SOFTWARE PROJECT MANAGEMENT

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Objectives

- Introduce students to a variety of approaches and techniques in SPM
- Use current SPM tools
- Develop new SPM ideas
- Document reading, experiences and ideas
- Improve writing and presentation skills

Course Outline

- Introduction to PM and SPM
- Software models and process improvement
- Project planning, scheduling, estimation
- Personnel and project organization
- Change management, monitoring & control
- Protocols and standards
- Software QA and risk management

Textbooks

- Recommended Text (Free, in the library!)

  Quality Software Project Management, Futrell & Shafer

- Lots of Other Texts (Widely varying content)

  Rapid Development, Steve McConnell

  Information Technology Project Management, Kathy Schwalbe

  IT Project Management, Jack Marchewka

  Software Engineering Project Management, edited by Richard H. Thayer

  Software Project Survival Guide, Steve McConnell

Format

- Essentials of software project management
- Research and textbook readings and writing
- Real-world case studies
- Industry visitors
- Highly interactive

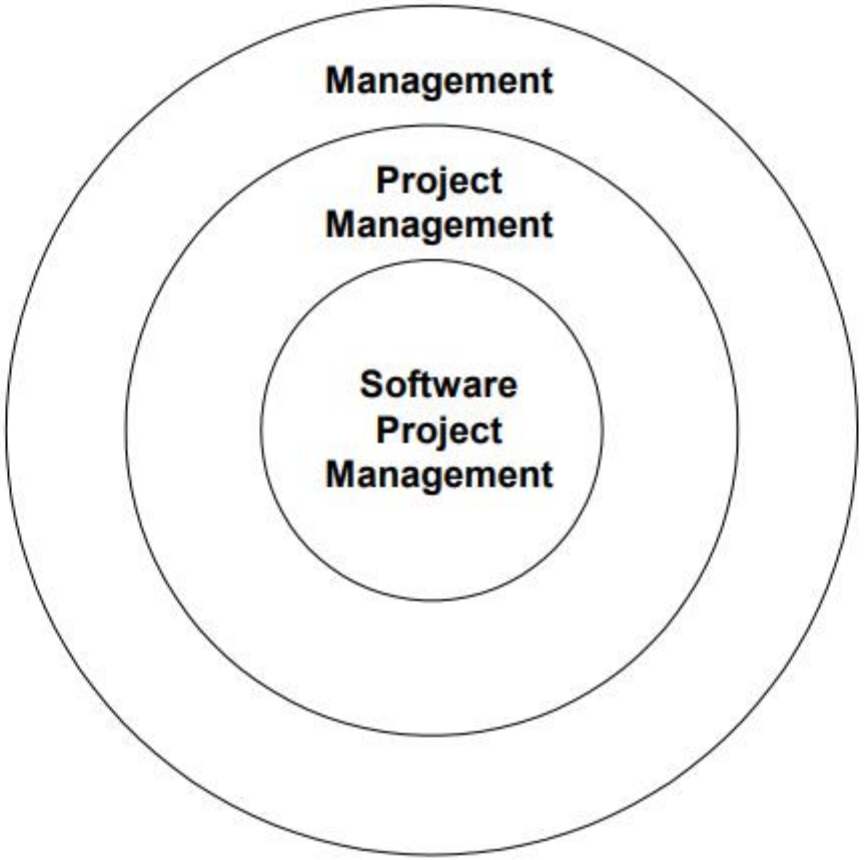
PM Profession

- Professional Organizations
  - Project Management Institute (PMI) (pmi.org)
  - Software Engineering Institute (SEI)
  - IEEE Software Engineering Group
- Certification
  - PMI PMP
- The "PMBOK" – PM Body of Knowledge

Project Management Skills

- Leadership
- Communications
- Problem Solving
- Negotiating
- Influencing the Organization
- Mentoring
- Process and technical expertise

Software Project Management



Some PM History

- 1970's: Early PM ideas and software
  - military, defense, construction industry
  - Fred Brooks, *The Mythical Man-Month*
- 1980's: SPM, TQM Tot. Quality Manag.
- 1990's: Large shift to PM-based models
  - 1990-93: Re-engineering, self-directed teams
  - 1996-99: Risk mgmt, project offices
- 2000's: Global projects

Project Management

- What's a project?
- PMI definition
  - *A project is a temporary endeavor undertaken to create a unique product or service*
- Progressively elaborated
  - With repetitive elements
- A project manager
  - Analogy: conductor, coach, captain

Project vs. Program Management

- What's a 'program'?
- Mostly differences of scale
- Often a number of related projects
- Longer than projects
- Definitions vary

Interactions / Stakeholders

- As a PM, who do you interact with?
- Project Stakeholders
  - Project sponsor
  - Executives
  - Team (developers and maybe others)
  - Customers
  - Contractors (as needed)
  - Functional managers

PM Tools: Software

- Low-end
  - Basic features, tasks management, charting
  - MS Excel, Milestones Simplicity
- Mid-market
  - Handle larger projects, multiple projects, analysis tools
  - MS Project (approx. 50% of market)
- High-end
  - Very large projects, specialized needs, enterprise
  - AMS Realtime
  - Primavera Project Manager

PMI's 9 Knowledge Areas

- Project ***integration*** management
- Scope
- Time
- Cost
- Quality
- Human resource
- Communications
- Risk
- Procurement

STCRQ

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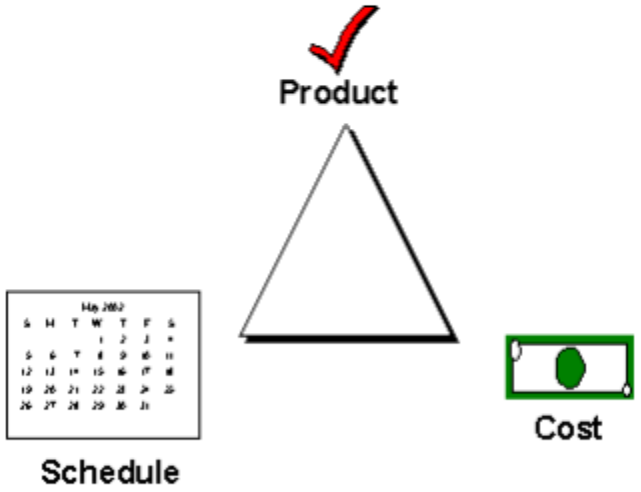
Four Project Dimensions

- People
- Process
- Product
- Technology

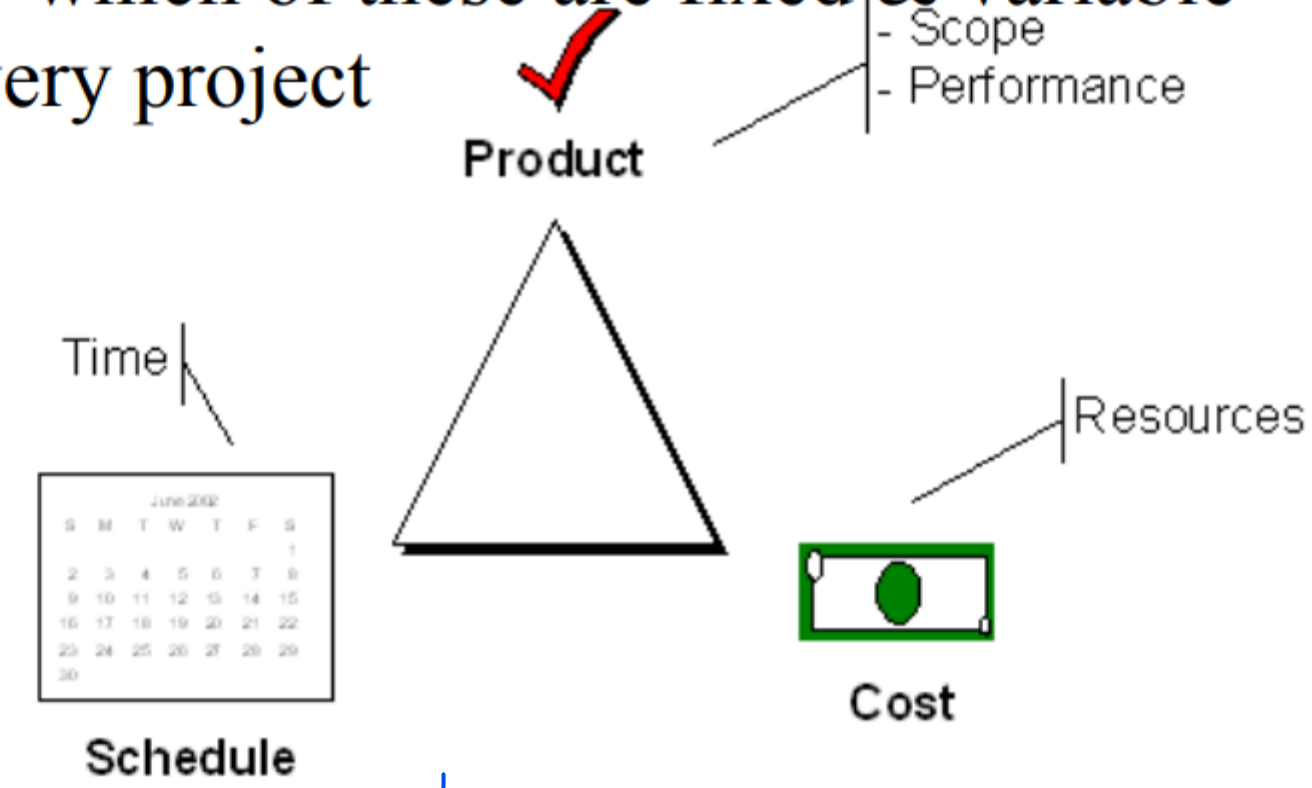
Trade-off Triangle

- Fast, cheap, good. Choose two.



Trade-off Triangle

- Know which of these are fixed & variable for every project



People

- "It's always a people problem."

  Gerald Weinberg, *The Secrets of Consulting*

- Developer productivity: 10-to-1 range

  Improvements:

  - Team selection
  - Team organization
  - Motivation

People …2

- Other success factors
  - Matching people to tasks
  - Career development
  - Balance: individual and team
  - Clear communication

Process

- Is process stifling?
- Two Types: Management & Technical
- Development fundamentals
- Quality assurance
- Risk management
- Lifecycle planning

stifling----> suffocating

Process …2

- Customer orientation
- Process maturity improvement
- Rework avoidance
- Avoid abuse by neglect

3 Product

- The “tangible” dimension
- Product size management
- Product characteristics and requirements
- Feature creep management

Technology

- Often the least important dimension
- Language and tool selection
- Value and cost of reuse