PROJECT COST MANAGEMENT

Project Cost Management > Earned Value Analysis

Earned Value Analysis

What Is It ?

Why Do I Need It ?

How Do I Do It?

How to answer the question:

"Have we done what we said we'd do?"

- % complete estimating
  % of Budget spent
  % of work done
  % of time elapsed
  - subjective, incomplete
  - draws false conclusions

Enter Earned Value Analysis

- "Earned Value Analysis" is:
  - an **industry standard** way to:
    - measure a project's progress,
    - forecast its completion date and final cost, and
    - provide schedule and budget variances along the way.

- By integrating three measurements, it provides consistent, numerical indicators with which you can evaluate and compare projects.

What's more Important?

- Knowing where you are on schedule?
- Knowing where you are on budget?
- Knowing where you are on work accomplished?

Examples of informal Earned Value Analysis

It's done informally without realizing it.

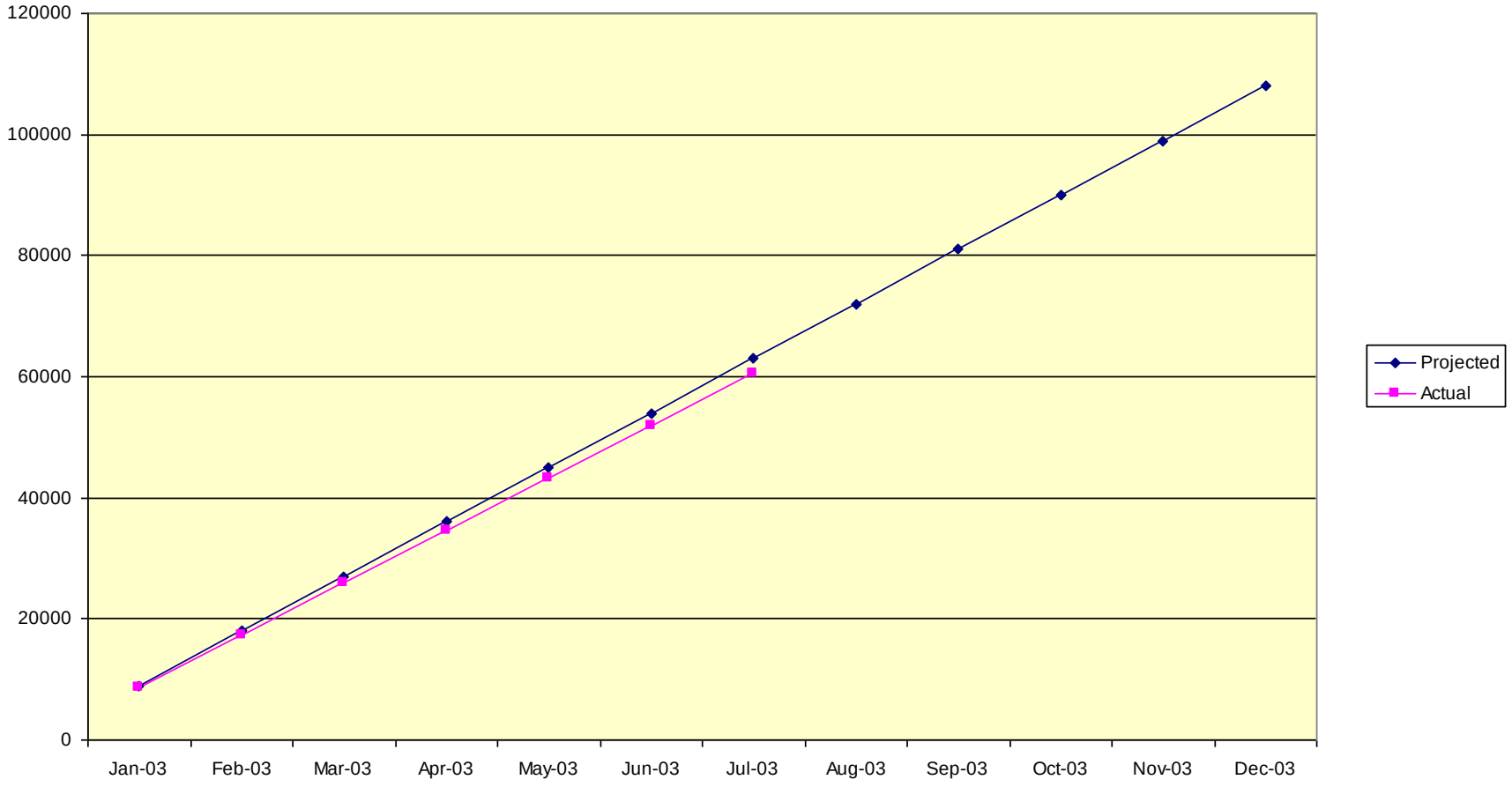
- 30% time used,
- 30% **$$** spent
- So, if 30% of the work is done, I must be OK ??

- Shop floor estimates

- Cost comparisons

  Budget vs. Actual

How’s this project doing?



Some New Terms

- **BCWS** - Budgeted Cost of Work Scheduled
- **ACWP** - Actual Cost of Work Performed
- **BCWP** - Budgeted Cost of Work Performed also called Planned Value (PV)

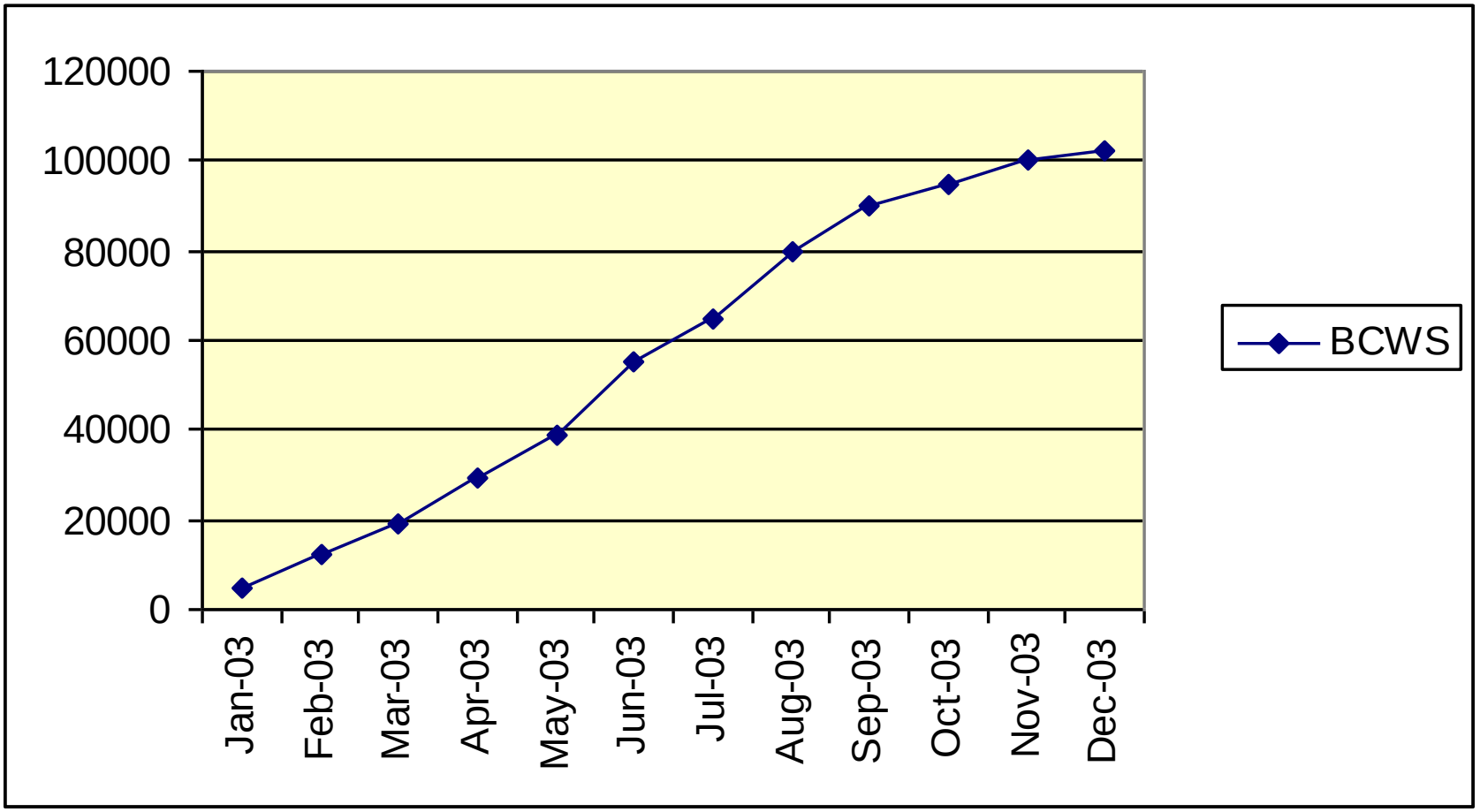
(The Budgeted Cost of Work Performed (BCWP) is the budgeted cost (Dollars) of the value of work that has actually been accomplished)

Earned Value Definitions

*Planned cost of the **total amount of work <u>scheduled</u>** to be **performed** by the **milestone date**.*

BCWS - Budgeted Cost of Work Scheduled

Budgeted Cost of Work Scheduled (BCWS) is the sum of the budgets for all work scheduled to be accomplished with a given time period.

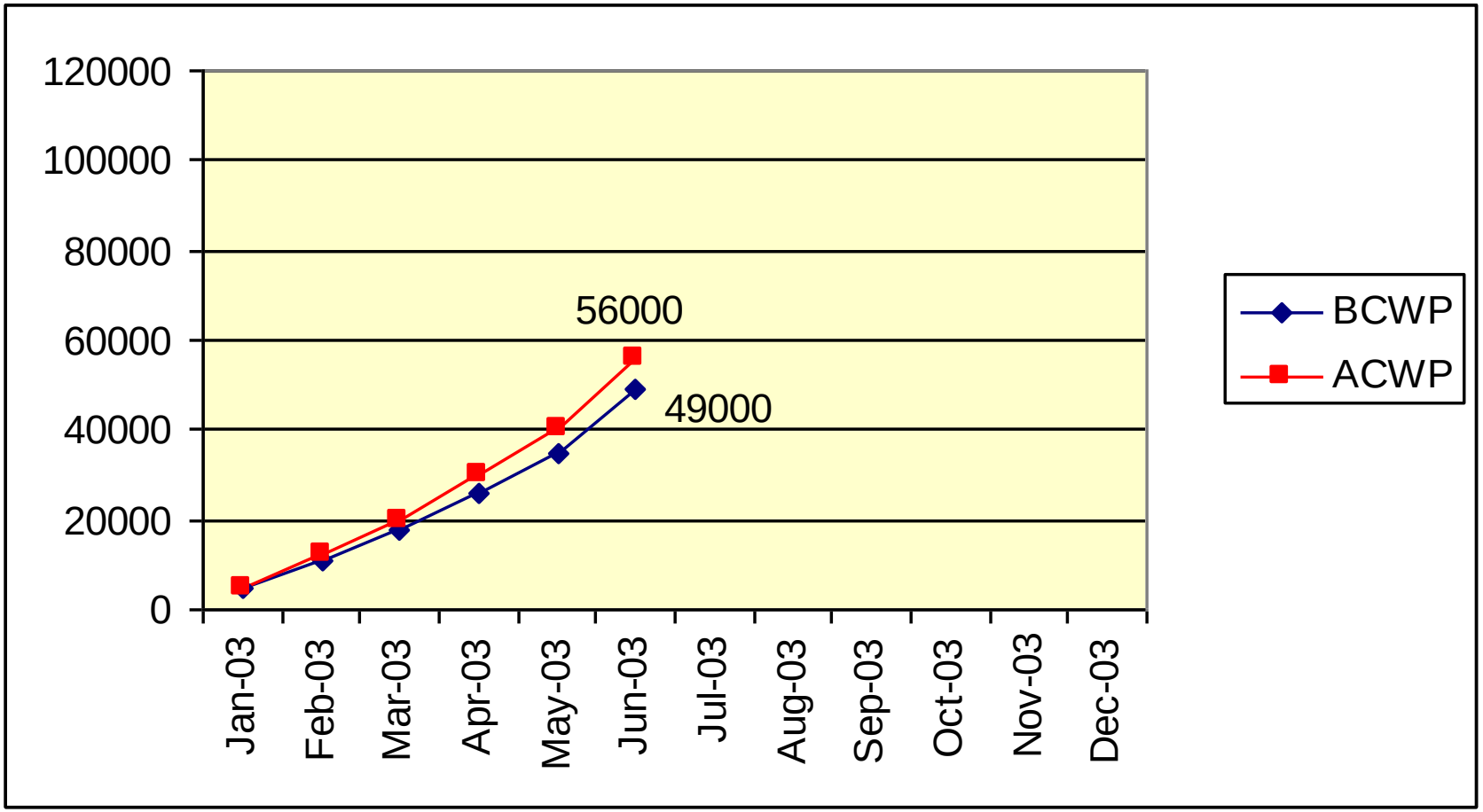


Earned Value Definitions (cont.)

- ACWP: "Actual Cost of Work Performed"

  Cost incurred to accomplish the work that has been done to date.

ACWP - Actual Cost of Work Performed



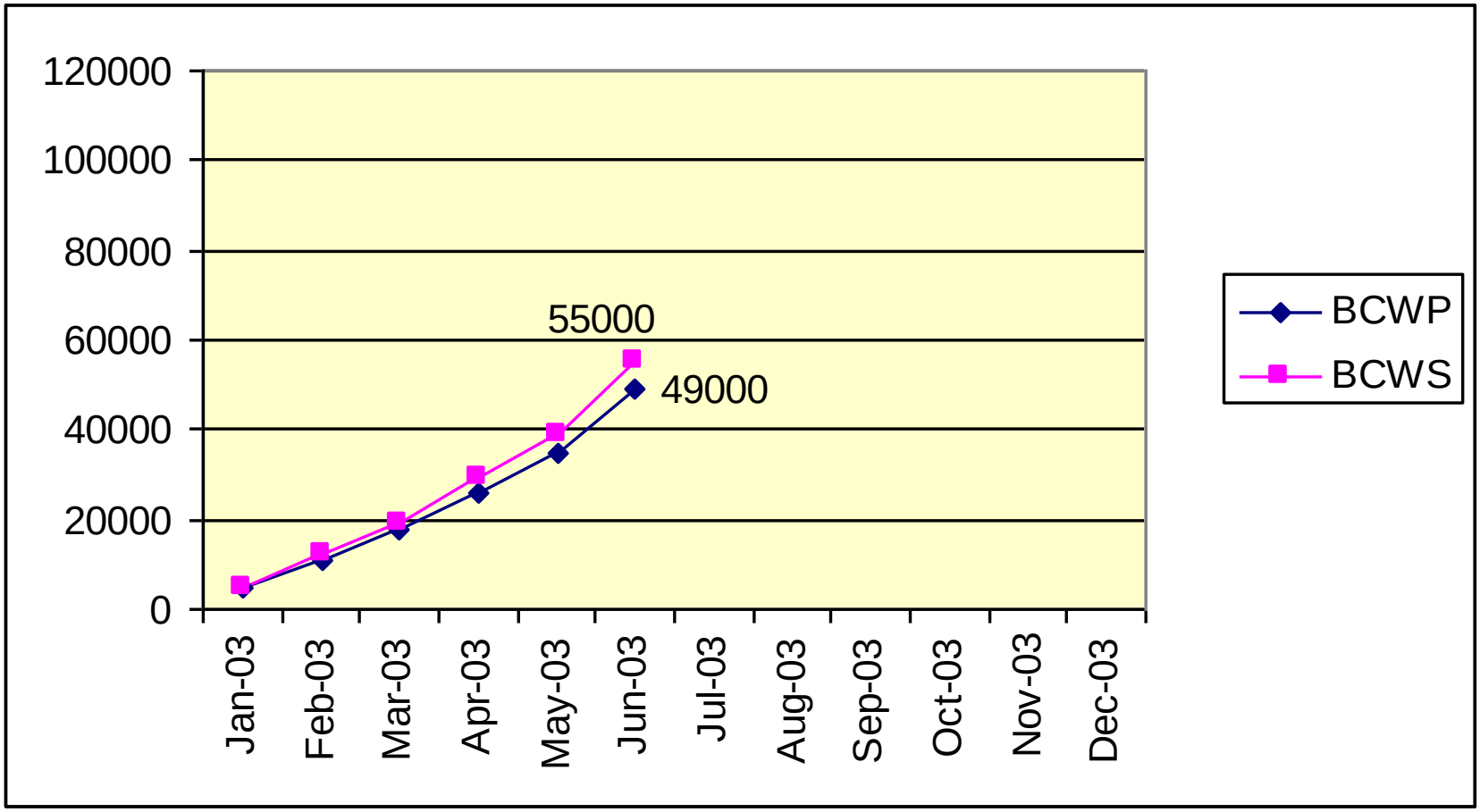
Earned Value Definitions (cont.)

- BCWP: Budgeted Cost of Work Planned /Performed

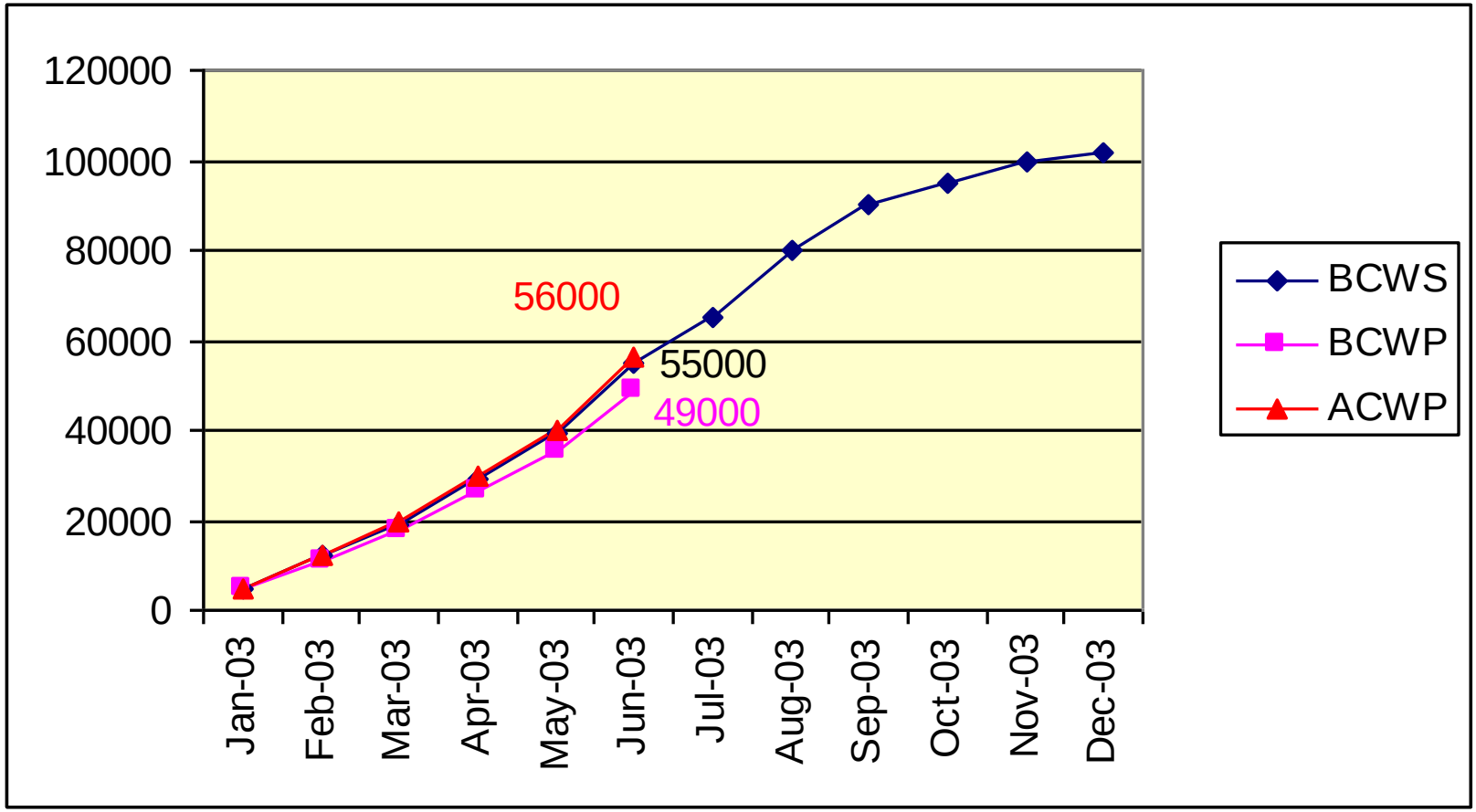
*The **planned** **(not actual)** cost to complete the work that has been done.*

*(The Budgeted Cost of Work Performed (BCWP) is the budgeted cost (Dollars) of the **value of work that has actually been accomplished**)*

BCWP - Budgeted Cost of Work Performed



The Whole Story



Some Derived Metrics

- SV: Schedule Variance (BC**WP**-BC**WS**)
  - A comparison of amount of work performed during a given period of time to what was scheduled to be performed.
  - A negative variance means the project is behind schedule

- CV: Cost Variance (BC**WP**-**A**C**WP**)
  - A comparison of the budgeted cost of work performed with actual cost.
  - A negative variance means the project is over budget.

Schedule Variance & Cost Variance

Schedule Variance = BCWP-BCWS

$49,000
- 55,000
SV = - $ 6,000

Cost Variance = BCWP-ACWP

$49,000
56,000
CV = - $7,000

Some More Derived Metrics

- SPI: Schedule Performance Index

  SPI=BCWP/BCWS

  SPI<1 means project is behind schedule

- CPI: Cost Performance Index

  CPI=

BCWP/ACWP CPI<1 means project is over budget

- CSI: Cost Schedule Index (CSI=CPI x SPI)

  The further CSI is from 1.0, the less likely project recovery becomes.

Performance Metrics

SPI: BCWP/BCWS

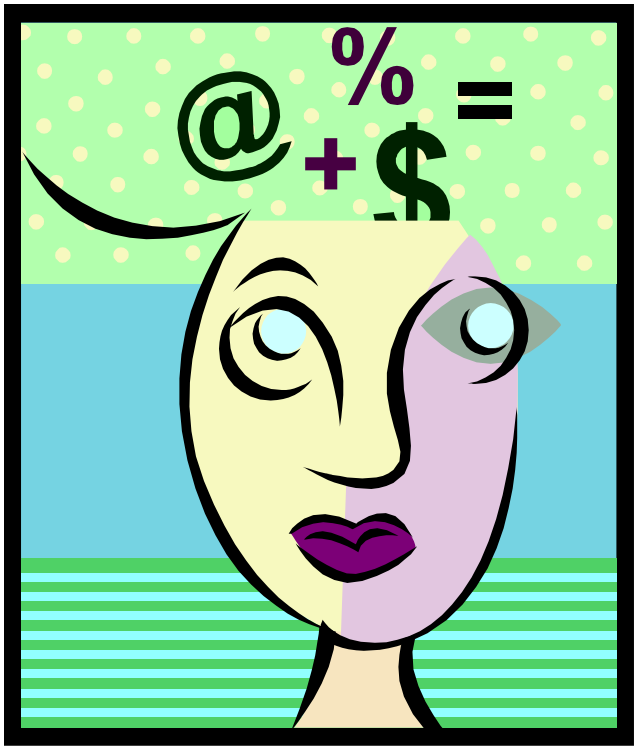
49,000/55,000 = 0.891

CPI: BCWP/ACWP

49,000/56000 = 0.875

CSI: SPI x CPI

.891 x .875 = 0.780



Requirements of Earned Value

- Proper WBS Design
- Baseline Budget Control Accounts
- Baseline Schedule
- Work measurement by Control Account
  - work-hours, dollars, units, etc.
- Good Project Management Practices

Shortcomings of Earned Value

- Quantifying/measuring work progress can be difficult.
- Time required for data measurement, input, and manipulation can be considerable.

Summary

- EVA & EVMS will help reduce guesswork in:
  - Measuring performance
  - forecasting
- Need to get beyond misleading measures of progress.
- Reasons to use EVA and EVMS:
  - Good project management practice
  - OMB requirement
- Incorporate into contracts