学院



Agenda

- What is EVM?
- Why and how can we use it?
- EVM in Practice



What is EVM

S
S
B
—

What is EVM

Earned Value Management

A comparative Analysis of the status of the Project with the Baseline

Used for tracking and controlling

Simple Maths but big implications

What is EVM

ADVANTAGES



- Objective Performance Measurement
- Fully transparent
- Allows comparing different Projects
- Allows prognosis based on actual data



What is EVM



DISADVANTAGES

- Can be very costly
- Project Experience mandatory
- Requires PM Maturity
- Needs clearly defined Scope and Tasks

Why and How to use EVM

Why and How to use EVM

Project Management Institute (Ed.), 2011. Practice standard for earned value management, 2nd ed. Project Management Institute, Newtown Square, Pa.

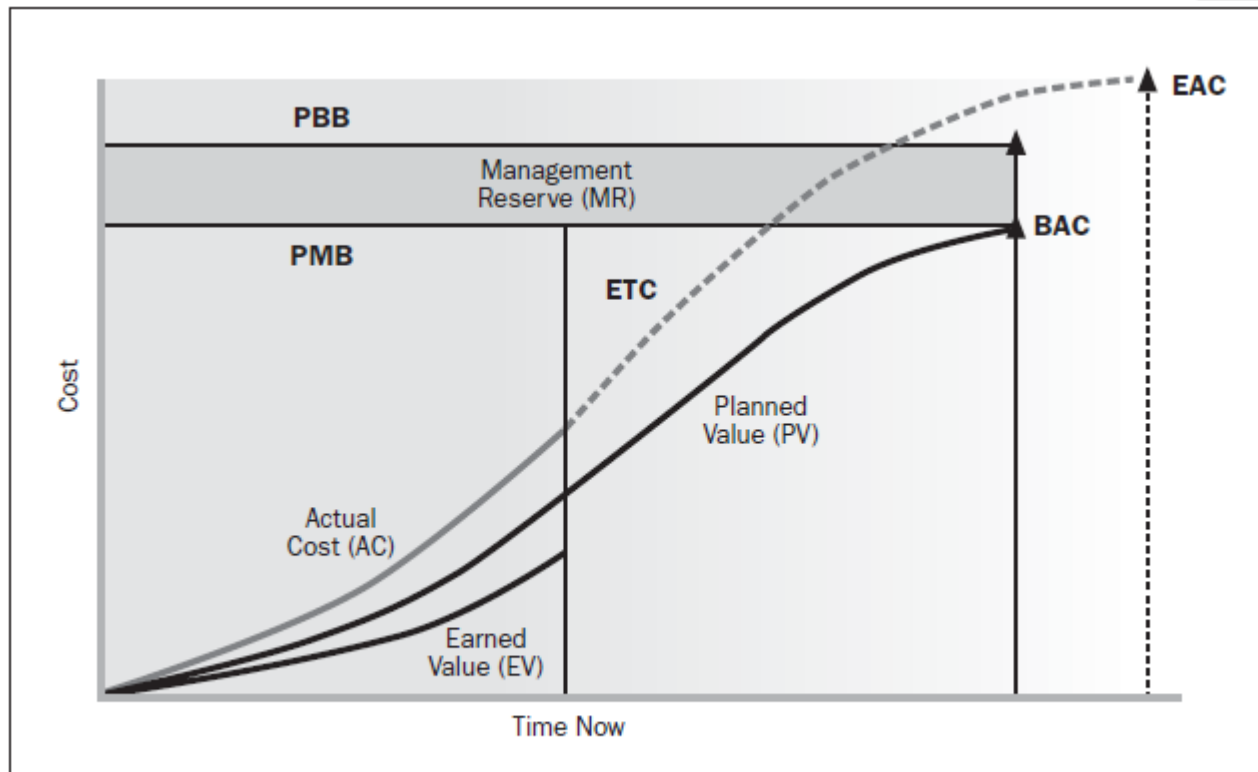


Figure 2-3. EVM Basic Concepts: Chart Form

Why and How to use EVM

- EV: Actual budgetary completion
- PV: Planned budgetary completion

- AC: Actual Cost of work
- BAC: Planned Budget at Completion

- EAC: Estimated Budget at Completion

Why and How to use EVM

Schedule Variance: SV

$$SV = EV - PV$$

A figure below 0 indicates a delay

A figure over 0 indicates we are ahead of schedule

Why and How to use EVM

Cost Variance: CV

$$CV = EV - AC$$

A figure below 0 indicates we are over budget

A figure over 0 indicates we are under budget

Why and How to use EVM

Other figures:

CPI=Cost Performance Index

$$\text{CPI} = \text{EV} / \text{AC}$$

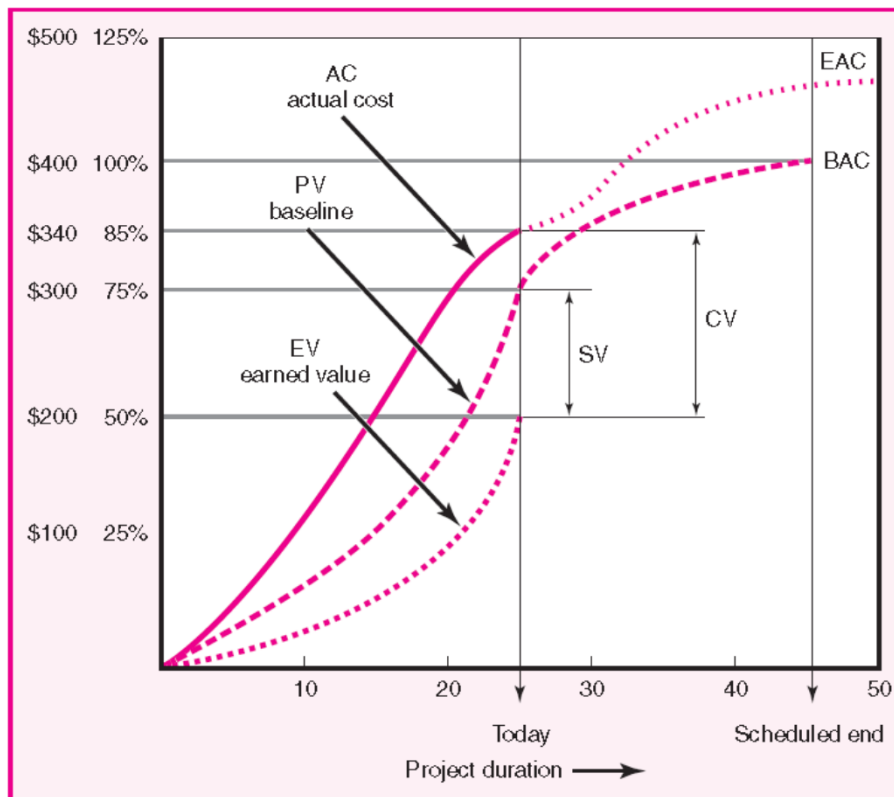
ETC: Estimate to Complete

$$\text{ETC} = (\text{BAC} - \text{EV}) / \text{CPI}$$

$$\text{EAC} = \text{AC} + \text{ETC}$$

EVM in Practice

Larson, Erik W., and Clifford F. Gray. *Project Management: The Managerial Process*. 5th ed. The McGraw-Hill/Irwin Series Operations and Decision Sciences. New York: McGraw-Hill Irwin, 2011.



We are over budget!

$$CV = EV - AC = 200 - 340 = -140$$

We are behind schedule!

$$SV = EV - PV = 200 - 300 = -100$$

$$ETC = (BAC - EV)/CPI = (400 - 200) / (200/340)$$

$$ETC = 200 \times 1,7 = 340$$



Sources

Fleming, Q.W., Koppelman, J.M., 2005. Earned value project management, 3rd ed. Project Management Institute, Newtown Square, PA.

Larson, E.W., Gray, C.F., 2017. Project Management: The Managerial Process, 7th ed, The McGraw-Hill series operations and decision sciences. McGraw-Hill Education, New York, NY.

Project Management Institute (Ed.), 2011. Practice standard for earned value management, 2nd ed. Project Management Institute, Newtown Square, Pa.

Webb, A., 2003. Using earned value: a project manager's guide. Gower, Aldershot, Hants, England ; Burlington, VT, USA.

United States Government Accountability Office, 2013. NASA Earned Value Management Implementation across Major Spaceflight Projects Is Uneven. CreateSpace Independent Publishing Platform.

THANK YOU

