Integrating Cost and Schedule

Week 10
Construction Estimation, Planning and Control

Time Cost Trade-offs

Assumptions
- Increasing or decreasing and activity duration increases cost for that activity
- Decreasing a project’s duration leads to lower indirect costs
- A project’s duration can be decreased by decreasing duration of critical path
- Delta diff from increasing direct cost and reducing indirect cost: the optimal time and cost

Earned Value

<table>
<thead>
<tr>
<th></th>
<th>Budgeted</th>
<th>Actual</th>
<th>Forecast</th>
</tr>
</thead>
<tbody>
<tr>
<td>Work Scheduled</td>
<td>BCWS</td>
<td>AC/V</td>
<td></td>
</tr>
<tr>
<td>Work Performed</td>
<td>BCWP</td>
<td>ACWP</td>
<td></td>
</tr>
<tr>
<td>At Completion</td>
<td>BAC</td>
<td></td>
<td>FAC</td>
</tr>
</tbody>
</table>

Cost + Schedule

- Guidelines for integrating cost and schedule data
- Pioneered by US Defense agencies in the 1960s
  - DOD: Cost and Schedule Control System Criteria (C/SCSC)
  - DOE: Performance Measurement System (PMS)

Earned Value

- Schedule Variance (SV) = BCWP – BCWS
  - SPI = BCWP/BCWS (Sched. Perform. Index)
- Cost Variance (CV) = BCWP – ACWP
  - CPI = BCWP/ACWP (Bud. Perform. Index)
- EAC = ACWP + (BAC – BCWP)
- Earned Value = % Comp. x BAC

Parameters