CIS 339
Introduction to TSPi℠

The Development Strategy

℠TSPi is a Service Mark of Carnegie Mellon University.

Planning first

• Make a plan before producing requirements?
  – Can only make rough estimates of size and time
  – Until requirements are known, do not know what the product really is to do.
  – How can this be done?
Commitment

• Will you be committed to developing this product?
  – Engineers typically are comfortable making a commitment to a job they know nothing about.
  – Engineers typically resist planning the same work!
• To make a commitment, you need to make a plan.

Planning before Committing

• In the process of developing a plan, teams gain a common appreciation of the work they must do.
• The plan provides a basis for tracking the work.
• If you don’t start by making a plan, you will be stuck with your manager’s (instructor’s) date.
Planning for this Course

• This course is typical of industry experience.
  – You have a product description (perhaps somewhat vague)
  – You have a fixed schedule
  – Can you do it?

• Instead of meekly accepting an arbitrary date, start by making a plan.
• With a plan, you have a basis for negotiation.

What is a Strategy

• How to build big systems?
  – Build big modules and components?
  – Collections of small parts?
  – One release?
  – Cyclic, incremental development?
Initial Strategy

• There will be three cycles:
  – The first cycle will:
    • Produce a basic version
    • Prototype the user interface
    • Complete the requirements definition
    • Complete the high level design.
  – The second cycle will enhance the first version making it a complete, useable product.
  – The third cycle will polish the product.

The Conceptual Design

• Based on what I now know, how would I build this product?
• What are the principal components I will need to build this product?
• What functions must these components provide?
• How big do I think these components will be?
Risk Management

• Define the strategy criteria
• Determine the possible alternative strategies
• Identify the risks and benefits of each alternative
• Make a comparative evaluation of these alternatives
• Make the strategic decision
• Document the selected strategy.

Possible Risks

• One or more functions you do not know how to design.
• Support system problems that delay your work.
• Product is defective resulting in long testing time.
• Lose control of the product or product changes and waste time reconstructing programs already developed.
• Team does not work together effectively.
Managing Risks

• Too large a product:
  – Start with a small kernel product, then add functions.
• Difficult or complex functions:
  – Prototype these at the beginning.
• Support system problems
  – Build an early prototype to become familiar with the support system as soon as possible.
• Testing time.
  – Follow PSP and TSPi processes to identify and remove defects early.
• Teamwork problems.
  – Identify early and seek help of instructor. (Also consult text.)

Strategy Script

• Establish Strategy Criteria
• Produce Conceptual Design
• Select Development Strategy
  – Allocate conceptual design functions to cycles.
• Produce Preliminary Size Estimate
• Product Preliminary Time Estimate
• Assess Risks
• Document the Strategy
• Product Configuration Management Plan
Configuration Management

• The configuration management process has several key functions. It must record the following:
  – Copies of each version of each product element.
  – A record of all changes made to every baseline.
  – Who made the change.
  – When they made the change.
  – What change was made.
  – Why did they make the change.