COINS EVA
Earned Value Analysis

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Earned Value Analysis

- The most widely used method for performance measurement of projects
- Combines scope, cost and schedule patterns
- Informs project team as to true status of project
- Value of EVA dependent on 2 key areas
  - Accurate cost information
  - Realistic progress reporting
  - *If either of these are deficient benefit of the results of EVA will be significantly devalued*
- COINS cost reporting systems are well established & robust
  - Results of EVA can provide early indication as to the performance of a project
  - Triggering action to resolve problems sooner rather than later

Earned Value Analysis

- Earned Value calculates three values for every scheduled activity:
- BCWS
  - Budget cost of work scheduled
  - Element of the approved estimate cost planned to be spent on the project in a given period of time
- ACWP
  - Actual cost of work performed
  - The total of direct and indirect costs incurred in performing work during a given period
- BCWP
  - Budget cost of work performed - the Earned Value
  - Percentage of the total budget equal to the percentage of work actually performed

Earned Value Analysis

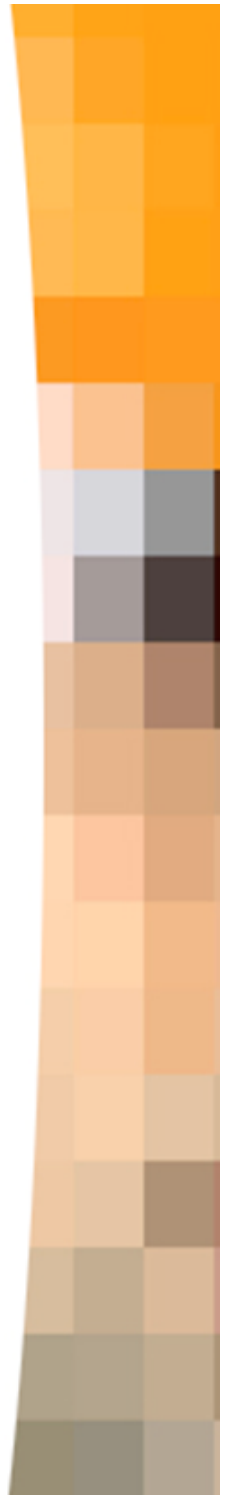
- BCWS, ACWP & BCWP values are used in combination to provide indicators as to whether work is being performed as planned
- The most common measures are:
  - Cost Variance (CV) = BCWP-ACWP
  - Schedule Variance (SV) = BCWP-BCWS
  - Cost Performance Index (CPI) = BCWP/ACWP
- The cumulative CPI on a project is widely used to forecast total cost at completion of the project

Earned Value Analysis

- MS-Project produces a tabular report that totals the following earned value measures per task, giving the total for the project:
  - BCWS, BCWP, ACWP, SV, CV, EAC, BAC and VAC
- EAC stands for "Estimate at Completion"
  - The total costs incurred to date
  - PLUS expected costs for incomplete tasks
  - To give a projected final figure for a project
- If a task is in progress and is over-budget
  - Calculation assumes that the final cost of the task will exceed the budget cost by the same margin
  - This assumption implies that things will neither improve nor deteriorate further

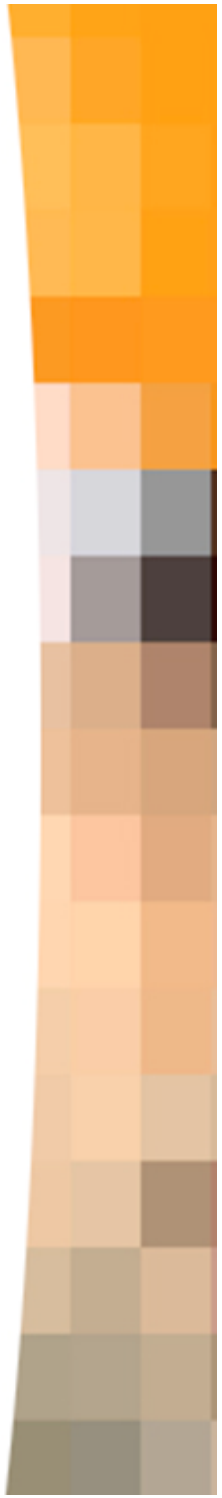
Earned Value Analysis

- EAC stands for "Estimate at Completion"
  - The total costs incurred to date
  - PLUS expected costs for incomplete tasks
  - To give a projected final figure for a project
- EAC is calculated as follows:
  - EAC = ACWP+(BAC-BCWP)/CPI
- BAC stands for "Budget at Completion"
  - The estimated total cost of the project when it is completed
- VAC stands for "Variance at Completion"
  - Can be a positive or negative value depending on the variances recorded for each task in the project

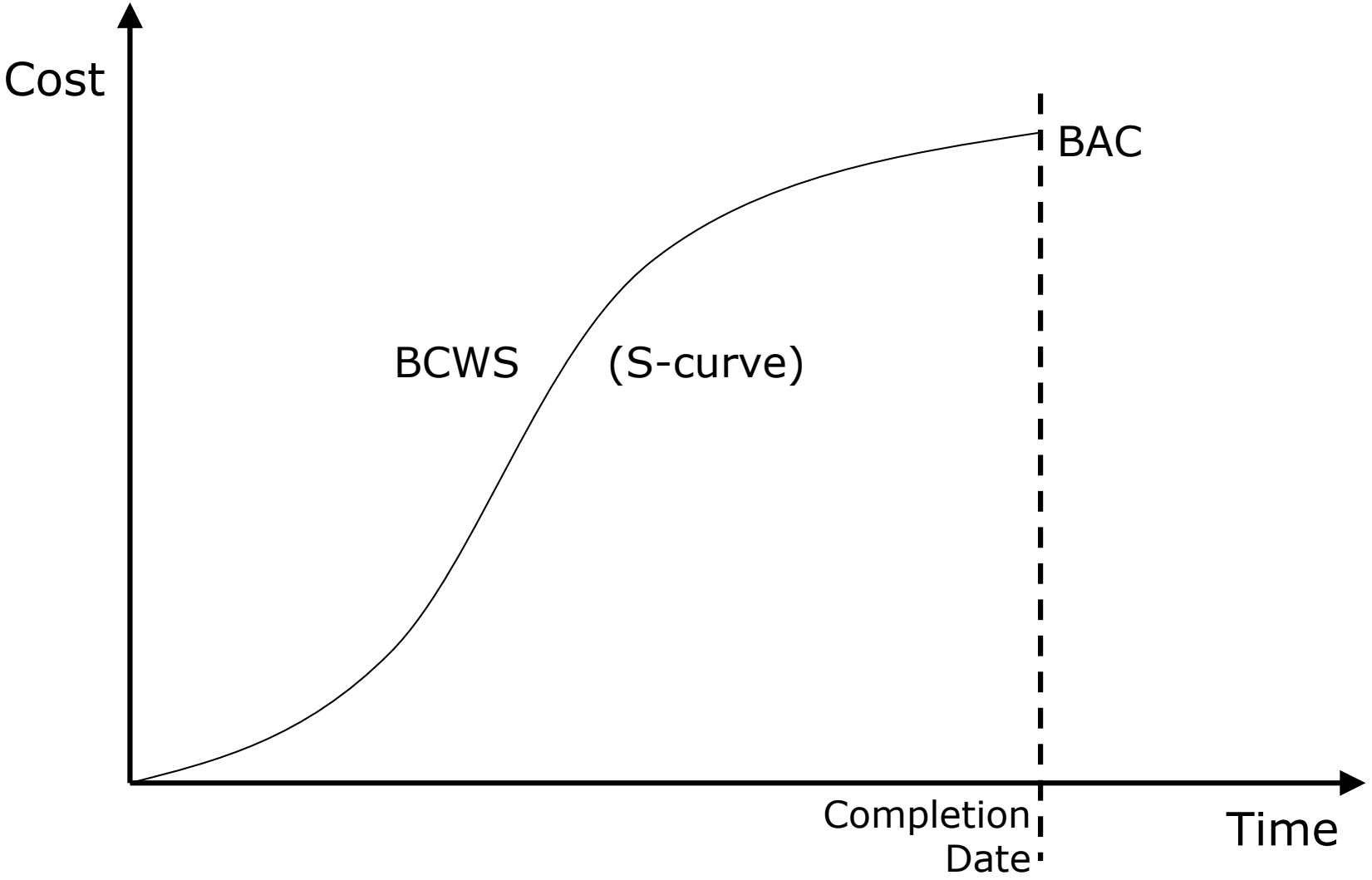


Earned Value Analysis

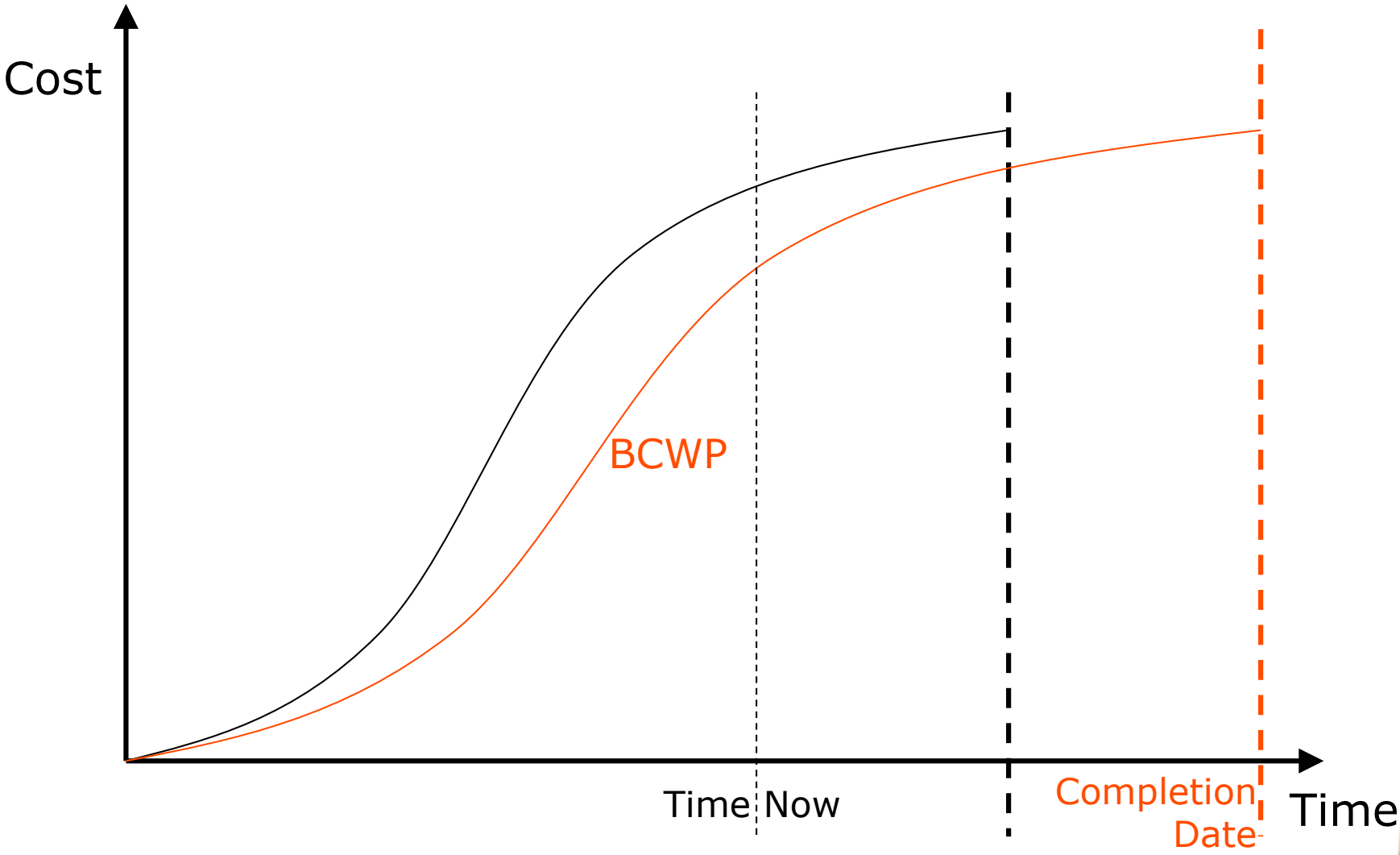
- Project at Completion (PAC)
  - [Not in MS-Project 98]
- Uses cost information to calculate any variance in time as far as the schedule is concerned
- May be useful to validate the calculated difference in the scheduled completion date of your project
- PAC is calculated as follows:
  - PAC = (BAC/SPI–BAC)/(average BCWS/Unit time)



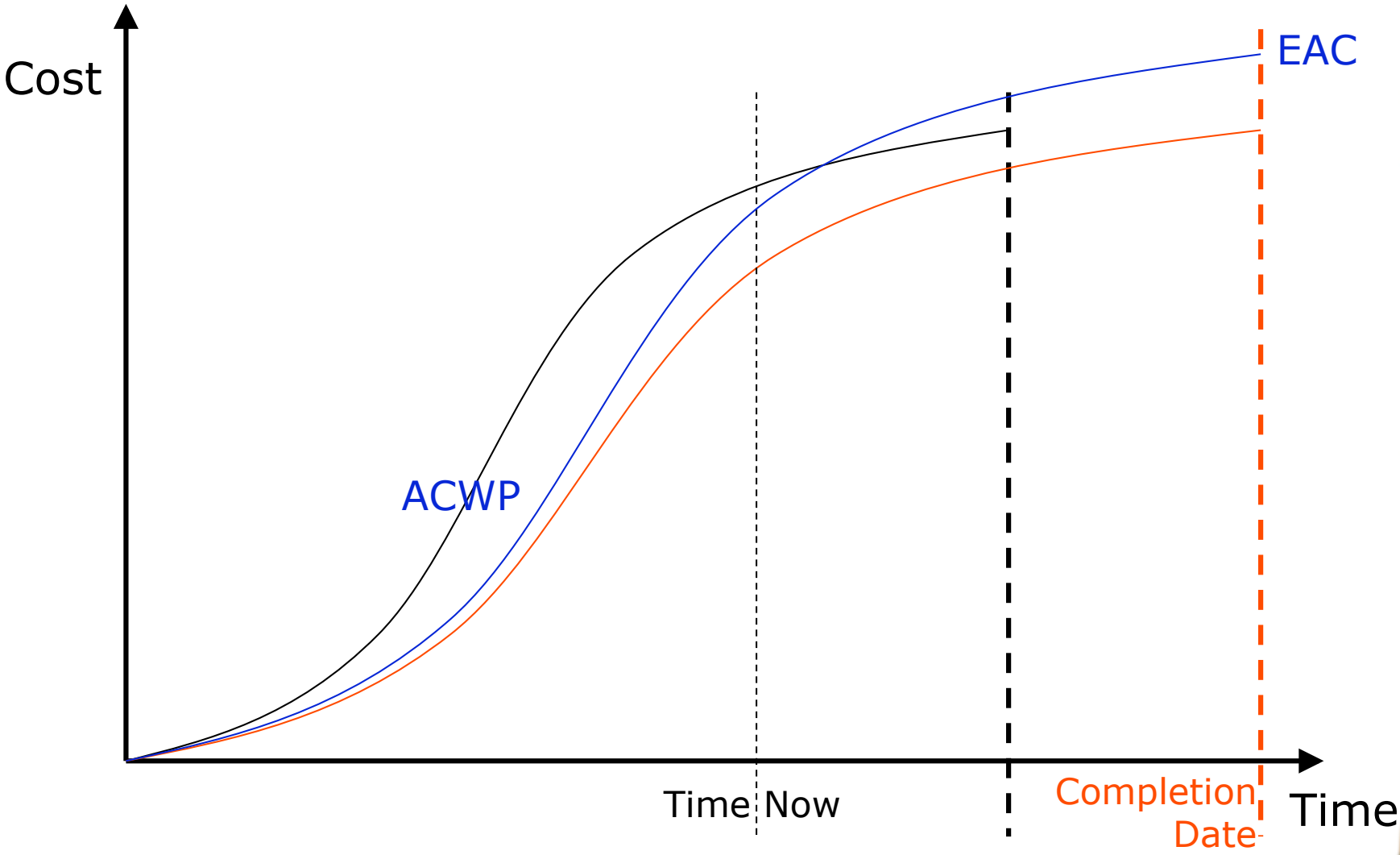
Budget Cost of Work Scheduled



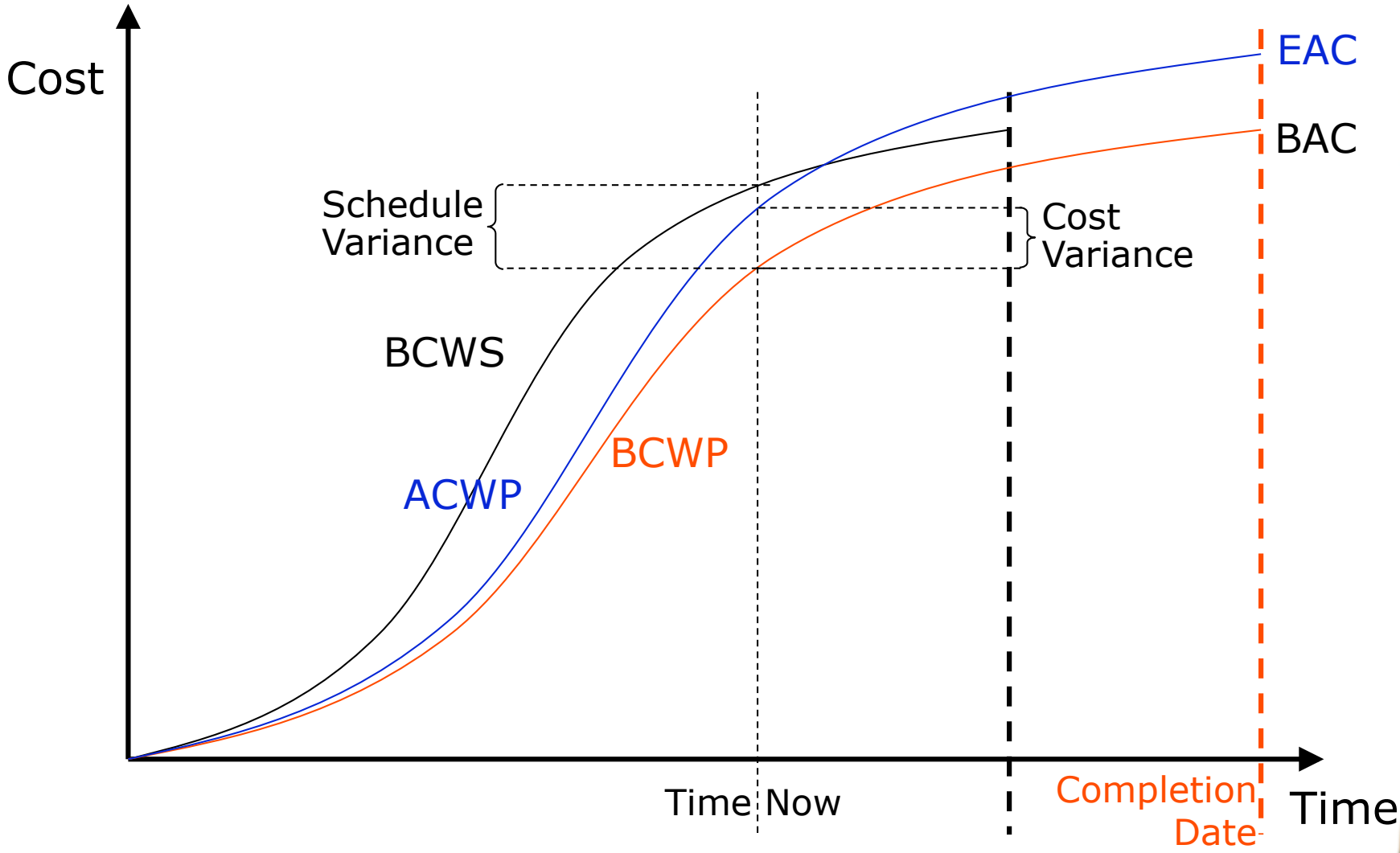
Budget Cost of Work Performed



Actual Cost of Work Performed



Variance Reporting



Variance Reporting

- Cost Variance

  CV = BCWP-ACWP

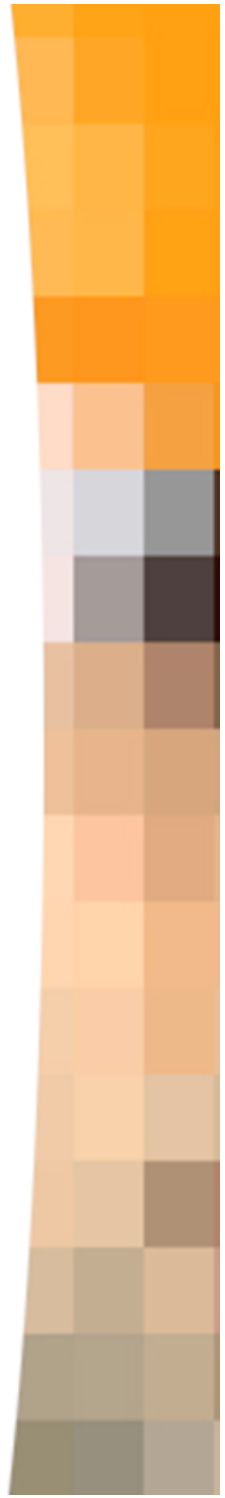
  CV% = CV/BCWP

- Schedule Variance

  SV = BCWP-BCWS

- Variance at Completion

  VAC = BAC-EAC



Performance Reporting

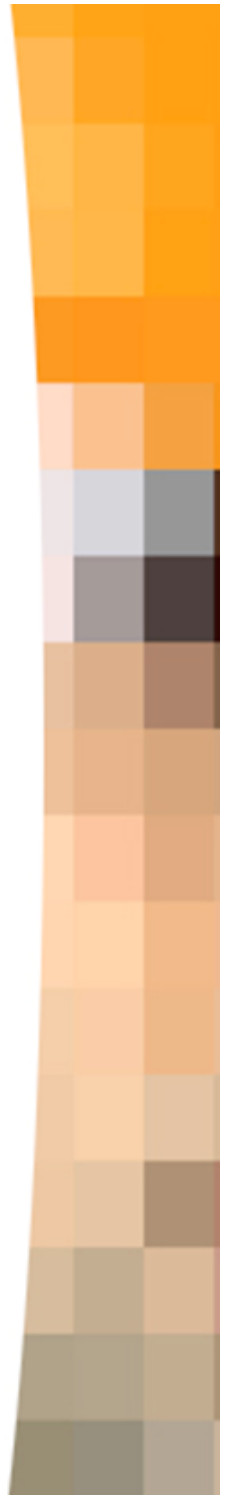
- For Performance indicators
  - Favourable > 1.0 … Unfavourable <= 1.0

- Cost Efficiency

  CPI = BCWP/ACWP

- Schedule Efficiency

  SPI = BCWP/BCWS



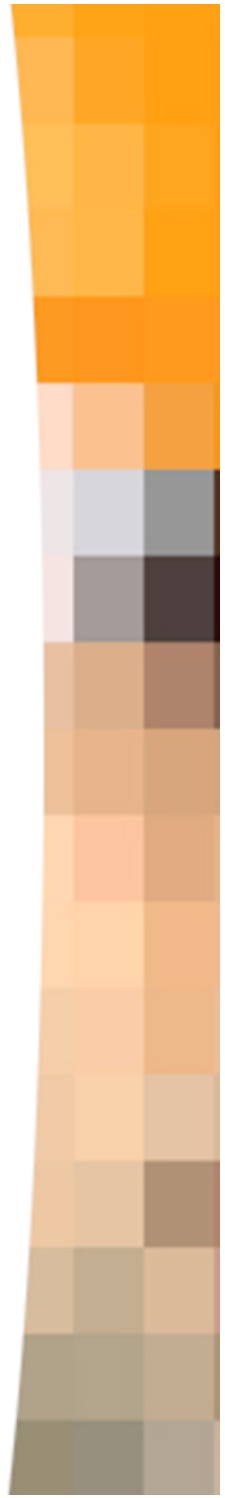
Overall Status Reporting

- Percent Complete =

  (Cumulative BCWP) / BAC

- Percent Spent

  (Cumulative ACWP) / BAC (or EAC)



To Complete Reporting

- To Complete Performance Index (TCPI)

  Work Remaining / Cost Remaining =

  BAC – (Cumulative BCWP) / EAC – (Cumulative ACWP)

- Estimate At Completion (EAC)

  ACWP – Estimate for Remaining Work =

  BAC / (Cumulative CPI)

- Or, Estimate At Completion (EAC)

  ACWP – Estimate for Remaining Work =

  (Cum ACWP) + [BAC – (Cum BCWP)] / CPI * SPI