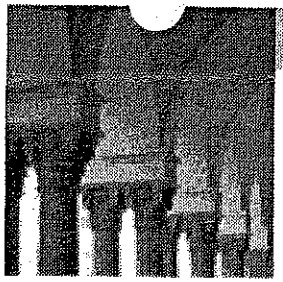
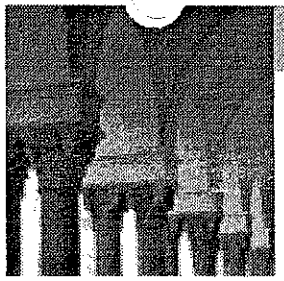


# Project Tracking and Oversight

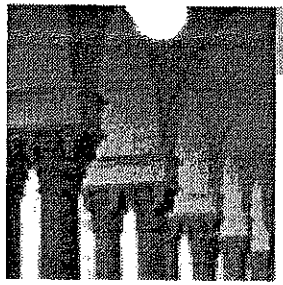
- The Software Engineering Institute states:
  - The purpose of project tracking and oversight is to provide adequate visibility into actual progress so that management can take effective actions when the software project's performance deviates significantly from the software plans

- Project tracking and oversight involves tracking and reviewing the software accomplishments and results against documented estimates, commitments and plans and adjusting these plans based on actual accomplishments and results



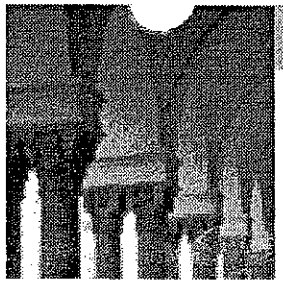
# Project Tracking Methods

- Straight line
- Earned value
- Both techniques require an accurate tracking schedule



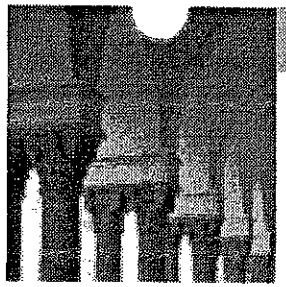
# Updating the Tracking Schedule

- State the tracking interval in the SDP
  - Once per week
  - Once every two weeks



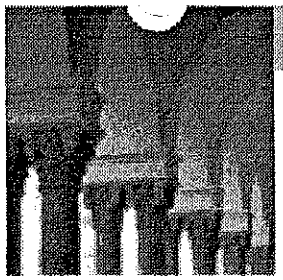
# Updating the Tracking Schedule

- For each task, update the % complete
  - Has actual work begun on this task?
    - "No" = 0 %
    - "Yes" = 25 %
  - Do you know what must be done to complete this task (research complete)?
    - "Yes" = 50 %
  - Is all technical (non-admin) work complete on this task?
    - "Yes" = 75 %
  - Is this task complete?
    - "Yes" = 100 %



# Updating the Tracking Schedule

- For each task, update the
  - Actual start date
  - Actual end dates
  - Actual man-hours



# Updating the Tracking Schedule

- Collect data from staff using a simple status form

**Project Task Status Reporting Form: [ProjectName]**
**(5-point Weighted Milestone)**

| Project Task | Task Work Started? (Yes=25%) | Research Complete? (Yes=50%) | Technicall y Complete? (Yes=75%) | Task Complete? (Yes=100%) | Actual Completio n Date |
|---|---|---|---|---|---|
| Task 1 | | | | | |
| Task 2 | | | | | |
| Task 3 | | | | | |
| Task 4 | | | | | |
| Task 5 | | | | | |
| Task 6 | | | | | |
| Task 7 | | | | | |
| Task 8 | | | | | |
| Task 9 | | | | | |
| Task 10 | | | | | |

**Notes:**

_____

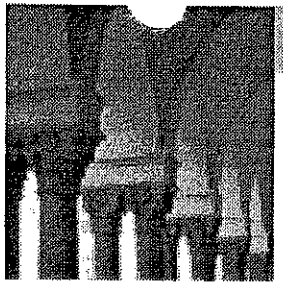
_____

_____

_____

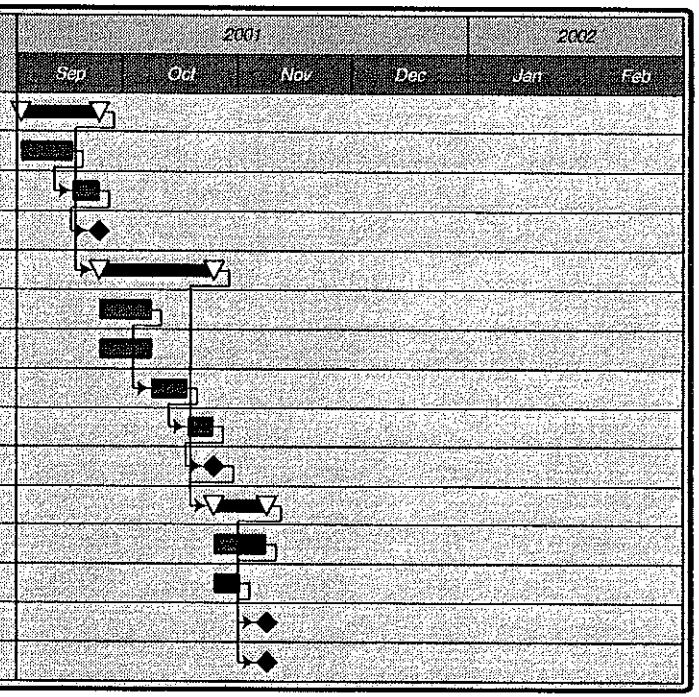
_____

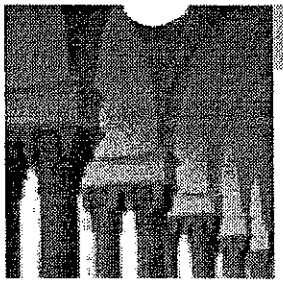
**Project Team Member :** _____ **Date:** _____



# Straight Line Example

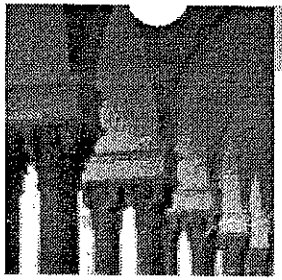
| ID | Task Name | Start Date | End Date | Duration | Actual Start | Actual End | Percent Complete | Actual Hours |
|---|---|---|---|---|---|---|---|---|
| 1 | **Task 1** | **9/4/2001** | **9/25/2001** | **15d** | **9/4/2001** | **9/24/2001** | **0.00%** | |
| 2 | Subtask 1-1 | 9/4/2001 | 9/17/2001 | 80h | 9/4/2001 | 9/17/2001 | 100.00% | 75 hr |
| 3 | Subtask 1-2 | 9/18/2001 | 9/24/2001 | 40h | 9/18/2001 | 9/24/2001 | 100.00% | 40h |
| 4 | Task 1 complete | 9/25/2001 | 9/25/2001 | 0d | 9/25/2001 | 9/25/2001 | 100.00% | |
| 5 | **Task 2** | **9/25/2001** | **10/25/2001** | **22d 4h** | **9/25/2001** | **10/25/2001** | **0.00%** | |
| 6 | Subtask 2-1 | 9/25/2001 | 10/8/2001 | 80h | 9/26/2001 | 10/9/2001 | 100.00% | 80h |
| 7 | Subtask 2-2 | 9/25/2001 | 10/8/2001 | 80h | 9/25/2001 | 10/10/2001 | 100.00% | 88h |
| 8 | Subtask 2-3 | 10/9/2001 | 10/18/2001 | 60h | 10/9/2001 | 10/18/2001 | 100.00% | 45h |
| 9 | Subtask 2-4 | 10/18/2001 | 10/25/2001 | 40h | 10/18/2001 | 10/25/2001 | 100.00% | 40h |
| 10 | Task 2 complete | 10/25/2001 | 10/25/2001 | 0d | 10/25/2001 | 10/25/2001 | 100.00% | |
| 11 | **Task 3** | **10/25/2001** | **11/8/2001** | **10d** | **10/25/2001** | **11/8/2001** | **0.00%** | |
| 12 | Subtask 3-1 | 10/25/2001 | 11/8/2001 | 80h | 10/25/2001 | 11/8/2001 | 50.00% | 60h |
| 13 | Subtask 3-2 | 10/25/2001 | 11/1/2001 | 40h | 10/25/2001 | 11/1/2001 | 25.00% | 24h |
| 14 | Task 3 Complete | 11/8/2001 | 11/8/2001 | 0d | 11/8/2001 | 11/8/2001 | 0.00% | |
| 15 | Project Complete | 11/8/2001 | 11/8/2001 | 0d | 11/8/2001 | 11/8/2001 | 0.00% | |





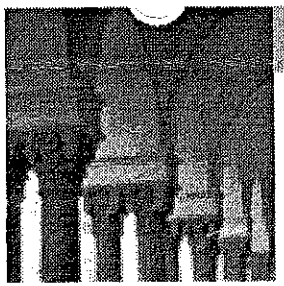
# Earned Value Method

- Earned value is a measurement of how much work has been accomplished on a project
  - Measured in $$
  - Requires work in process to be quantified
- Should be mandatory on larger projects > 1000 person-hours
- Track in a spreadsheet
- Plot the values
- Validate that your version of MS Project calculates earned value correctly



# Earned Value Basics

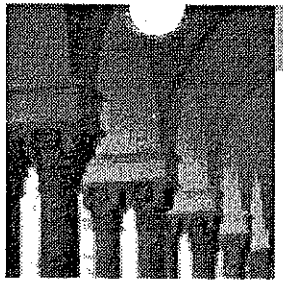
- Basic Data Elements
  - BCWS – Budgeted Cost of Work Scheduled
  - ACWP – Actual Cost of Work Performed
  - BCWP – Budgeted Cost of Work Performed
  - BAC – Budget At Completion
  - ETC – Estimate To Complete
  - EAC – Estimate At Completion



# Earned Value Example

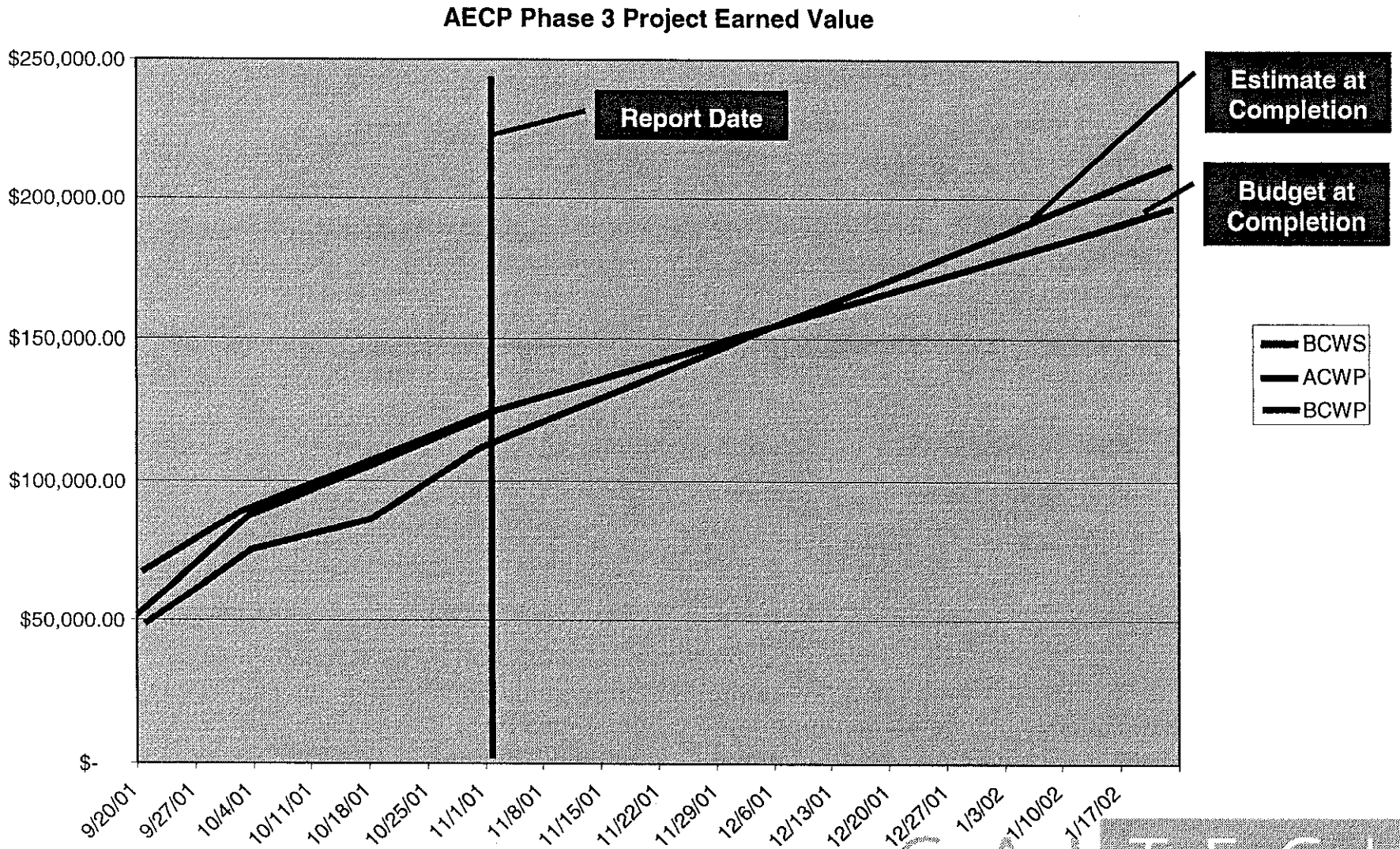
| | Budgeted Cost | | Actuals | Variances | | Performance Indices | | At Completion | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Date | BCWS | BCWP | ACWP | SV | CV | SPI | CPI | BAC | EAC | VAC | Target VAR (within 10%) | Actual Var (% Basis) |
| 9/20/2001 | $ 66,825.04 | $ 52,304.67 | $ 47,589.75 | $ (14,520.37) | $ 4,714.92 | 0.78 | 1.10 | $242,403.60 | $247,014.35 | $ 4,610.75 | $ 24,240.36 | 1.90% |
| 10/3/2001 | $ 90,602.36 | $ 87,297.17 | $ 74,717.29 | $ (3,305.19) | $ 12,579.88 | 0.96 | 1.17 | $242,403.60 | $254,448.64 | $ 12,045.04 | $ 24,240.36 | 4.97% |
| 10/17/2001 | $106,672.33 | $104,352.17 | $ 85,522.02 | $ (2,320.16) | $ 18,830.15 | 0.98 | 1.22 | $196,508.81 | $198,759.35 | $ 2,250.54 | $ 19,650.88 | 1.15% |
| 10/31/2001 | $122,279.72 | $122,054.53 | $ 111,425.97 | $ (225.19) | $ 10,628.56 | 1.00 | 1.10 | $196,508.81 | $211,816.03 | $ 15,307.22 | $ 19,650.88 | 7.79% |

- Microsoft Project schedule updated using techniques described above
- BWCS, BCWP, ACWP and EAC from MS Project report



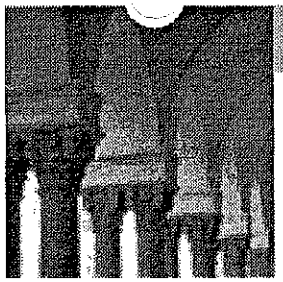


# Earned Value Chart Example

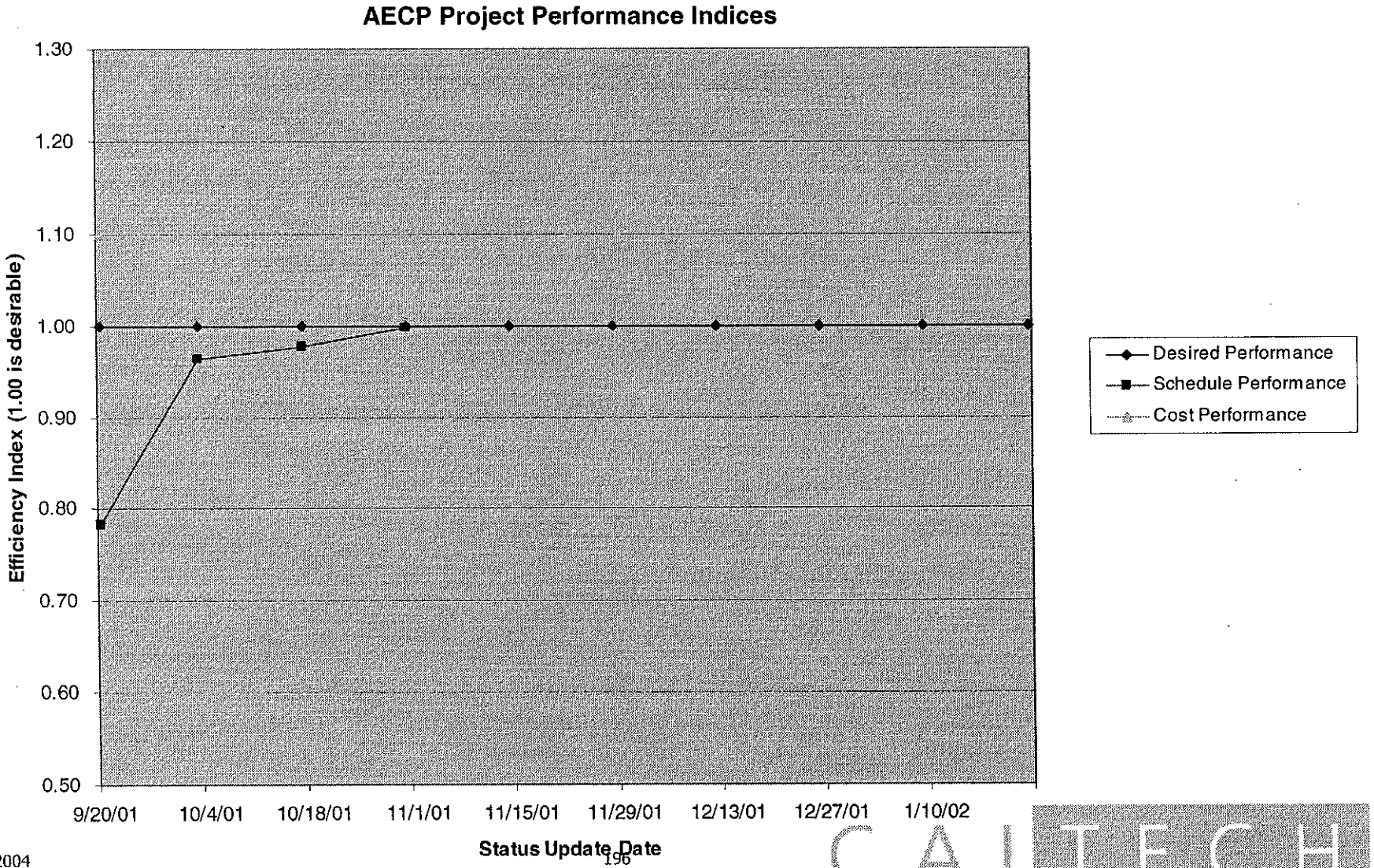


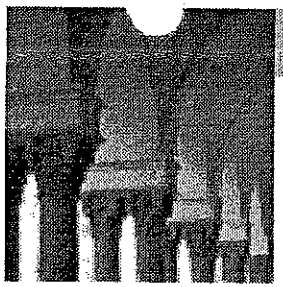



CALTECH



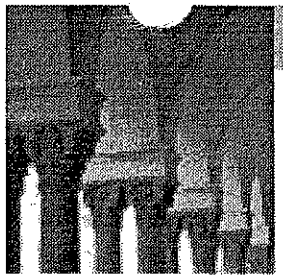
# Performance Indicator Chart Example





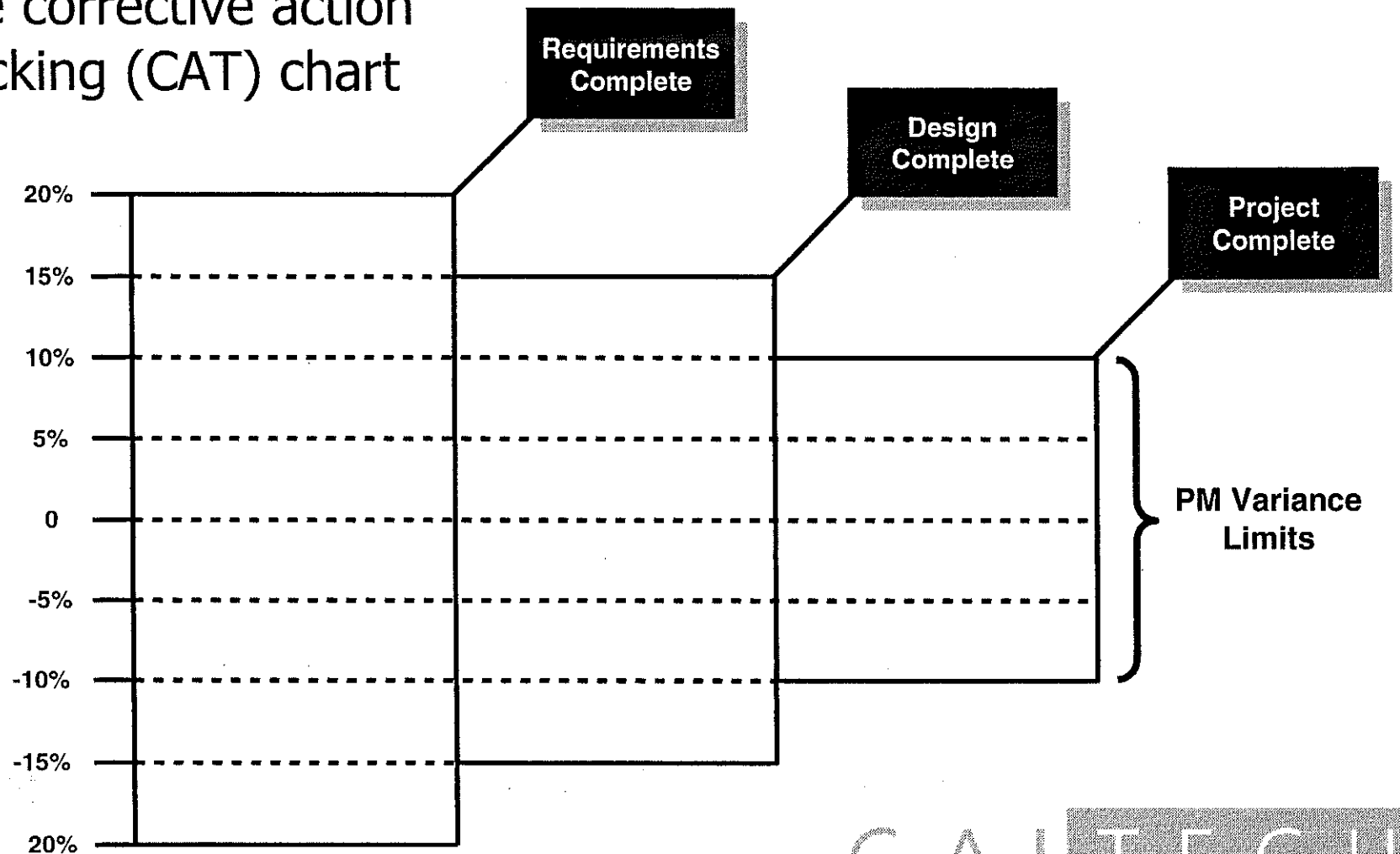
# Variance Analysis

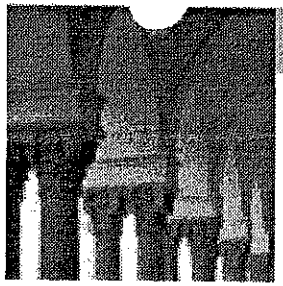
- Take action before senior manager needs to be informed
- Project manager reporting should be twice the frequency of reports to management or to the client
  - Project reports status to client and program manager every two weeks
  - Project manager examines project status weekly
  - Allows for corrective action



# Variance Analysis

- Use corrective action tracking (CAT) chart



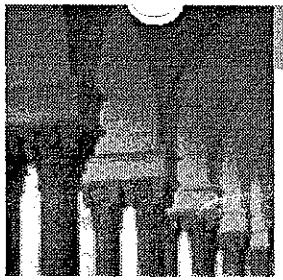




# Project Meetings

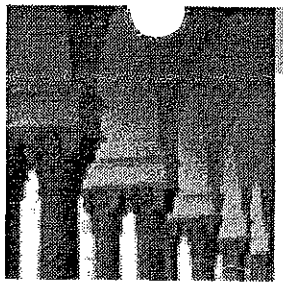
- Mandatory - MBWA is great, but...
  - Project manager doesn't always get good data
  - Minutes aren't taken
- Key meetings
  - Project Kick-Off
  - Project Status
  - Technical Review
  - Client Review
  - Senior Manager Review

management by walking around



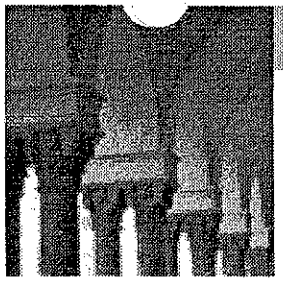
# Project Kick-Off

- Introduces project team members to the project organization and management
  - Scheduled after SDP approval
- Meeting covers
  - Project objectives
  - Roles and responsibilities
  - Project schedule and individual task assignments
  - Project technical administration
  - Project timekeeping and reporting
- Audience
  - Project Manager and Technical staff
  - Client Project Manager
  - Managers of any affected groups



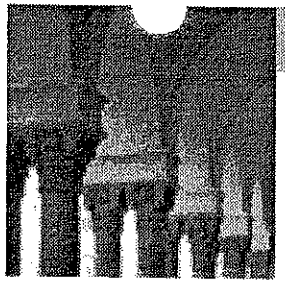
# Project Status

- Review project status and any project-related issues
  - Scheduled on a periodic basis
  - Typically less formal than a technical review
- Meeting covers
  - Project status
  - Action items
  - Project and personnel issues
- Audience
  - Project Manager and Technical Staff
  - Managers or representatives of any affected groups



# Technical Review

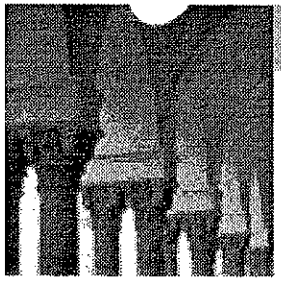
- Formal meeting to review technical implementation of project objectives
  - May be scheduled or event driven
- Meeting covers
  - Project objectives
  - Project schedule
  - Technical issues, alternatives and recommended solutions
- Audience
  - Project Manager and Technical staff
  - Managers of any affected groups





# Client Review

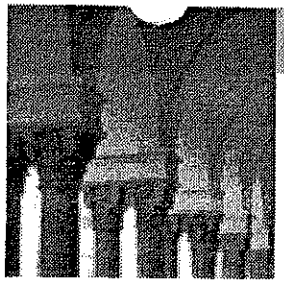
- Formal meetings to review project status
  - Scheduled periodically or event-driven
  - As part of SDP sign-off or other project milestone
- Meeting covers
  - Project objectives
  - Project cost, schedule and effort performance
- Audience
  - Project Manager
  - Client Project Manager
  - Client technical/business representatives
  - Managers of any affected groups/support groups





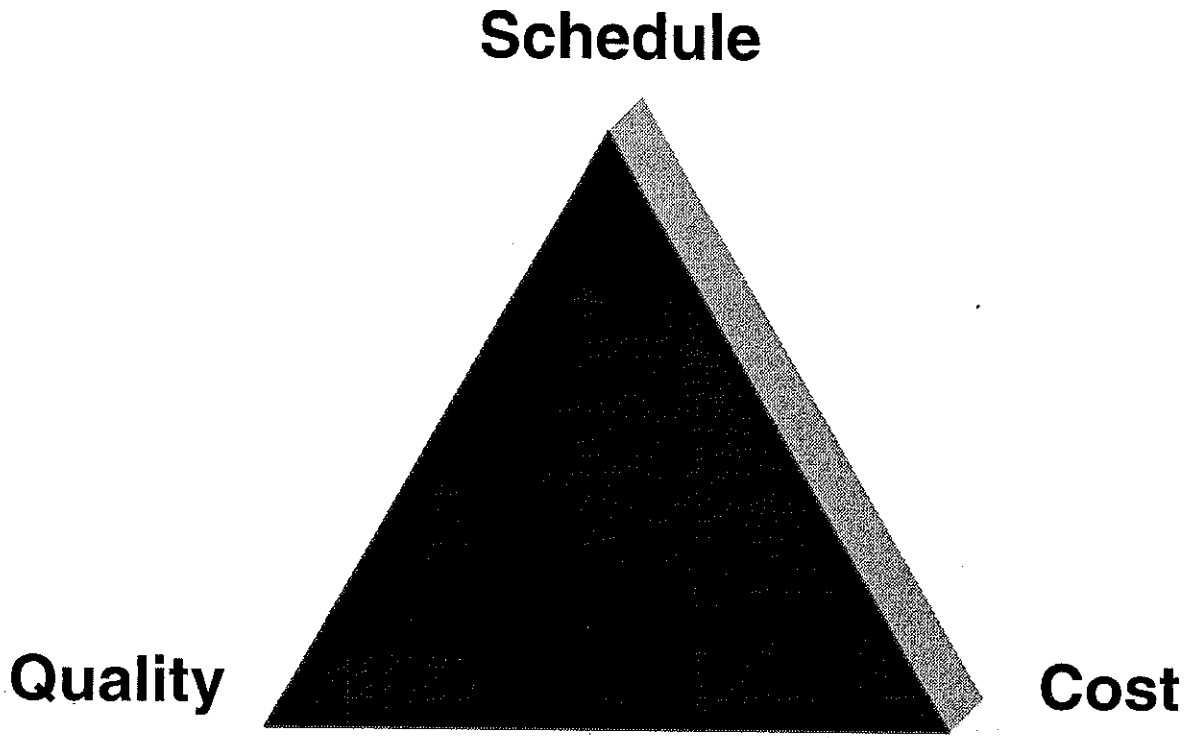
# Senior Manager Review

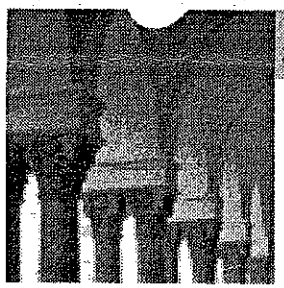
- Usually event-driven
  - Cost or schedule variance outside of CAT chart for two reporting periods in a row
  - Significant risk event occurs or a risk tripwire is hit
  - Change in project commitments (schedule or cost) is required
- Meeting covers all aspects of project activities
  - Project objectives
  - Project cost, schedule and effort performance
  - Client relationship management
  - Technical performance, problems and issues
- Audience
  - Project Manager and Technical staff
  - Managers of any affected groups



# Project Change Management

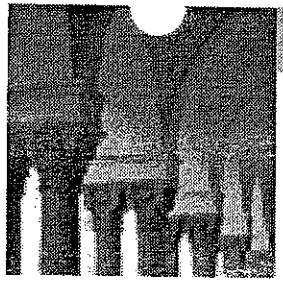
Can only control two out of three factors



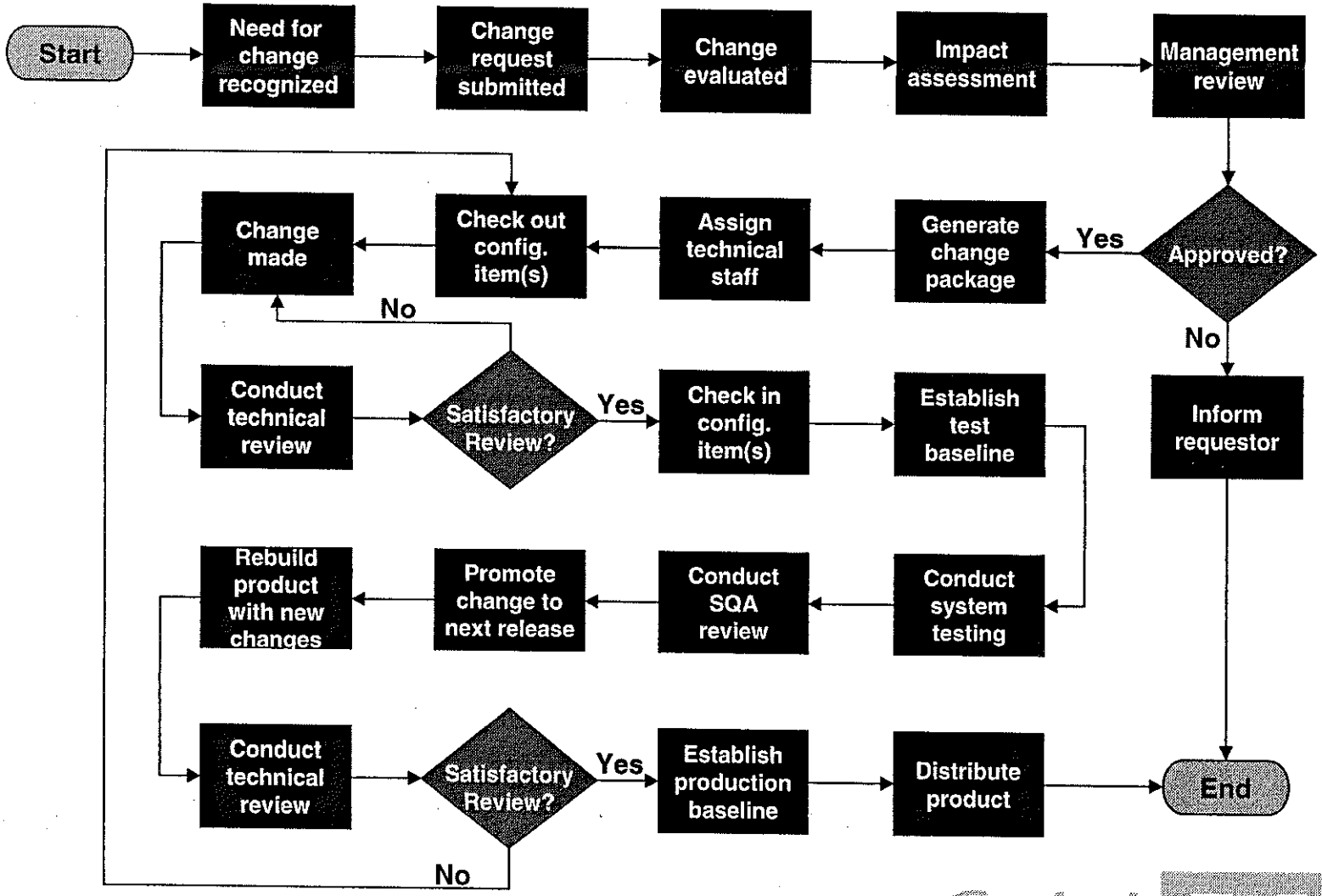


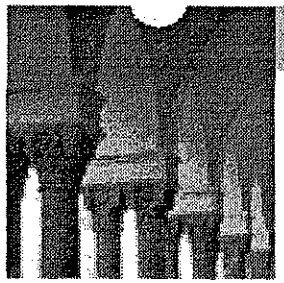
# Replanning

- In response to a senior management review
  - Change in commitments to client
  - Schedule and/or cost variance
- Scope changes, e.g., new requirements
- Update software requirements specification
  - New requirements
  - Deleted requirements
- Re-estimate and update SDP
- Establish a new baseline schedule



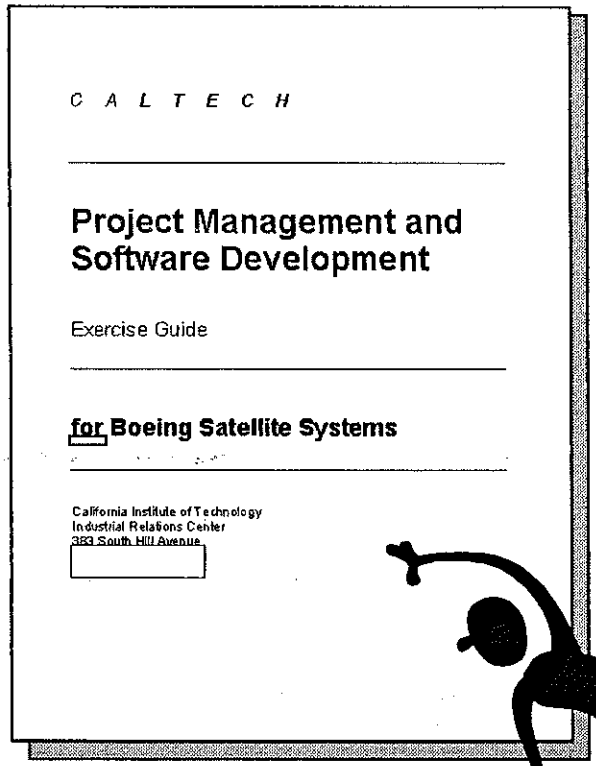
# Replanning Process Flow

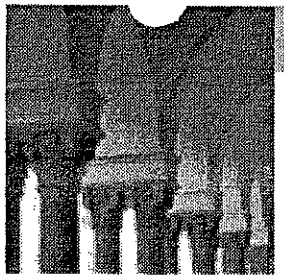




# Exercise

- Provided by instructor







# In Summary

- Can you list 2 methods of tracking progress against the project schedule?
- Can you identify the different meetings that are typically held on a software project?
- Do you understand when replanning is required for a software project?