JACOBS UNIVERSITY

Software Process and Project Management

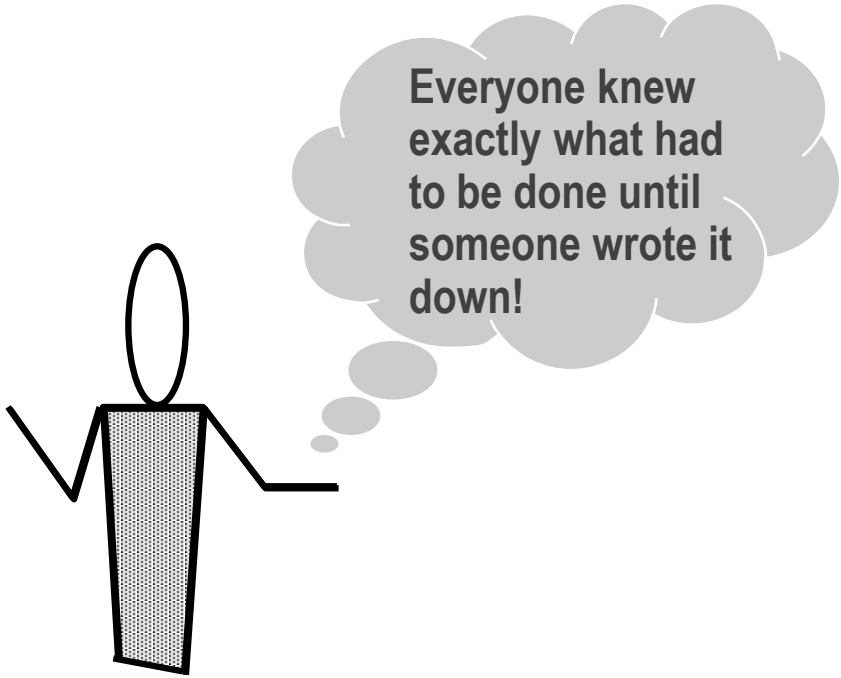
Sommerville, Chapters 4, 17
Pressman

Instructor: Peter Baumann

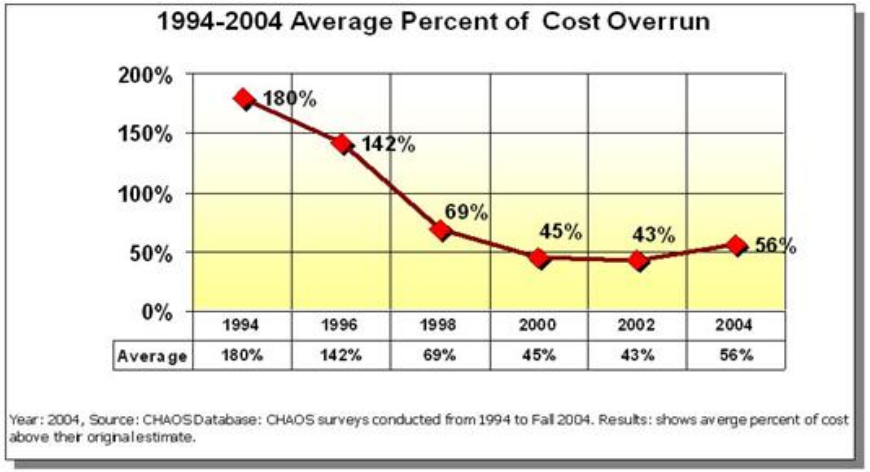
email: p.baumann@jacobs-university.de

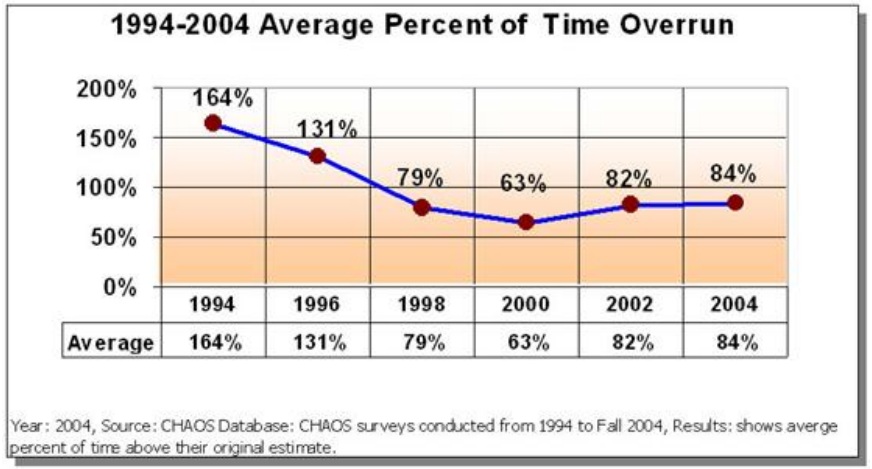
tel: -3178

office: room 88, Research 1

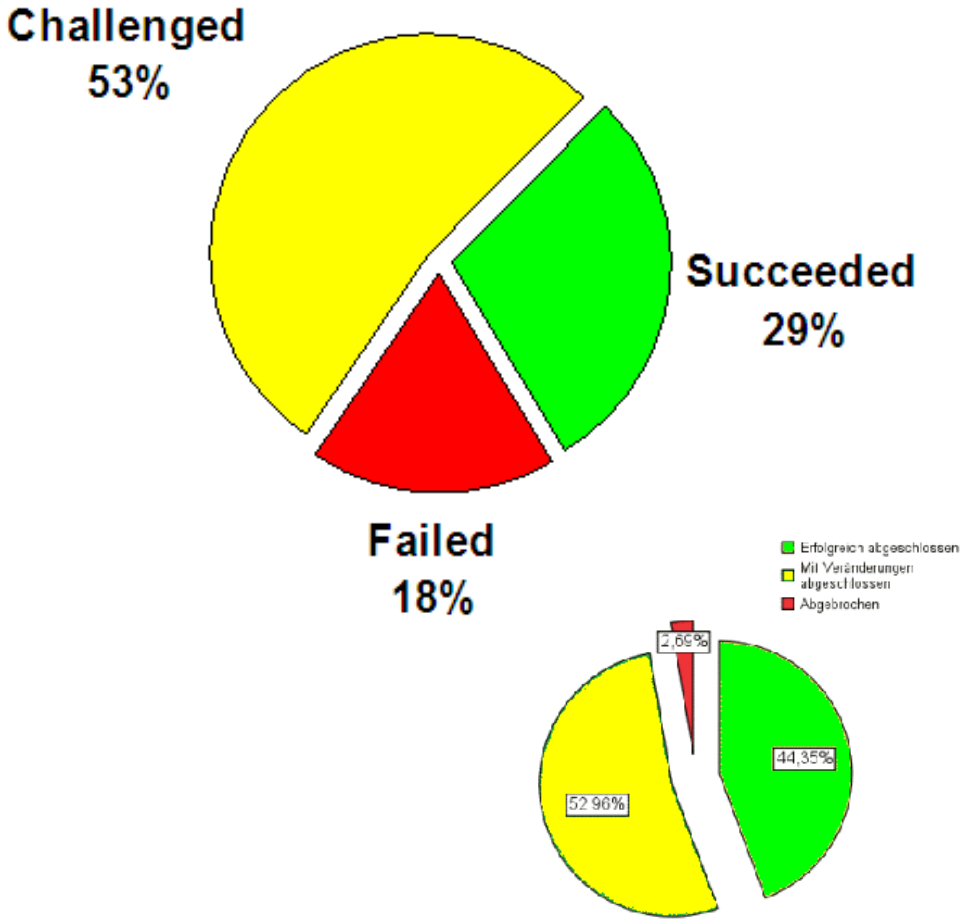


Project Sucess/Failure Rate

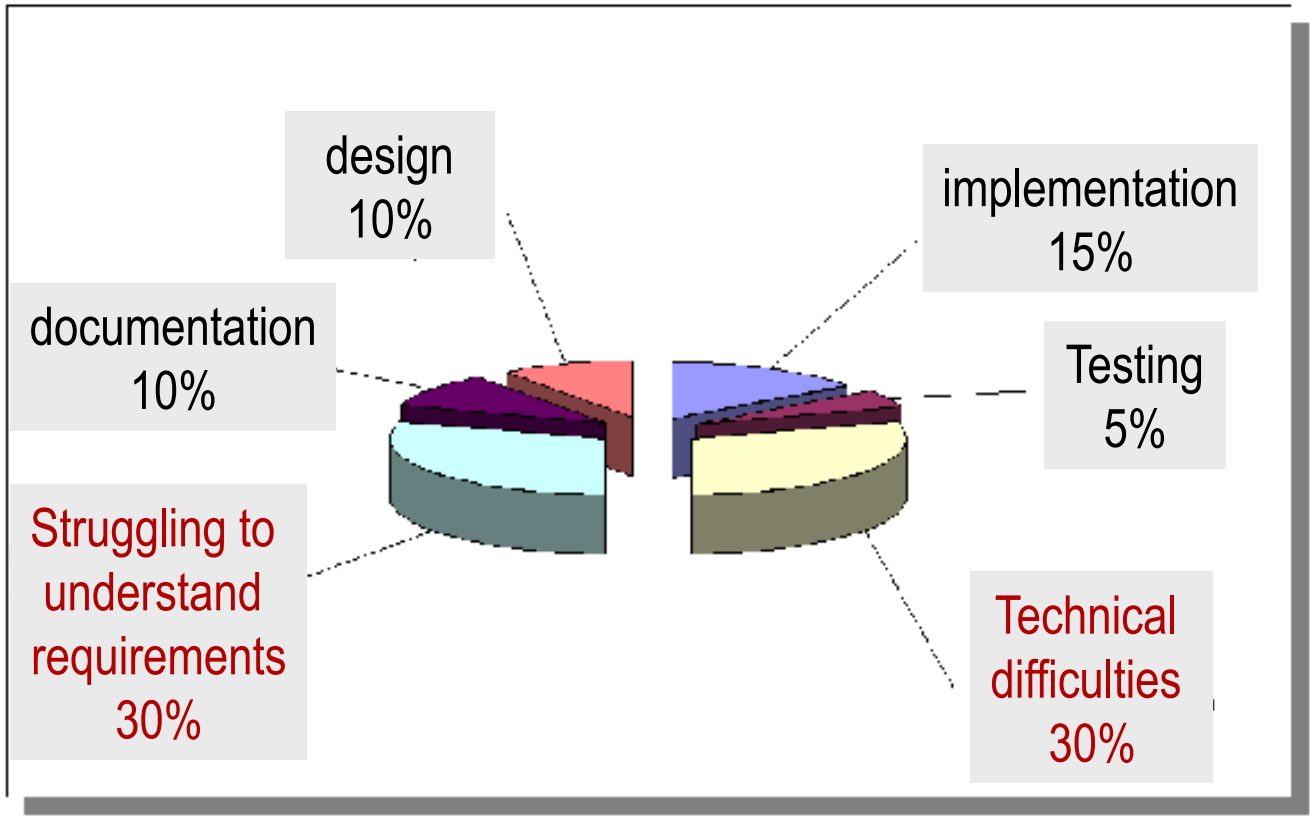




[CHAOS Report, Standish Group]

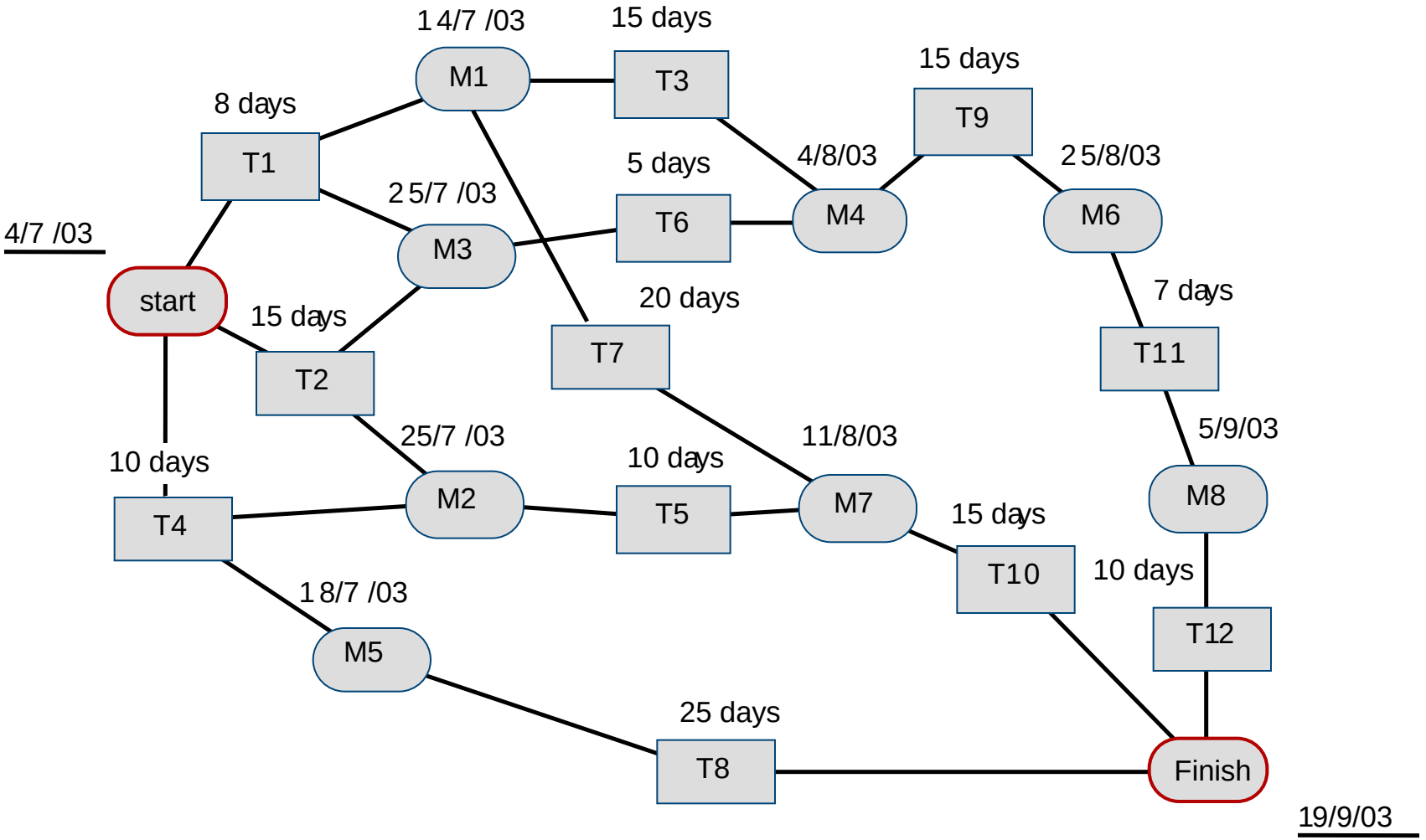


Where Time Really Is Spent In Practice

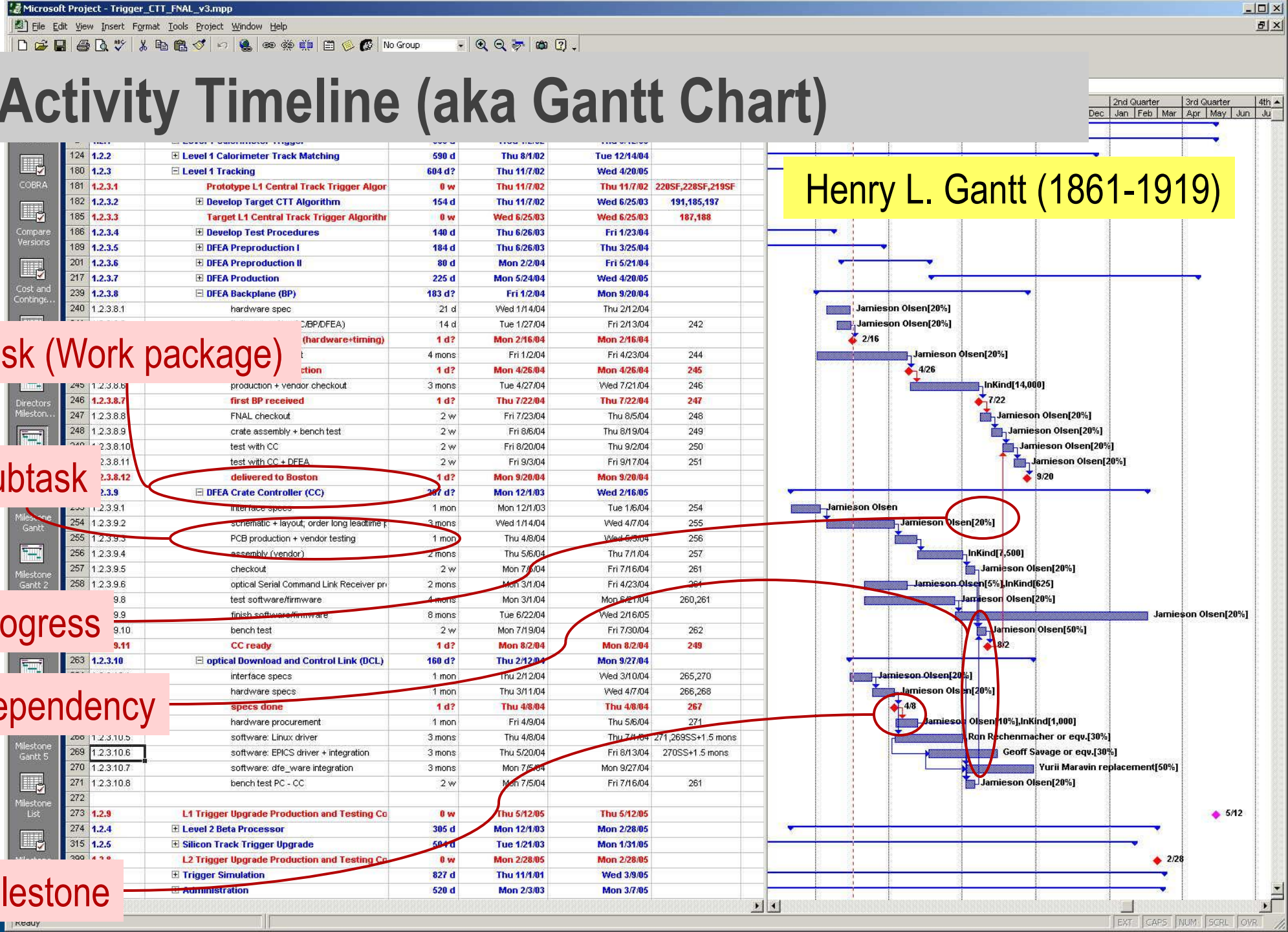


Source: unknown

Activity Network



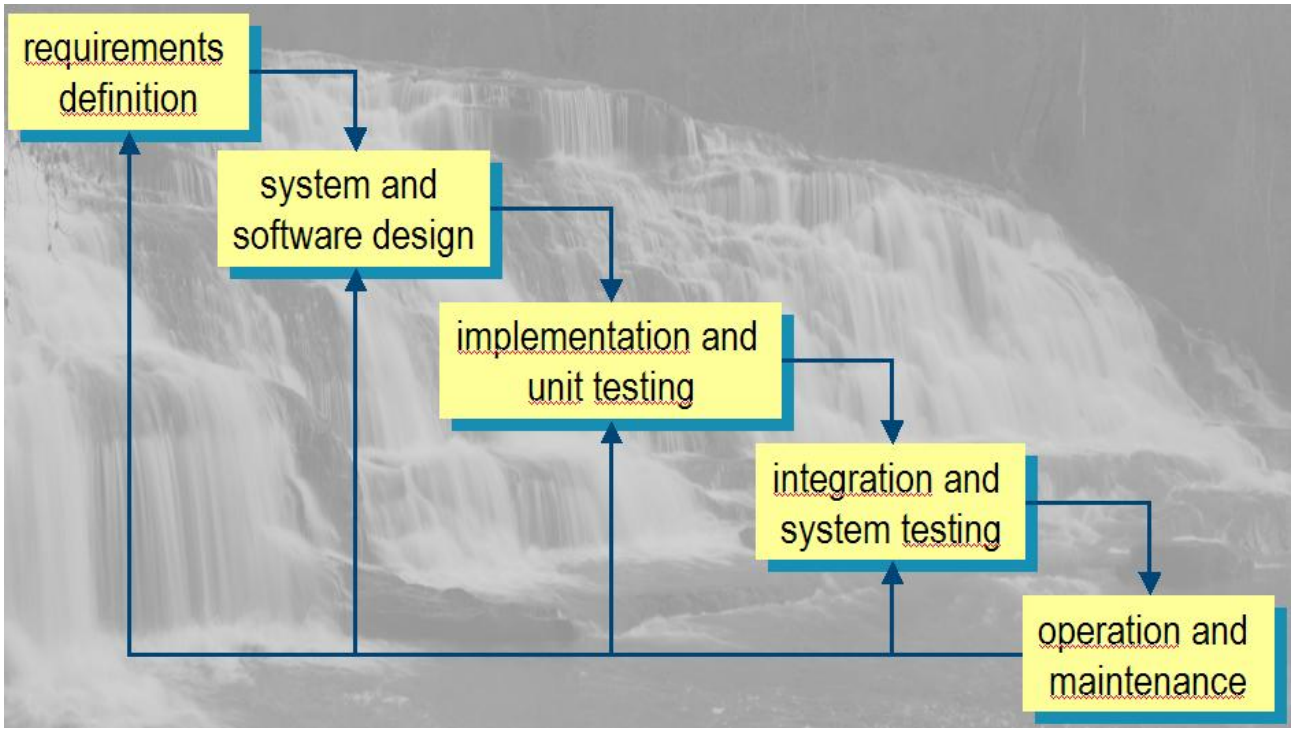
Activity Timeline (aka Gantt Chart)



Potential Scheduling Problems

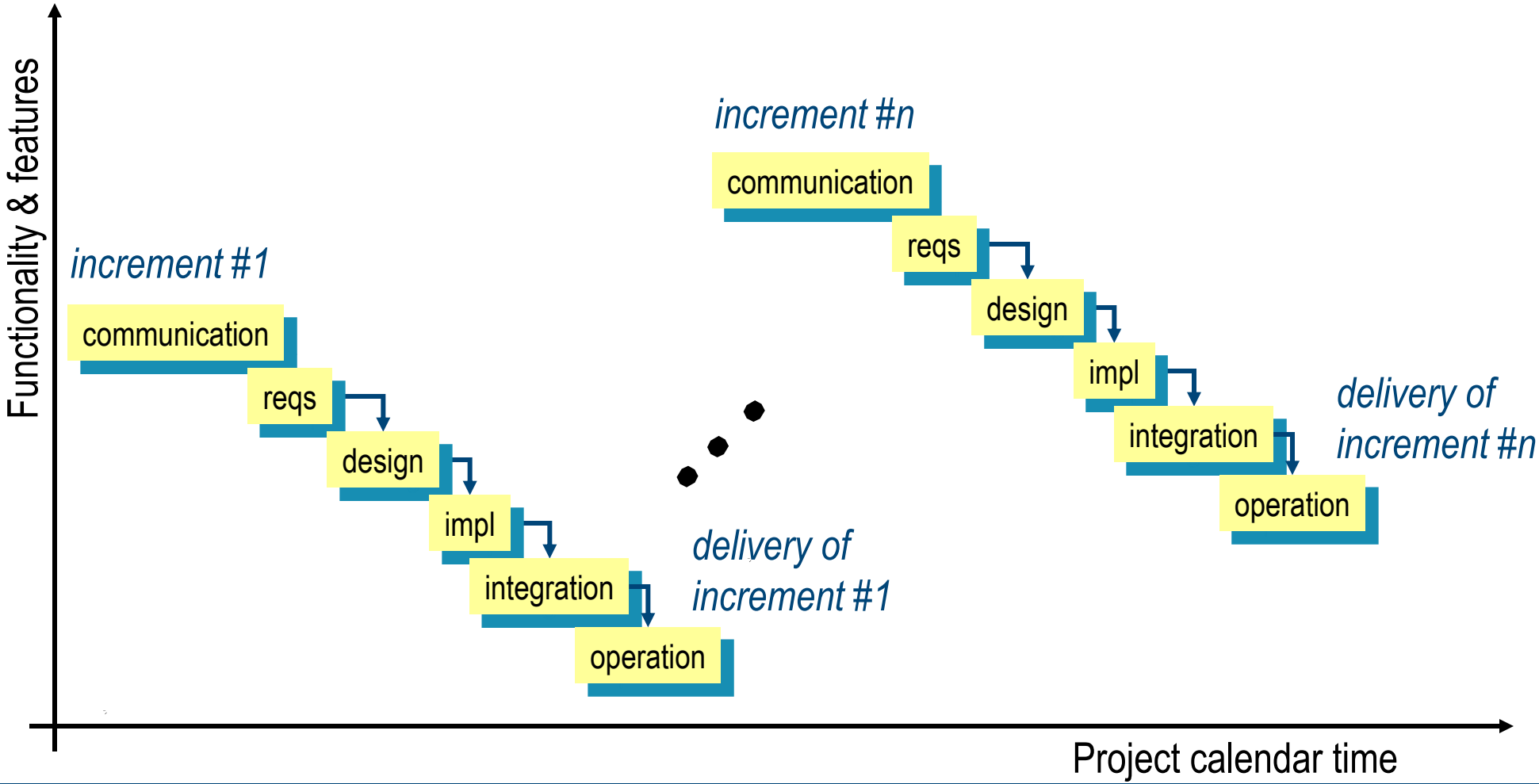
- Estimating difficulty of problems (hence, costs)
- Productivity !~ #people working on a task
- The unexpected always happens →contingency
- Adding people to a late project makes it later

Waterfall Model



- Process model
  = Software life cycle
- Challenge:
  Difficult to accommodate change → Inflexible
  - Lack of stable requirements
  - Changing requirements
  - Increased understanding
  - Unforeseen difficulties

The Incremental Model



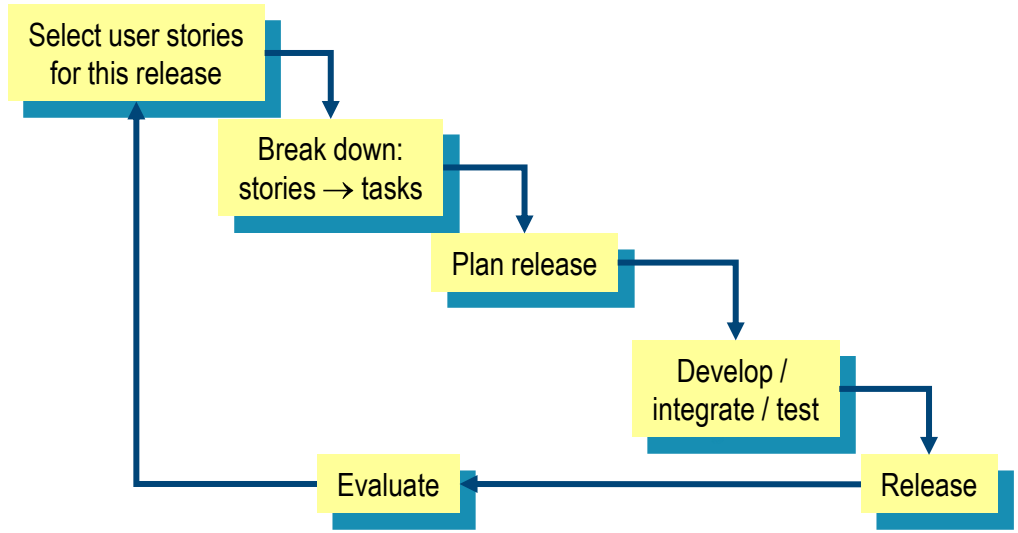
Agile Methods

CIPCS

- Customer involvement
  - ...to provide & prioritise new system requirements + to evaluate iterations
- Incremental delivery
  - Priorities from customer
- People, not process
  - team to develop own ways of working
- Embrace change
  - Expect requirements to change
  - design to accommodate change
- Maintain simplicity
  - software and development process
  - actively eliminate complexity

Extreme Programming

- XP = 'extreme' variation of iterative development, very small increments
  - New versions may be built several times per day
  - Increments ~every 2 weeks
  - All tests for every build;
    only accepted if all successful
- Rationale:
  - Conventional: design for change
    - *anticipating changes reduces costs later*
  - XP: not worthwhile, cannot anticipate
    - *constant code improvement*
    - *user involvement in dev team*

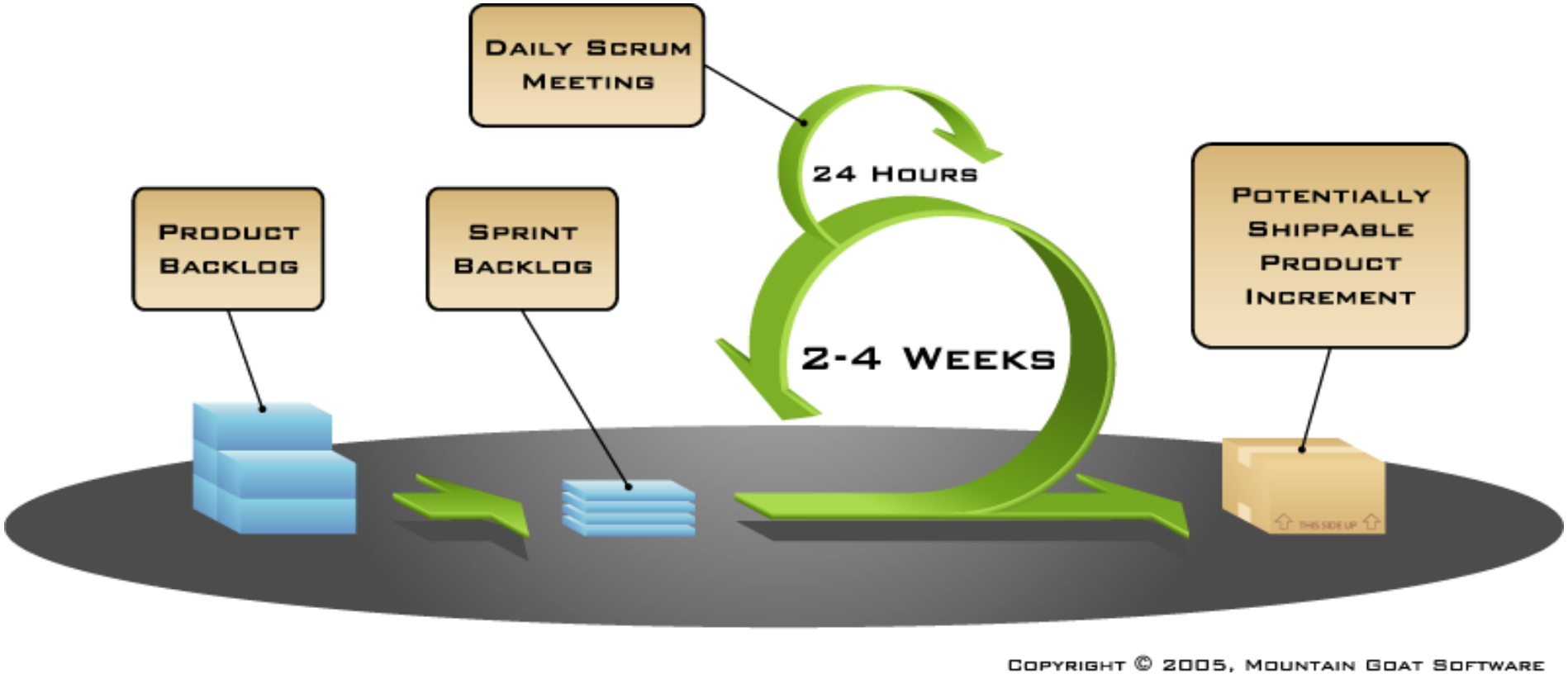


Agile methods: Appraisal

- Team members may be unsuited to the intense involvement of agile methods
- Developers need to be experienced, not too different in expertise
- can be difficult to keep interest of customers involved in process

Scrum


[PierreSelim / Wikipedia]



Wrap-Up: Project Management

- Planning + coordination + monitoring is a must, even though change happens
  - common activities: specification, design, implementation, testing/validation, evolution
  - Gantt chart: Work packages, tasks, deliverables, milestones
- Different Management approaches
  - Classical „plan ahead“ vs Agile „embrace change“
- Project Manager = first management level
  - Deep technical knowledge + leadership qualifications
  - Core personal assets: Multitasking, nonlinear, self-motivated