

Read Chapters (a) Project Management, (b) Project Scheduling and (c) Risk Management from Pressman for this lecture.

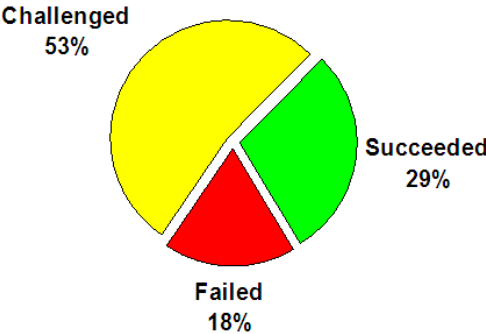
Project Management

Rahul Premraj + Andreas Zeller

CHAOS 2004

SURVEY RESULTS

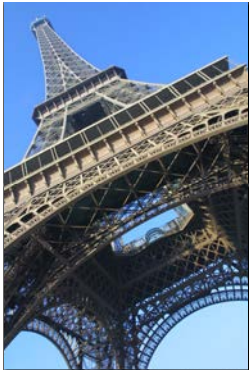
Resolution of Projects



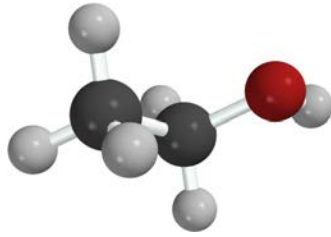
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reliability of data questioned!

Software Projects vs. Engineering Projects

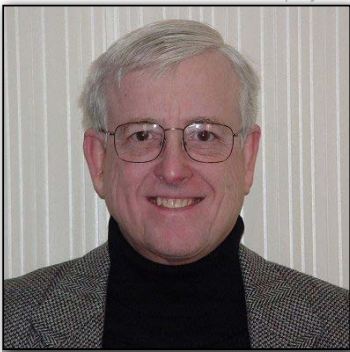


Software Development Craft or Science?



Software Project Management

Caper Jones

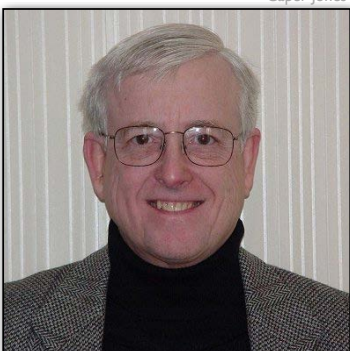


- Investigated 250 large projects.
- Unsuccessful projects showed weaknesses in:
 - Project Planning
 - Cost Estimation
 - Measurements
 - Milestone Tracking
 - Change Control
 - Quality Control

http://ii.metu.edu.tr/~is529/course_material/papers/Software%20Project%20Management%20Practices-Jones-2004.pdf
(Read if interested)

Software Project Management

Caper Jones



...the most interesting aspect of these six problem areas is that all are associated with project management rather than with technical personnel.

http://ii.metu.edu.tr/~is529/course_material/papers/Software%20Project%20Management%20Practices-Jones-2004.pdf (Read if interested)

Laws of Project Management

- No major project is ever installed on time, within budget and with the same staff.
- Projects progress quickly until 90% complete; then they remain at 90% complete forever.
- One advantage of fuzzy project objectives is they let you avoid estimating costs.
- When things are going well, something will go wrong. When things just can't get worse, they will. When things seem to be improving – you've overlooked something.
- If project content is allowed to change freely, the rate of change will exceed the rate of progress.

Laws of Project Management

- No system is ever completely debugged. Attempts to debug a system inevitably introduce new bugs that are even harder to find.
- A carelessly planned project will take three times longer to complete than expected: A carefully planned project will take only twice as long.
- Project teams detest progress reporting because it vividly manifests their lack of progress.

The Iron Triangle

Scope
(Features, Functionality)

Quality

Resources
(Cost, Budget)

Schedule
(Time)

© Scott W. Ambler

<http://www.ambyssoft.com/essays/brokenTriangle.html>

http://en.wikipedia.org/wiki/Project_triangle

This triangle reflects the fact that the three properties of a project are interrelated, and it is not possible to optimize all three – one will always suffer. In other words you have three options:

Design something quickly and to a high standard, but then it will not be cheap.

Design something quickly and cheaply, but it will not be of high quality.

Design something with high quality and cheaply, but it will take a long time.

People

The most important ingredient that was successful on this project was having smart people... very little else matters in my opinion.

In a study published by the IEEE, the engineering [vice](#) presidents of three major technology companies were asked the most important contributor to a successful [software](#) project. They answered in the following way ...

People

Stakeholders



- Senior managers
- Project managers
- Practitioners
- Customers
- End-users

People

Team Leaders



... individuals just fall into a project manager role and become accidental project managers.

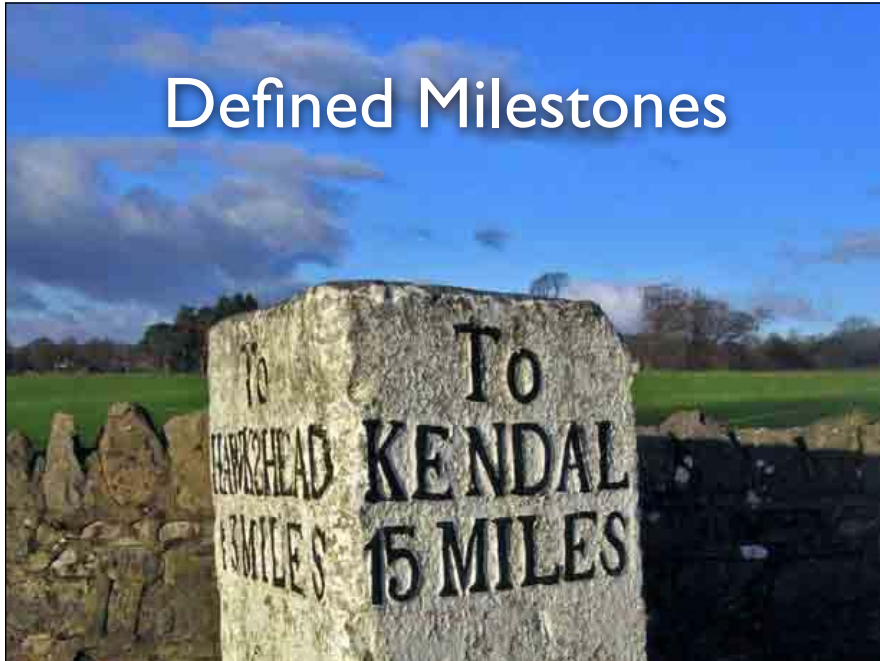
- Motivation
- Organization
- Ideas or innovation

Defined Outcomes



Every scheduled task should have a defined outcome – also called a *deliverable* (such as a document)

Defined Milestones

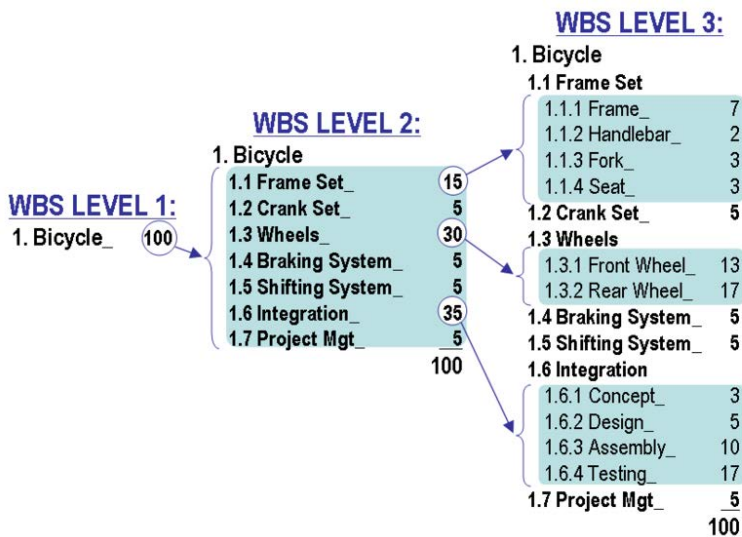


Every task should have a *milestone*. A milestone is reached when a deliverable has been reviewed for quality and has been approved.

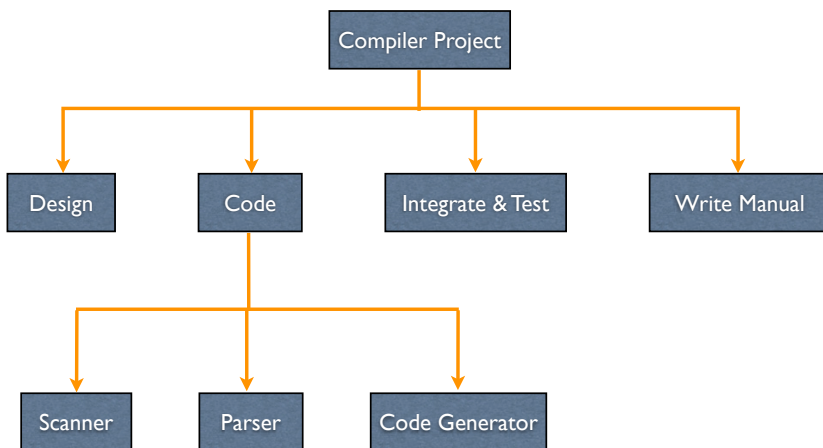
Scheduling Tools



Work Breakdown



Work Breakdown



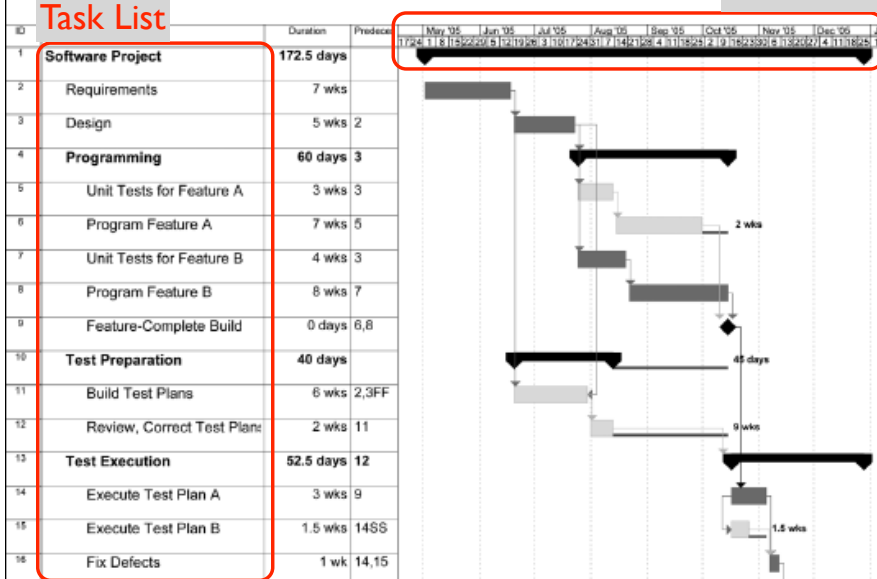
Work Breakdown

Advantages

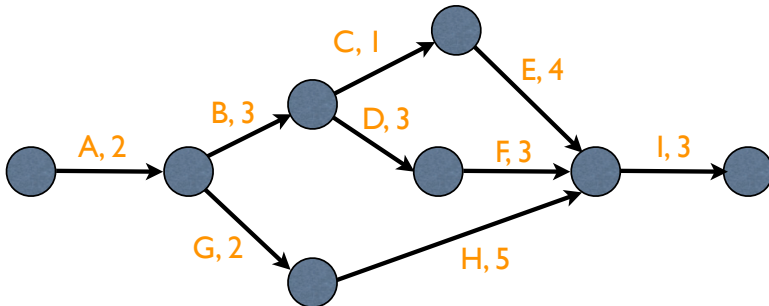
- Serves as basis for project scheduling, resource allocation and budgeting.
- Structured approach.
- Minimizes omissions.
- Right level of detail.
- Good communication tool.

Gantt Chart

helps you schedule, budget and allocate resource

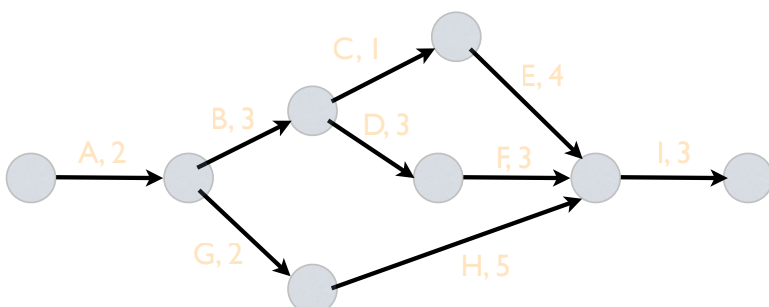


PERT Charts



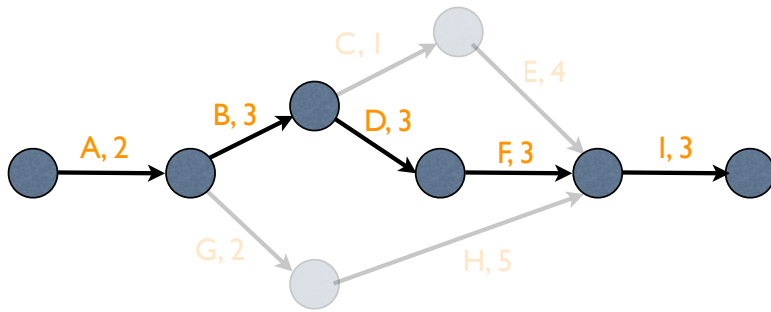
PERT Charts

Arrows indicate tasks



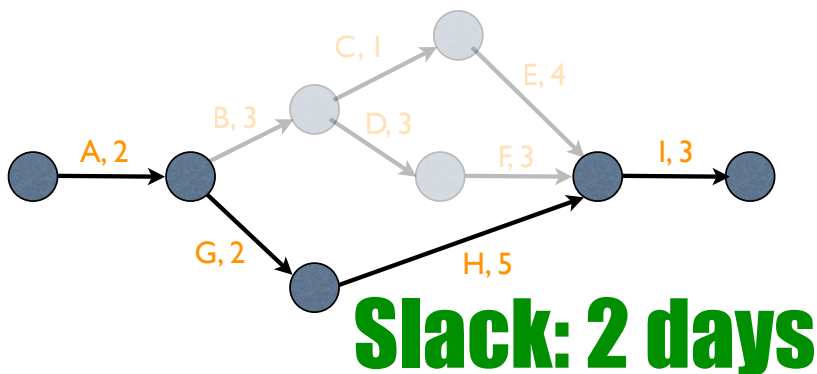
PERT Charts

There are several routes to reach from start to finish.
Time to complete: 14 days!



PERT Charts

There are several routes to reach from start to finish.
Time to complete: 12 days!



PERT Charts

- Optimistic time (O): the minimum possible time required to accomplish a task, assuming everything proceeds better than is normally expected.
- Pessimistic time (P): the maximum possible time required to accomplish a task, assuming everything goes wrong (but excluding major catastrophes).
- Most likely time (M): the best estimate of the time required to accomplish a task, assuming everything proceeds as normal.

http://en.wikipedia.org/wiki/Program_Evaluation_and_Review_Technique
AND

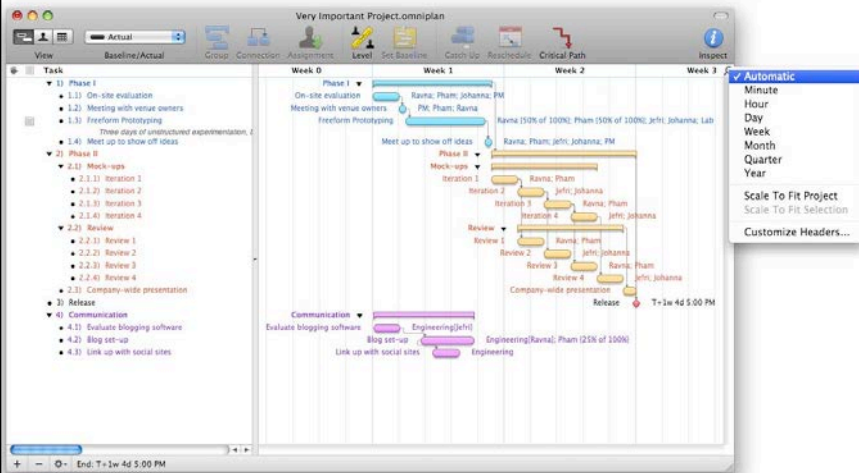
<http://www.egr.msu.edu/classes/ece480/goodman/gantt1.pdf>

PERT Charts

PERT is useful because it provides the following information:

- Expected project completion time.
- Probability of completion before a specified date.
- The critical path activities that directly impact the completion time.
- The activities that have slack time and that can lend resources to critical path activities.
- Activity start and end dates.

Project Planning Tools



Risk Management

He who will not risk cannot win (John Paul Jones, 1791).



Pressman, Ch. 25
