

# Project Planning & Control

## *Lesson 2*

### *Basic Earned Value Definitions & Terminology, Summary*

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# Earned Value Method

It compares the SCHEDULED amount of work with what has actually been PERFORMED, to determine if *COST* , *SCHEDULE*, and *WORK (SCOPE)* *ACCOMPLISHED* are progressing as planned.

# Basic EVM - Terminology

- **Budgeted Cost of Work Scheduled (BCWS)**

- It is the budgeted cost of work scheduled
- It tells how much work is scheduled to be completed in each period based on value metric (money in our example). (S-CURVE)

- **Budgeted Cost of Work Performed (BCWP)**

- It is the budgeted value of work actually performed
- The Earned Value for the work actually completed

$$\begin{aligned} &= \Sigma (\text{Unit Rate} \times \text{Qty Work Performed}) \\ &= \Sigma (\% \text{ Complete} \times \text{BCWS}) \end{aligned}$$

- **Actual Cost of Work Performed (ACWP)**

- It is the amount actually spent on the work completed
- This could be more or less than the Earned Value

# Basic EVM - Project Performance Indicators

## Scheduled Variance (SV)

$$= (BCWP - BCWS)$$

- It compares work completed vs work planned
- It helps to identify whether the project is ahead or behind schedule
- **Negative value indicated that the project is behind schedule**

SV

< 0 Behind Schedule

> 0 Ahead of Schedule

=0 On Schedule

## Cost Variance (CV)

$$= (BCWP - ACWP)$$

It compares value of the work completed vs. what was actually spent

It helps to identify whether the project is ahead or behind budget

**Negative value indicates that the project is over budget**

CV

< 0 Over Budget

> 0 Under Budget

=0 On Budget

# Basic EVM - Project Performance Indicators

## Scheduled Performance Index (SPI)

$$= (BCWP / BCWS)$$

SPI

< 1 Behind Schedule

> 1 Ahead of Schedule

=1 On Schedule

It helps to identify whether the project is ahead or behind schedule

**Less than 1 indicates that the project is behind schedule**

## Cost Performance Index (CPI)

$$= (BCWP / ACWP)$$

CPI

< 1 Over Budget

> 1 Under Budget

= 1 On Budget

It helps to identify whether the project is above or below budget

**Less than 1 means the project is over budget**

*It can be utilised to forecast how much amount will be required to complete the project*

# ***Basic EVM - Forecasting***

## **Estimate at Completion (EAC)**

$$= \text{BAC} / \text{CPI}$$

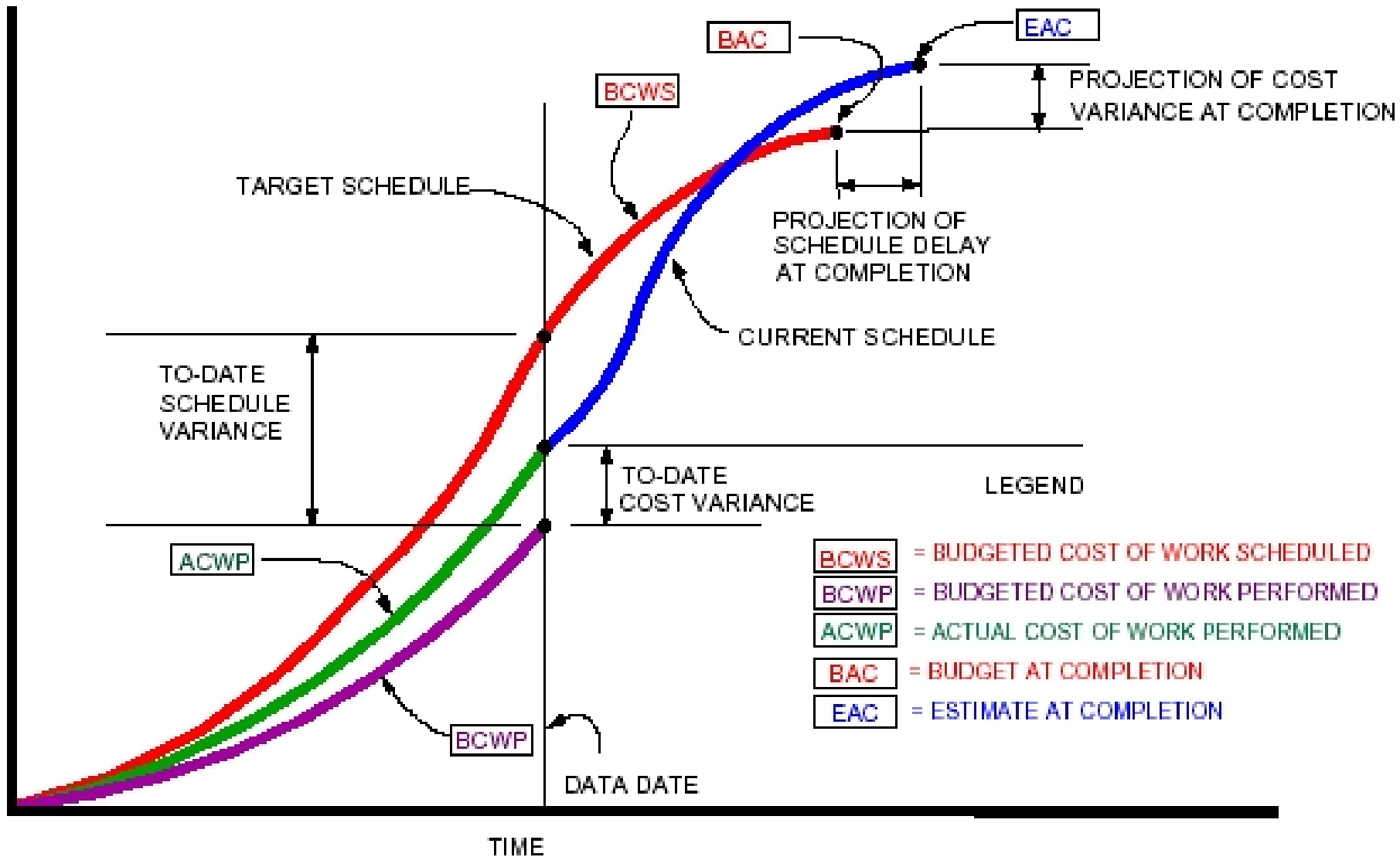
BAC = Budget At Completion
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- Revised Project Completion Budget Based on Current CPI

- *Several alternate computations of EAC!!!*

- **Schedule at Completion (SAC)**

- Update CPM Network to determine this!



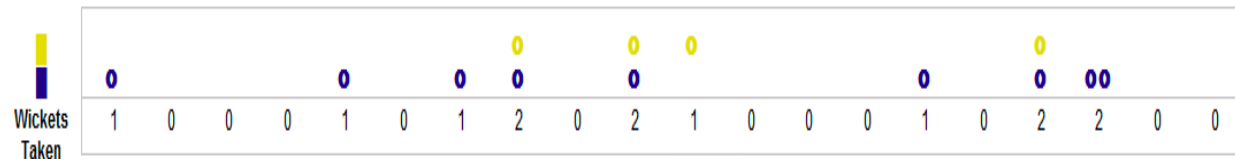
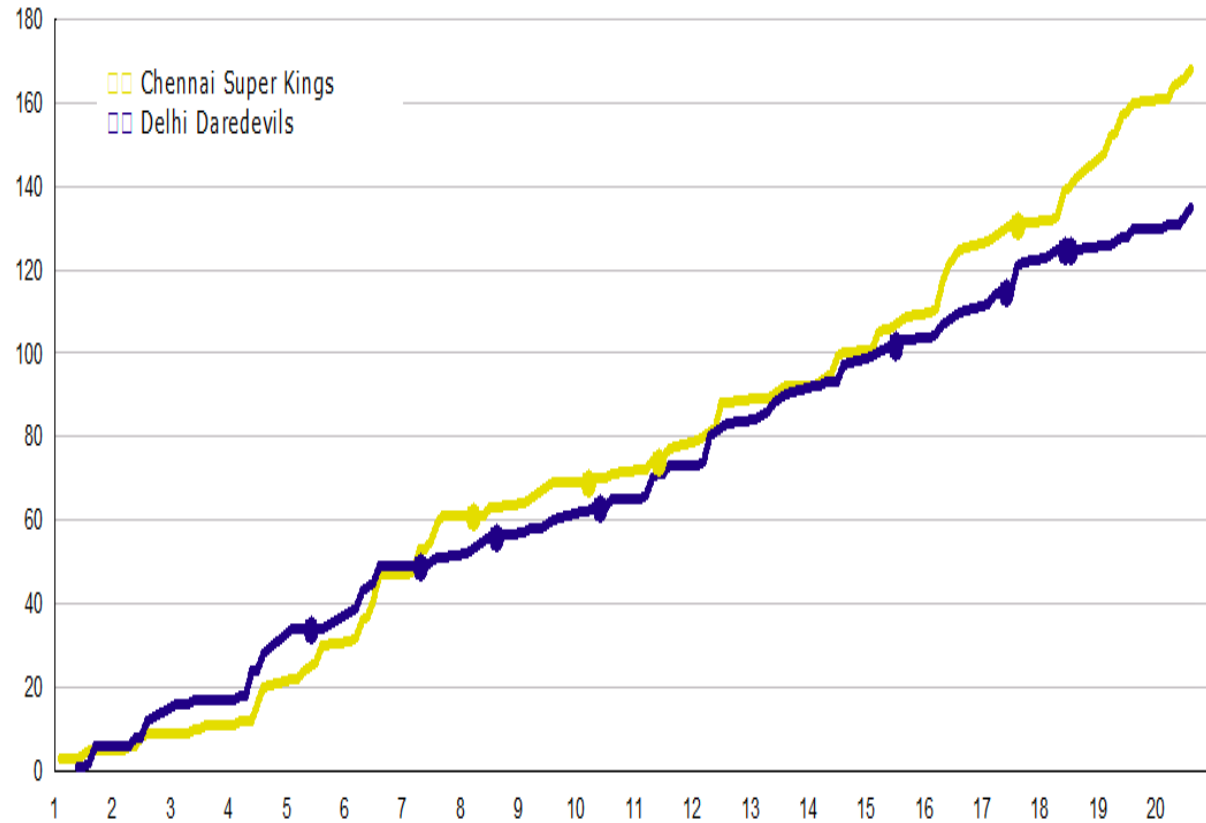
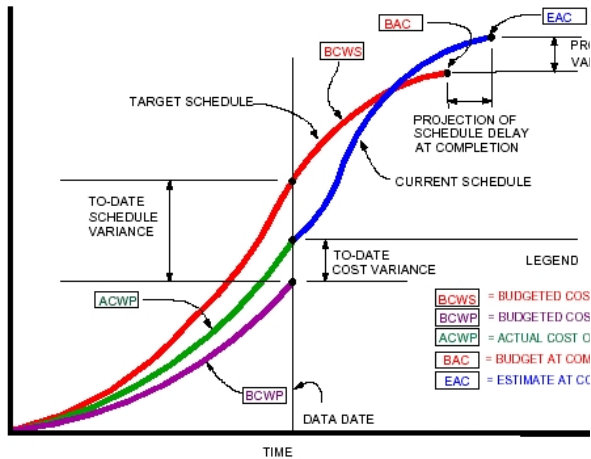
# EVA - STEPWISE

1. Calculate values of BCWS – for each period (as planned schedule)
2. For update period calculate BCWP from field measurement of Work Performed (*or Estimate ?*)
3. At update period find ACWP – from accounts
4. Compare BCWP with BCWS & ACWP to determine Project Performance Indicators. % Complete etc.
5. Forecast EAC

***Take Control Actions Required***



# Project :: Limited Over Cricket Match ?



# Lecture Summary

- EVA is comprehensive approach for monitoring project at Macro Level
- Lecture used Money as EV metric. ***Manhours*** is also widely used on Global projects. Based on metric used Results can vary!!
- Accuracy of results from EVA is based on Measurement & Estimate of work performed
- Lecture has covered only Basic Elements. EVM has several addition terms and computations.

# Questions & Discussions