CSSE 372 Software Project Management:
Introduction to Earned Value Analysis (EVA)

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Planned or unplanned?

Learning Outcomes: Plan (verb)

Create a plan for an intermediate size software project and manage to the plan. Maintain a software project schedule.

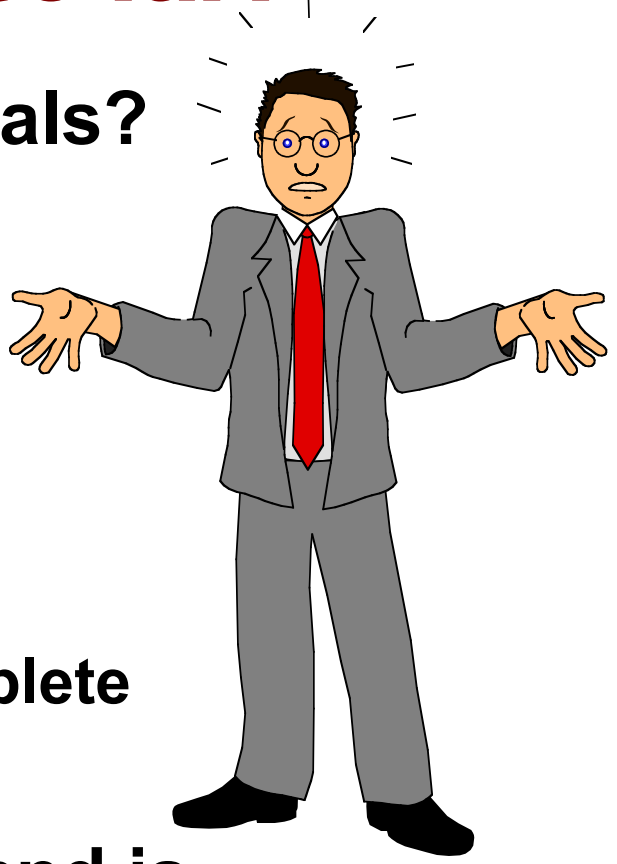
- Controlling Software Projects to the Plan
- Introduce Value and describe how it can be measured
- Examine Earned Value Analysis Concepts

What is the “value” of a software product to an individual customer?

An information system to a firm?

- Think for 14.5 seconds…
- Turn to a neighbor and discuss it for a minute

How do you answer the question: "What have we done so far?"



- What are the Estimates vs. Actuals?
  - % of Budget spent…
  - % of Work completed…
  - % of Time Elapsed…
- Planned progress can be:
  - Subjective, inaccurate, and incomplete
  - Prone to false conclusions
- Actual progress, on the other hand is… often like plans

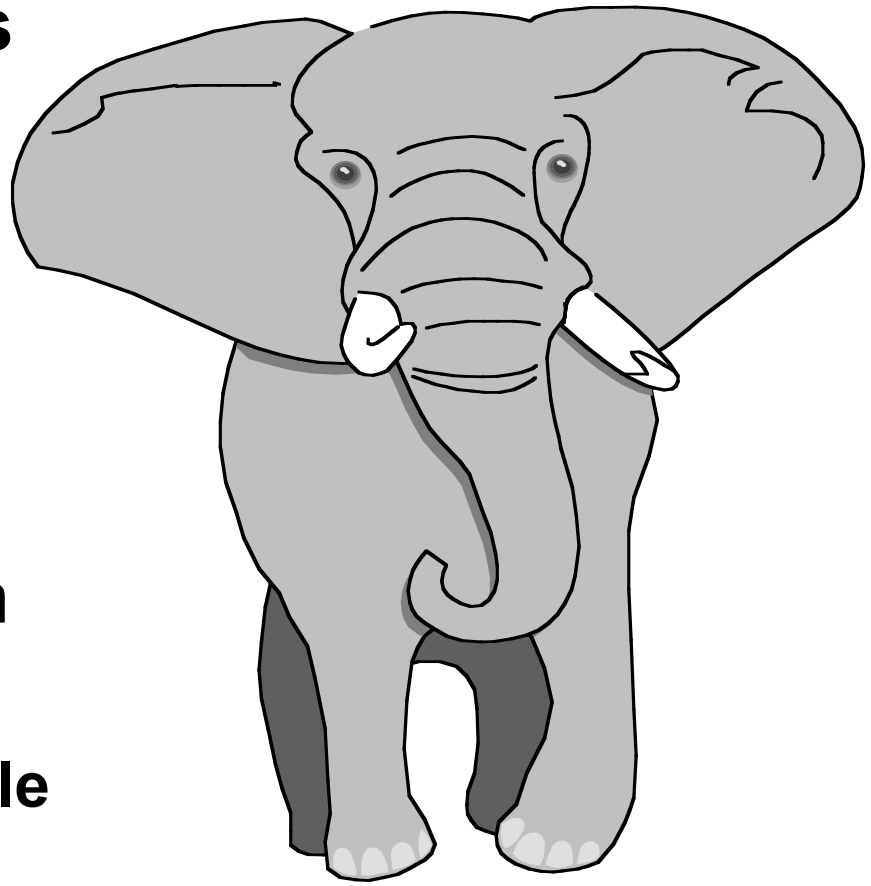
Earned Value

Earned value compares the planned amount of work with what has actually been completed, to determine if cost, schedule, and work accomplished are progressing as planned

- **Work is "Earned" or "credited" as it is completed**

Why Earned Value?

- Provides "Early Warning" call for corrective actions
- Quantifies many of the diverse activities in the development process
- Organizes for pachyderm management :-)
  - Large seemingly impossible projects



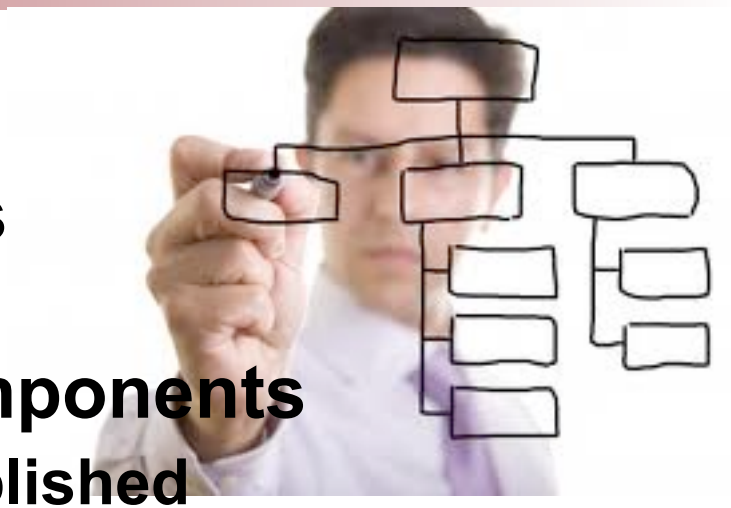
Earned Value Starts with Good WBS

- One WBS per Program/Project
  - Deliverable-oriented
  - Work not in the WBS is out-of-scope
- Full (and accurate) definition is key
  - Defined deliverable(s)
  - Timeframe for delivery

- Total cost (direct and indirect) to deliver product

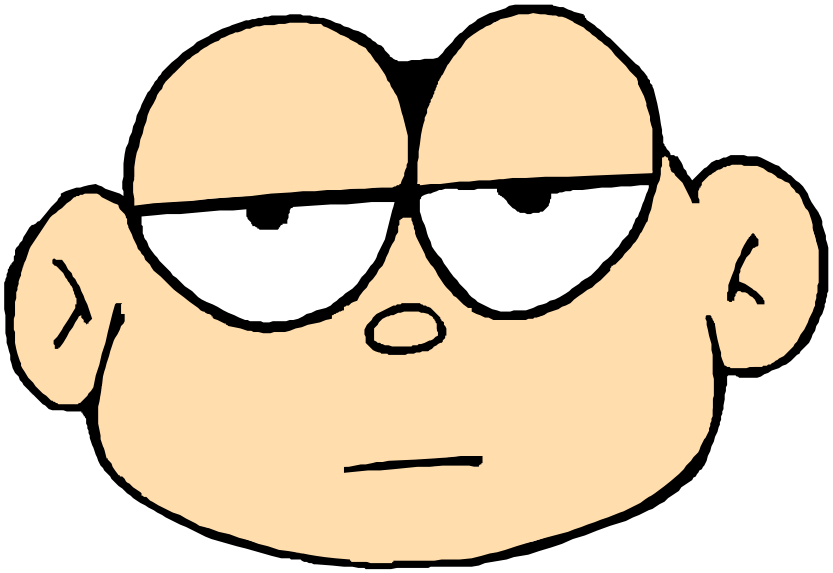
In other words, you need a good plan before earned value is of any value!

Work Packages



- Lowest level WBS elements
- Have three measurable components
  1. Scope of work to be accomplished
  2. Total (direct and indirect) cost
  3. Timeframe for completion
- Size Work Package so that it can be handed off to a task manager/engineer
  - Too large: multiple people responsible for work
  - Too small: program manager winds up micro-managing everything

Enough With the WBS Stuff Already !



Let's talk about Earned Value…

Earned Value Management (EVM)

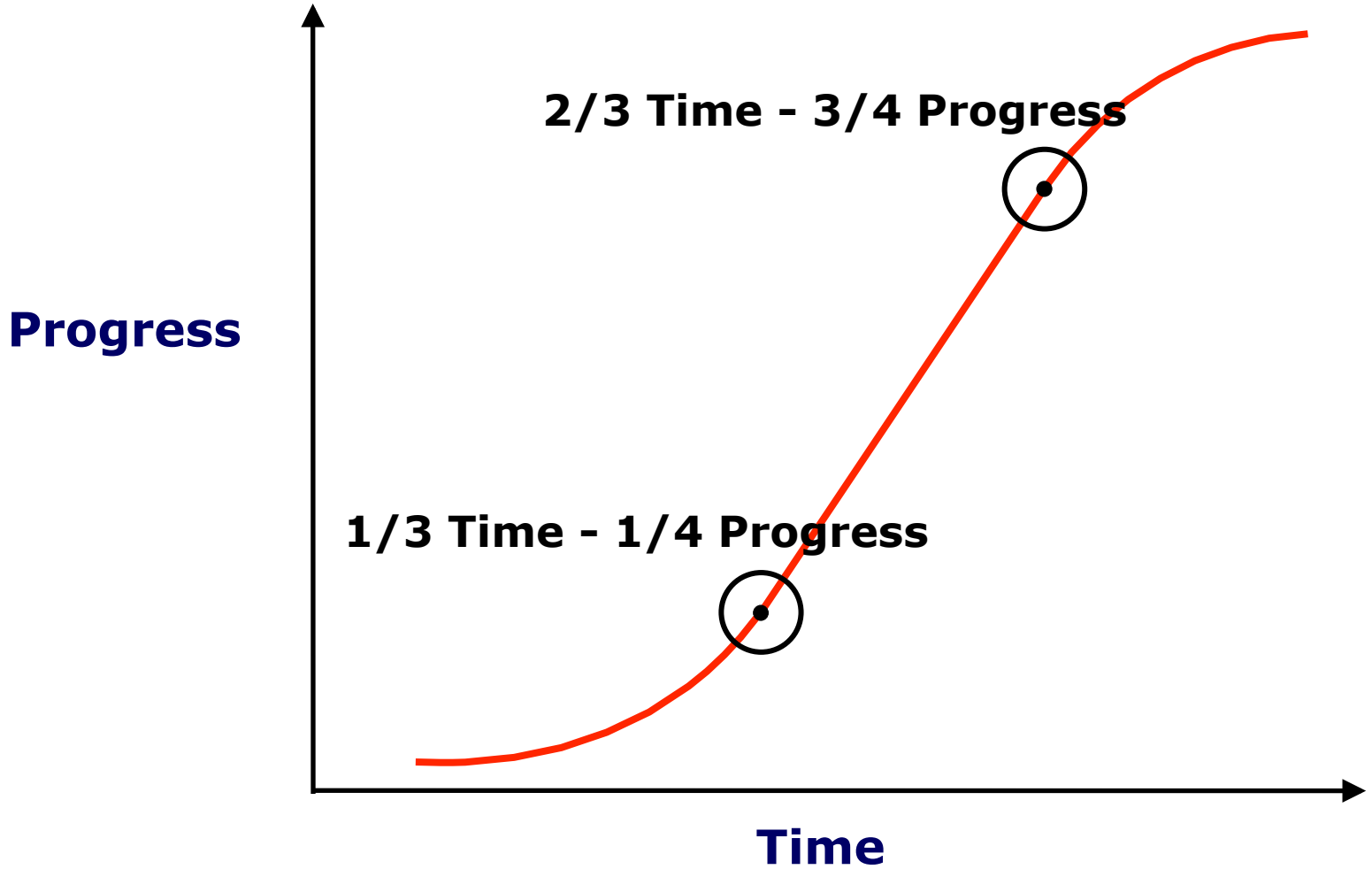
- Popular project performance measurement technique that integrates scope, time, and cost data

- With a baseline (plan + approved changes), you can determine how well the project is meeting its goals
  - Actual project information periodically collected to determine Earned Value

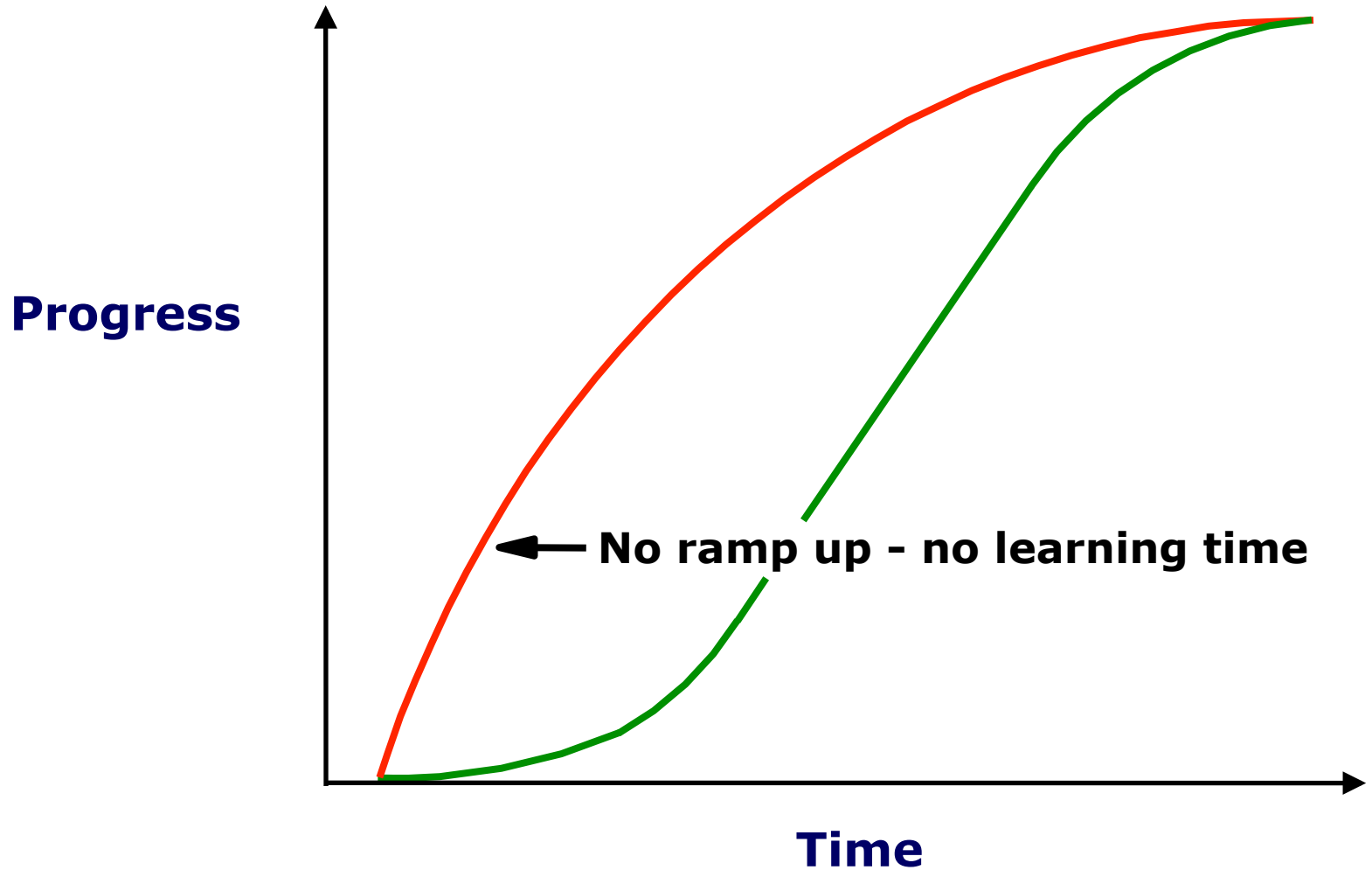
Earned Value Management Terms

- **Planned value (PV)** is the portion of the approved cost estimate planned to be spent on an activity during a given period
  - Also called the budgeted cost of work scheduled (BCWS)
- **Actual cost (AC)** is the total costs (direct and indirect) incurred in completing work on an activity during a given period
  - Also called actual cost of work performed (ACWP)
- **Earned value (EV)** is an estimate of the value of the work actually completed
  - Also called the budgeted cost of work performed (BCWP),
  - EV based on original planned project costs and the rate at which the team is completing work on the project to date

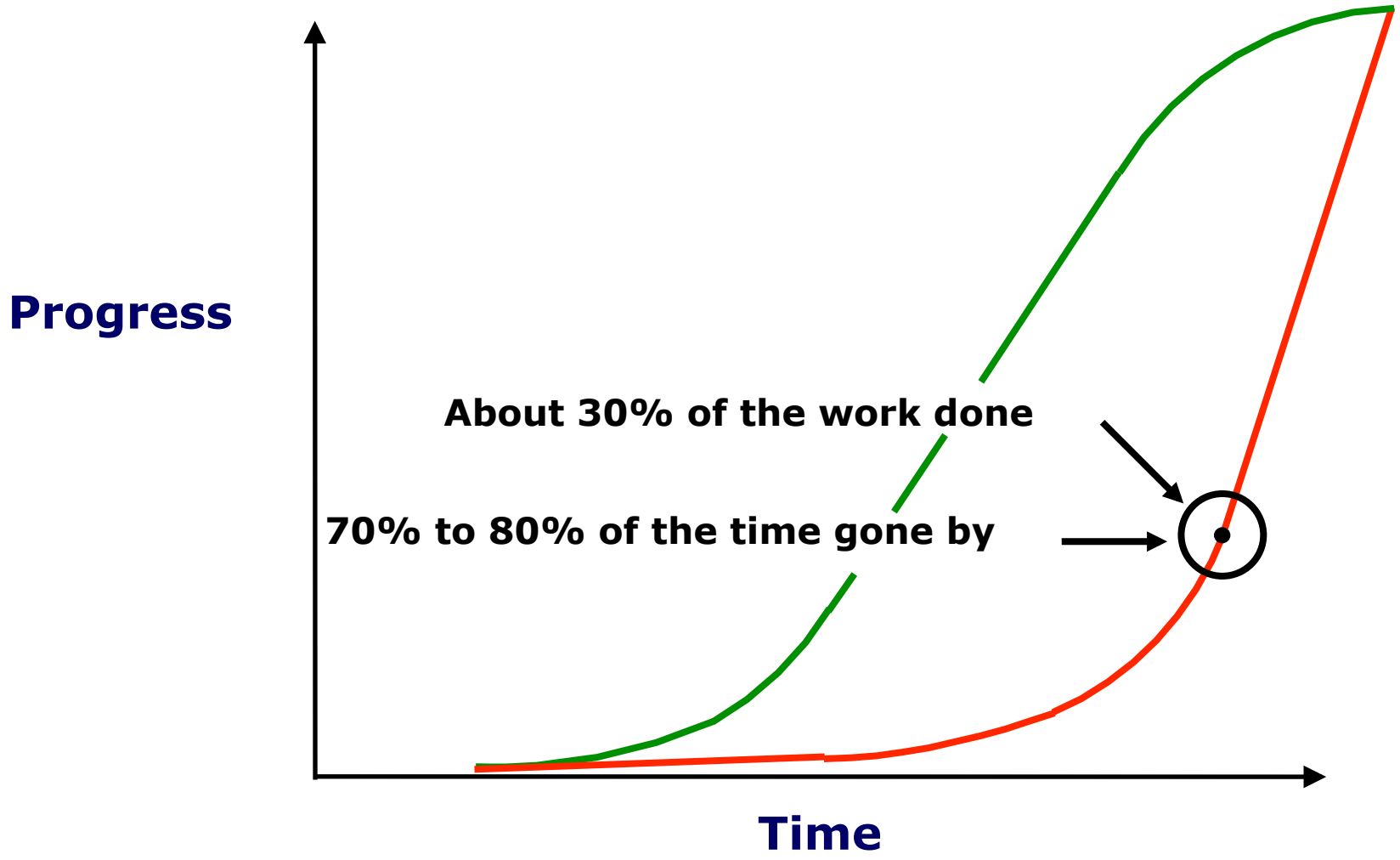
Earned Value – The Standard S-Curve



Earned Value – The Aggressive Curve



Earned Value – The Curve to Avoid



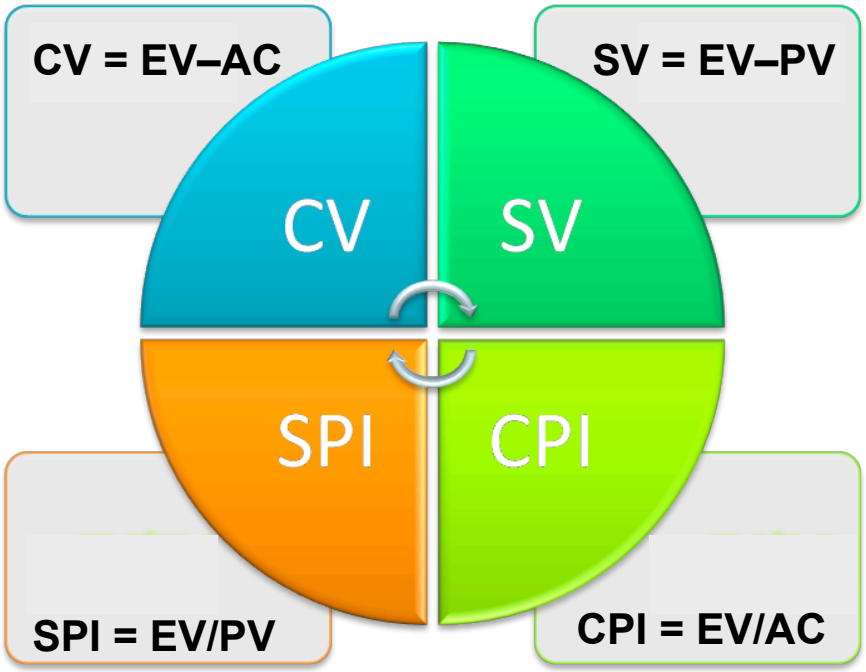
Early years of Computer Addition…

Then laptops, smart phones, iPads…

Earned Value – Basic Performance Metrics

Cost Variance

Difference between projected cost and actual cost.



Schedule Variance

Difference between projected schedule and actual schedule.

Schedule Performance Index

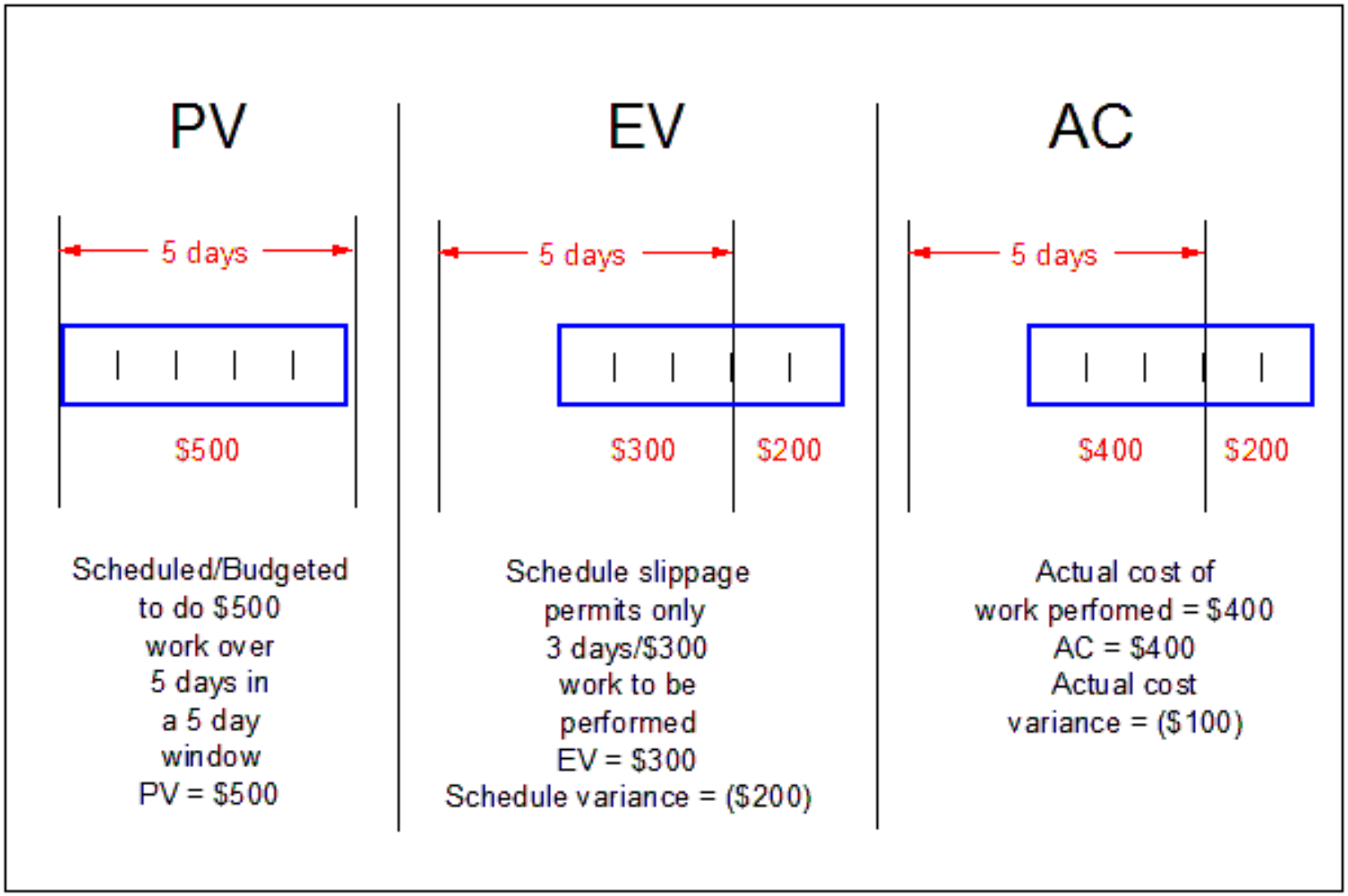
A measure of how close the project is to performing work as it was actually scheduled.

Cost Performance Index

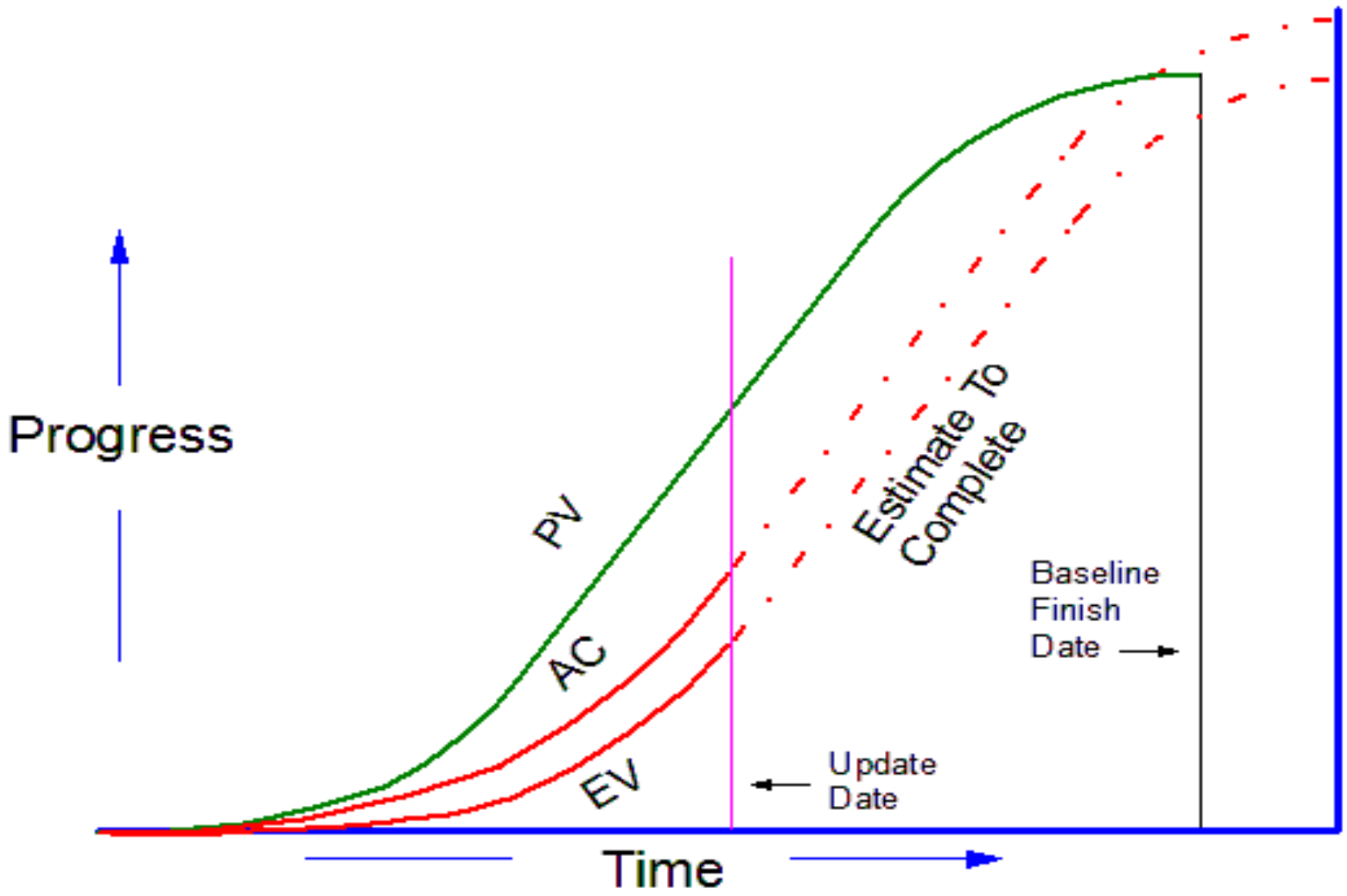
A measure of how close the project is to spending on the work performed to what was planned to have been spent.

INDEX VALUES
< 1: over budget or behind schedule
> 1: under budget or ahead of schedule

How to Measure Earned Value



Earned Value – PV, EV and AC Curves



Let's talk Final Project: Software Project Management Plan

- See Assignment
- Template with Rubric
- Extensive Example
- Work with team effectively – Team Changes...

- Due: 11:55pm, Friday, November 2nd, 2012.
  - No late days – will be reviewed by another team for last homework!

Tomorrow we will bend the mind a bit more with Earned Value…

Homework and Reading Reminders

- Complete Homework 5 – Software Schedule
  - Due by 11:55pm, Tuesday, October 9th, 2012
- Final Project – Software Project Management Plan (SPMP)
  - Completed by team…
  - Due by 11:55pm, Friday, November 2nd, 2012.
  - No late days – will be reviewed by another team for last homework!