Software Development Project Management

Part 2
Tracking How Well are We Doing
One way to track how close to “done” the project is:

- As key parts of a product are **completed**, the product “earns value”.

- Express earned value in % of total value or $ (= % \times \text{budgeted amount for task})

- Some variations allow **partial credit**, others don’t.
Earned Value vs. Time

earned value

100% ——— target: project complete

time

100 200 300
Earned Value vs. Time

earned value

100%

---

task completed

100 200 300

time
Earned Value vs. Time

- Earned value
- 100% project complete
- task completed

- time
- 100, 200, 300
Use of Earned Value Diagram

- Based on project Gantt chart, create a profile **plan** of earned value
- Track **actual** earned value against plan
- Use **discrepancies** to make projections about delivery dates, cost, etc.
Project Ahead of Schedule

 earned value

100%  

actual earned value

planned earned value profile

time

100 200 300
Project Behind Schedule

earned value

100%

planned
earned value
profile

actual earned value

slippage

100  200  300

time
### Earned Value Calculation Example

<table>
<thead>
<tr>
<th>Task</th>
<th>2000</th>
<th>Budget</th>
<th>Percent Complete</th>
<th>Earned Value</th>
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</thead>
<tbody>
<tr>
<td>Task 1</td>
<td></td>
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<tr>
<td>Task 1-1</td>
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<td>$333.00</td>
<td>100.0%</td>
<td>$333.00</td>
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<tr>
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<td>100.0%</td>
<td>$444.00</td>
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<td>Task 1-3</td>
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<td>Task 1-4</td>
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**Budget**

<p>| | | |</p>
<table>
<thead>
<tr>
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<tbody>
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<td>EACVP</td>
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<td></td>
<td>0.00</td>
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</tbody>
</table>
Example Gantt Chart with Earned Value Overlay
Implication of Slippage

- Slippage in earned value may imply slippage in delivery date,
  especially if the slipped task is on the critical path.
Slip Chart

announced delivery date

days into project
Slip Chart

slip = delivery date minus previously announced delivery date

slip = 50 days

new announcement

days into project

announced delivery date
Slip Chart

announced delivery date

slip = 25 days
Slip Chart

smaller slips are better

announced delivery date

slip = 25 days

days into project
Slip Chart

- Announced delivery date
- Actual delivery
- Line of announced = elapsed
- Overall slippage

100 200 300

100 200 300
Word for Windows 1.0 Slip

1880 - 365 = 515% net slip

Slip vs. Lead

- **slip = delivery date** 
  - minus 
  - previously announced delivery date

- **lead = previously announced delivery date** 
  - minus 
  - date on which new delivery announced
Example of Lead

- lead = previously announced delivery date minus date on which new delivery announced

Example:
- Original delivery date = day 200
- On day 100 announce new delivery date: day 300: moderate lead
Example of Lead

- lead = previously announced delivery date minus date on which new delivery announced

- Original delivery date = day 200

- On day 195 announce new delivery date: day 300: very small lead

- Small leads are bad (but small slips are good)
Slip-Lead Chart (plots slips vs. leads)
Slip-Lead Chart
(plots slips vs. leads)

- **Healthy region** (large leads, small slips)
- **Unhealthy region** (large slips, small leads)

Announcements