The great divide:
In our sample life cycle
- Phases 1 through 3 are hard, often impossible to estimate accurately, because
  - The problem is being defined; we don't know yet the full scope of the project. It's like research.
  - The sponsoring users are in control; we don't know yet what will satisfy them.
- Phases 4 through 6, although large and complicated, are easier to estimate, because:
  - We know (subject to unforeseen but manageable changes) exactly what has to be built to satisfy the sponsoring users.

Therefore
- Phases 1 through 3 must be based on time & materials estimates:
  - Large uncertainty (min, max) at the beginning
  - Moving window reduces uncertainty with each phase.
- Phase 4 (or 5) through 6 can be based either on:
  - Fixed price, firm target date contract, or
  - Time & materials contract with best estimates.

Advantages of fixed-price, fixed-schedule contracts
- For the buyer (sponsoring user org.)
  - Avoids risk of loss of control, huge overrun.
  - Solid basis for justification (ROI).
- For the vendor (internal dept. or external contractor)
  - Potential for extra profit if they finish ahead of schedule.
  - Less risk of customer dissatisfaction.

So why don’t we always do fixed-price contracts?

Criteria for a fixed-price, fixed-deadline contract
- Very solid external system design (functional specifications) from phase 3.
  - Low likelihood of major changes later
  - User representatives have conscientiously reviewed and approved.
- Low dependency on new or untested (here!) technology or methodology.
  - Existing installed platform (network, operating system, DBMS, etc).
  - Staff well acquainted with programming languages and other essential tools.
- Competent, motivated, and reliable staff.
Contingency planning

- A prudent project manager specifying a task thinks of:
  - What can possibly go wrong?
- And specifies contingencies:
  - see sample task definition form
  - How do we specify it in MS Project?
- By thinking of such setbacks in advance:
  - We avoid hasty poorly thought-out improvisations.
  - Team members are alerted to avoiding situations.

Trying something new

- We may be intrigued by some fad or new (to us) methodology or approach we haven't used before:
  - Articles or presentations proclaiming MDB!
  - A course some team members took and are enthusiastic about.
    - What was that?
    - See: http://www.idinews.com/Jerry.html
- Sometimes that works out very well; sometimes it doesn't.
  - Should we be bold or conservative?

Inexperience factor

- Inexperienced professional staff tend to underestimate, especially on large projects:
  - They don't plan for contingencies
    - What can possibly go wrong?
  - They don't assess the real environment
    - Interruptions
    - Skills availability
    - Equipment failures
  - They want to please the sponsors and the boss
    - Underestimating relieves immediate pressure from customers or managers!

Feedback

- Suppose actual performance overruns the estimates, and the project is behind schedule.
  - The problem may lie more with estimating than with actual performance.
  - Staff members who habitually underestimate must be coached to improve their understanding of estimating. It's a learning experience.
  - Project managers may need (or be tempted) to apply "fudge factors" to estimates made by
    - inexperienced team members
    - chronic underestimators
Discovery & corrective action

- We can't correct cost overrun or schedule slippage until we know that it's happening.
  - Weekly status reports are a good compromise.
  - More frequently in late stages (system test, installation, & start-up)
  - No bluffing or wishful thinking: task deliverables are on file!

- Avoid false "make up" times.
  - Revising late-task estimates to compensate for early overrun/slippage is tempting but rarely works out well.

Early warning is essential

- Project managers naturally want to avoid embarrassment.
  - Somehow we'll make it up.

- But the longer we delay conveying bad news, the more embarrassing it becomes:
  - Possibly fatal to the project manager's career (at least in this organization).

- Honest status reporting usually wins the sponsoring users' confidence.

Impact of fad methodologies on estimating

- Be willing to experiment, but don't expect miracles.

- Make sure all team members agree to support the new approach with enthusiasm.

- Apply "adjustment factors" to estimates based upon untried techniques.

Assignment #3

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These groupings are random, and are just for this one assignment.