



STEVENS
INSTITUTE of TECHNOLOGY
THE INNOVATION UNIVERSITY®

CS 146: Intro to Web Programming and Project Development

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Introduction to Project Management

Objectives

- Understand the growing need for better project management
- Explain what a project is and provide examples of projects
- Describe the waterfall model
- Write a proper requirements document





What is a project?

- The PMI (Project Management Institute) has defined a project as “*A temporary endeavor undertaken to create a unique product or service.*”
 - Building Egyptian pyramids
 - Constructing Boulder Dam (Hoover Dam)
- Modern project management, however, is usually said to have begun with the Manhattan Project



Attributes of Projects

- Attributes of projects
 - unique purpose
 - temporary
 - require resources, often from various areas
 - should have a primary sponsor and/or customer
 - involve uncertainty



Other Similar Terms..

- ...Created by the military
 - *program* refer to an exceptionally large, long range objective that is broken down into a set of *projects*.
 - *projects* are divided further into *tasks*.
 - *tasks* are, in turn, split into *work packages* that are themselves composed of *work units*.
- Summary: a *project* is a **specific, finite task** to be accomplished

Project Management in Practice

1996 Atlanta Olympic Torch Relay





1996 Atlanta Olympic Torch Relay

- Planning for the 1996 Atlanta Olympic Torch Relay
 - took two years,
 - cost over \$20 million
 - involved an 84 day, 42 state campaign using 10,000 runners to carry the torch for 15,000 miles!
 - included a 40-vehicle caravan carrying security officers, media personnel, medical personnel, computers, telecommunications gear, clothing, food, and spare lanterns with extra flames in case the original torch went out.
 - The caravan included: 50 cellular telephones; 60 pagers; 120 radios; 30 cars; 10 motorcycles; and clothing for 10,000 runners, 10,000 volunteers, as well as 2,500 escort runners



Classroom Discussion

- Describe some situations in which project management would probably not be effective



Advantages of Formal Project Management

- Better control of financial, physical, and human resources
- Improved customer relations
- Shorter development times
- Lower costs
- Higher quality and increased reliability
- Higher profit margins
- Improved productivity
- Better internal coordination
- Higher worker morale



Project Manager

- Planning, Procurement, and execution of a project
- Is expected to coordinate and integrate all activities needed to reach the project's goals
- The project form of organization allows the manager to be responsible to:
 - the client and the environment
 - Identify and correct problems at an early date
 - make timely decisions about trade-offs between conflicting project goals
 - ensure that managers of the separate tasks do not optimize the performance of their tasks at the expense of the total project

PM meetings!



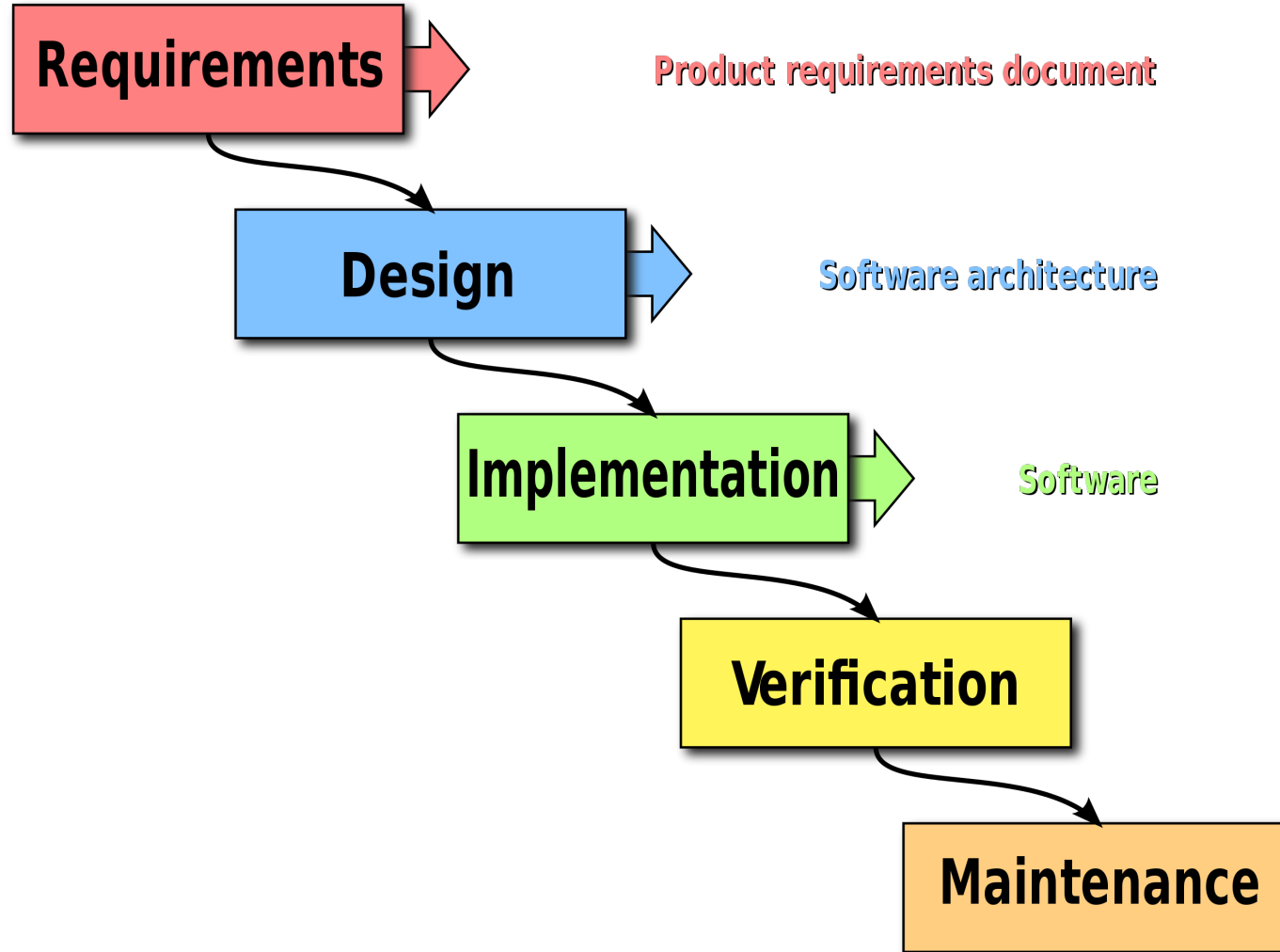
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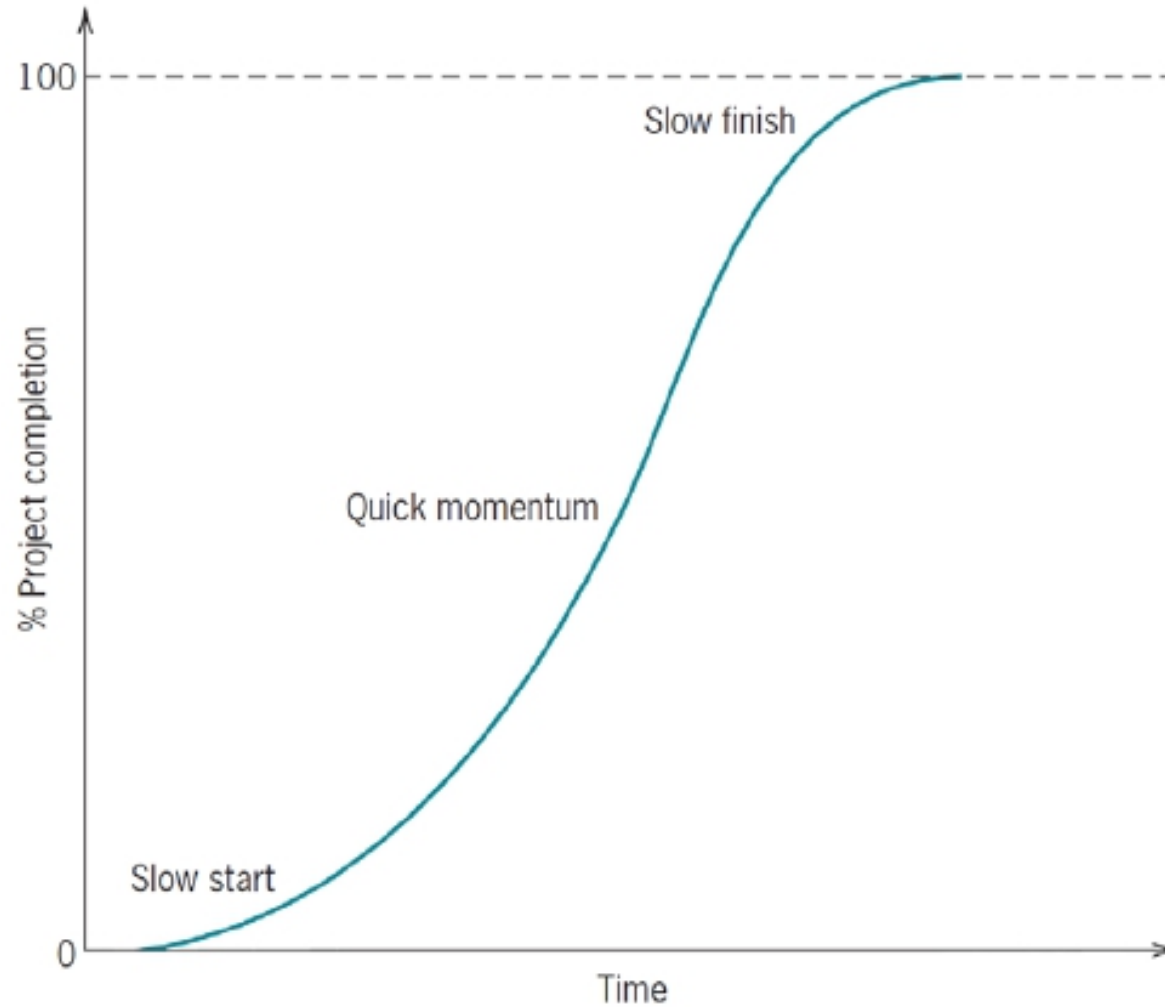
Project Lifecycle

- There are many models, but we'll see the most basic one: the waterfall model
 - Typical steps in CS projects include:
 - Inception,
 - Requirements,
 - Analysis,
 - Design,
 - Implementation,
 - Testing,
 - Debugging,
 - Production,
 - Distribution,
 - and Maintenance
- The PM is responsible for organizing these steps properly and planning the schedule, budget, and projected performance

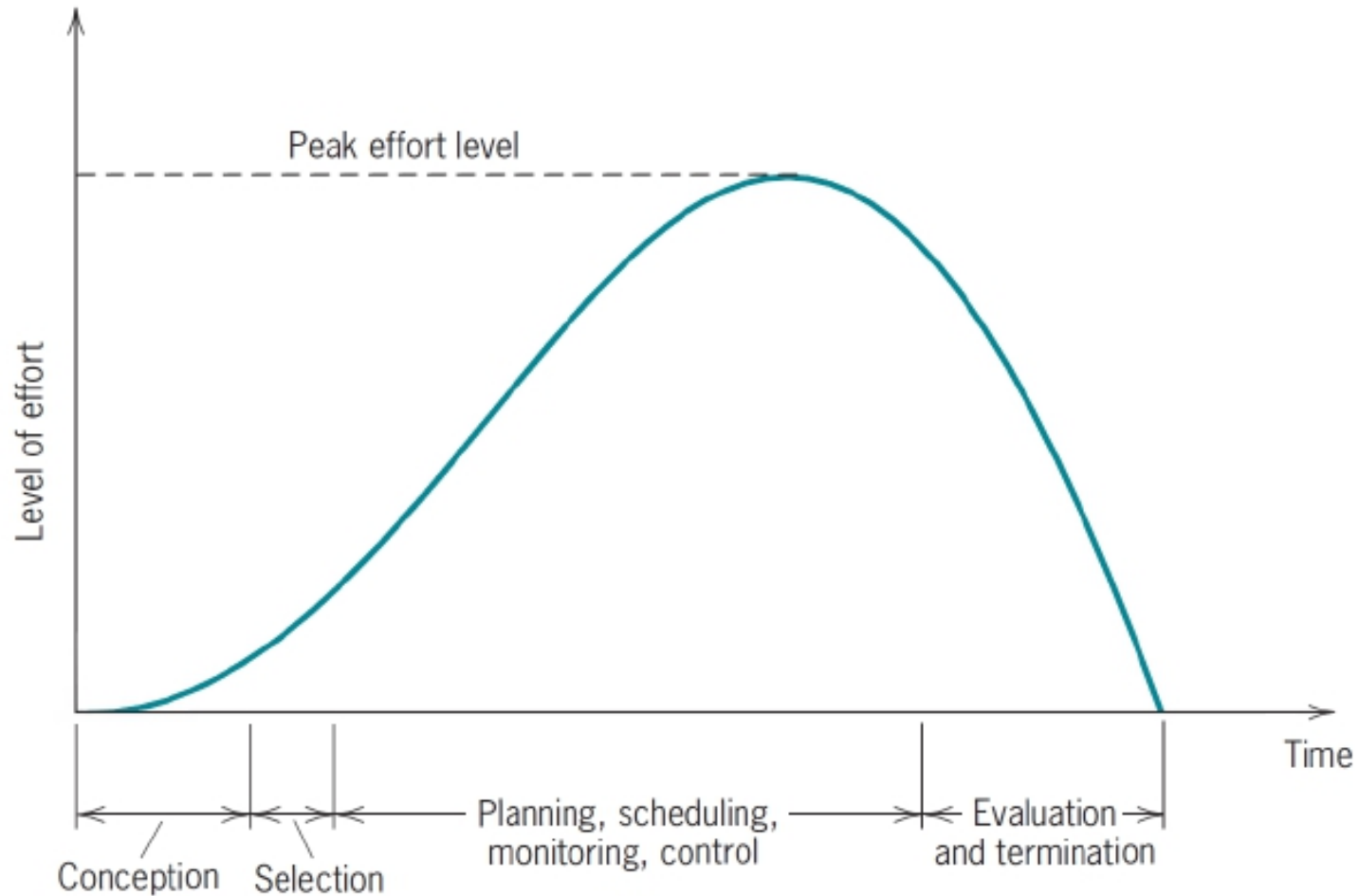
Waterfall Method



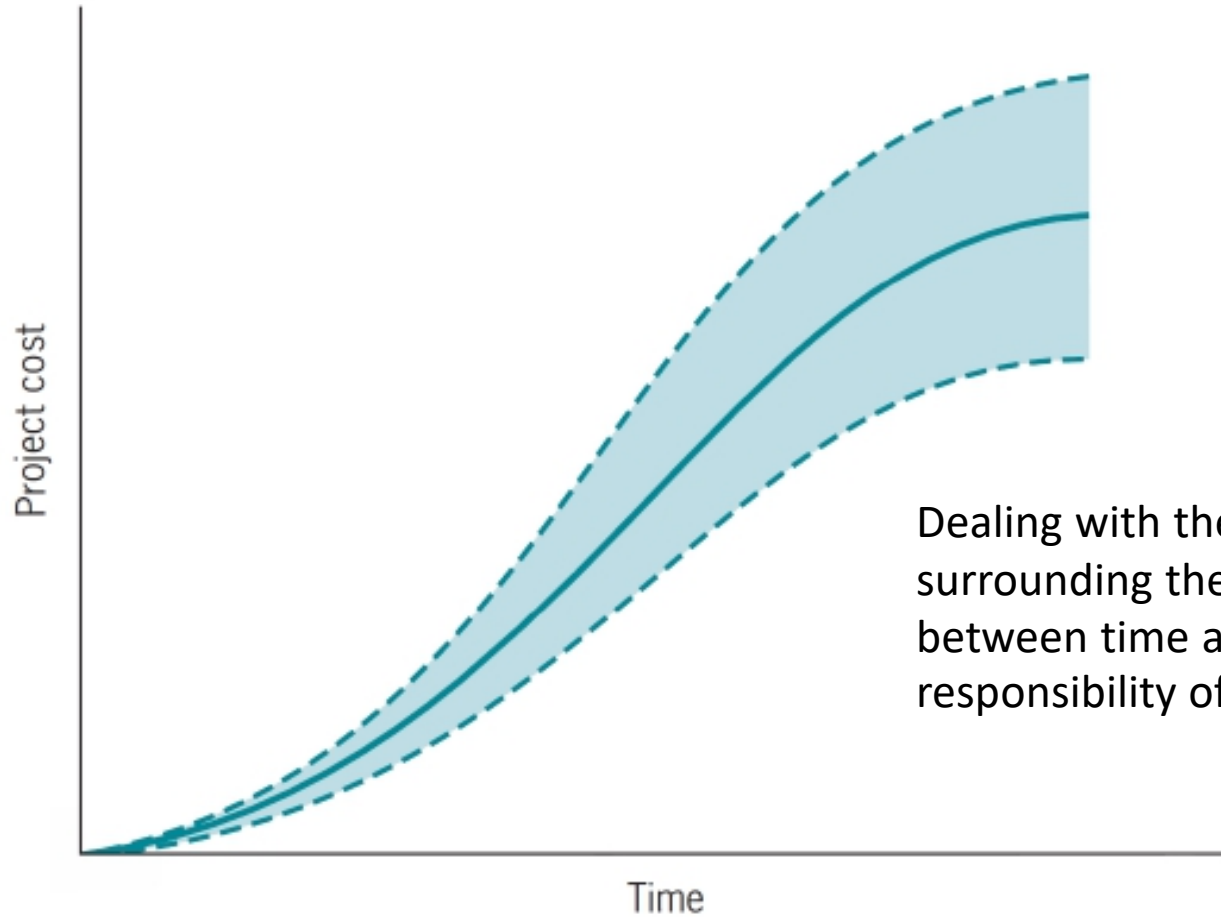
Project Lifecycle



The Distribution of Project Effort



Estimate of Project Cost



Dealing with the uncertainty surrounding the relationship between time and cost is a major responsibility of the PM



Classroom Discussion 2

- How might project management be used when doing a major schoolwork assignment?



The Vital Dozen for Project Managers

- *“What information were you never given as a novice project manager that, in retrospect, could have made your job easier?”*
- The Vital Dozen is the result of interviews conducted with dozens of senior project managers that were asked the simple question above.



The Vital Dozen for Project Managers

1. **Understand** the context of project management
2. **Recognize** project team conflict as progress
3. **Understand** who the stakeholders are and what they want
4. **Accept** and use the political nature of organizations
5. **Lead** from the front
6. **Understand** what “success” means



The Vital Dozen for Project Managers

7. **Build** and maintain a cohesive team
8. **Enthusiasm** and despair are both infectious
9. **One look** forward is worth two looks back
10. **Remember** what you are trying to do
11. **Use time** carefully or it will use you
12. **Above all**, plan, plan, plan



Characteristics of Political Behaviors

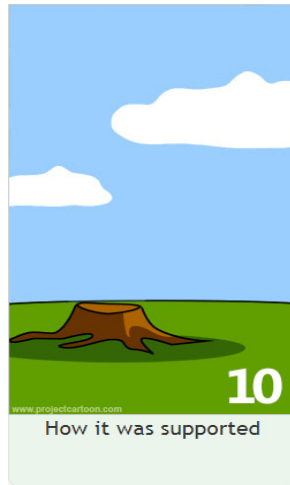
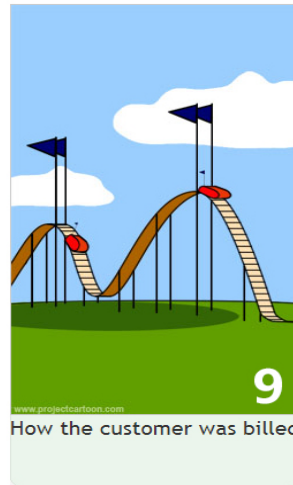
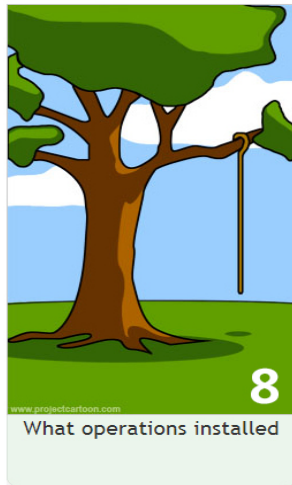
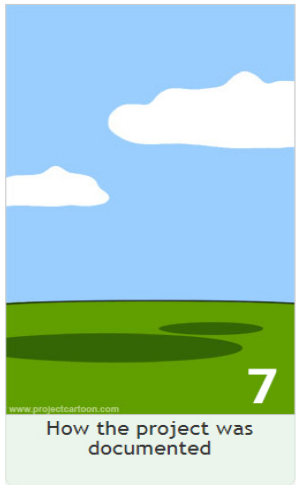
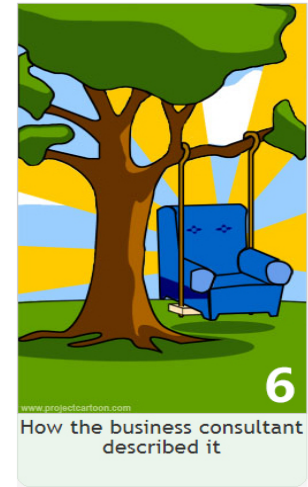
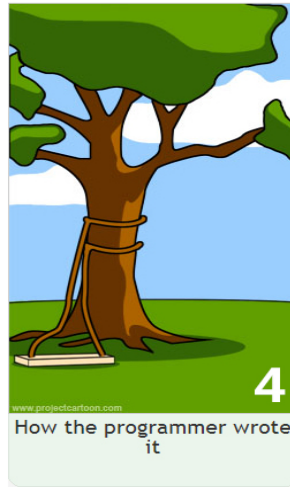
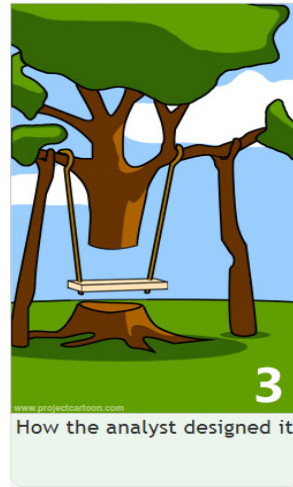
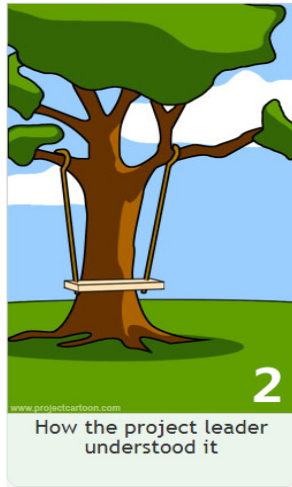
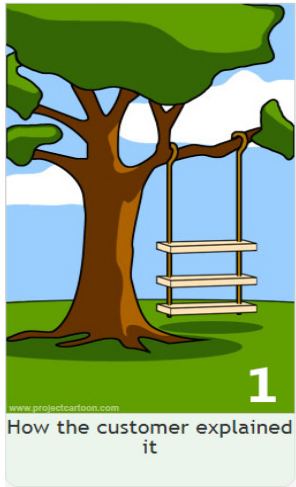
Characteristics	Naive	Sensible	Sharks
<i>Underlying Attitude</i>	Politics is unpleasant	Politics is necessary	Politics is an opportunity
<i>Intent</i>	Avoid at all costs	Further departmental goals	Self-serving and predatory
<i>Techniques</i>	Tell it like it is	Network; expand connections; use system to give and receive favors	Manipulate; use fraud and deceit when necessary
<i>Favorite Tactics</i>	None—the truth will win out	Negotiate, bargain	Bully; misuse information; cultivate and use “friends” and other contacts



Six Practical Suggestions

- Six practical suggestions to help project managers control their tasks and projects without feeling constantly behind schedule:
 - Create a realistic time estimate without overextending yourself
 - Be absolutely clear about what the boss or client requires
 - Provide for contingencies (schedule slippage, loss of key team member)
 - Revise original time estimate and provide a set of options as required
 - Be clear about factors that are fixed (specifications, resources, and so on)
 - Learn to say “Yes, and . . .” rather than “No, but . . .” Negotiation is the key

Legendary Tree Swing: Foolishness in Managing Software Projects





Classroom Discussion 3

- Would you like to be a project manager? Why, or why not?