Planning and Managing Software Projects 2010-11
Session 10 – 2nd part

Final Exam Preview

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Credits

- This slides are largely based on Prof. John Musser class notes on "Principles of Software Project Management"

- Original slides are available at http://www.projectreference.com/

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Final Exam Preview

- Format: Similar to last one
  - Open questions
  - An exercise on Earned Value Analysis

- **Risk Management**
  - Types of risk: schedule, cost, requirements

- **Risk Identification**
  - Involve the team

- **Risk Analysis**
  - Risk Exposure (RE = Prob. * Size)
  - Probability is 15%, size is 10 weeks
    - .15 * 10w = 1.5w

- **Risk Prioritization**
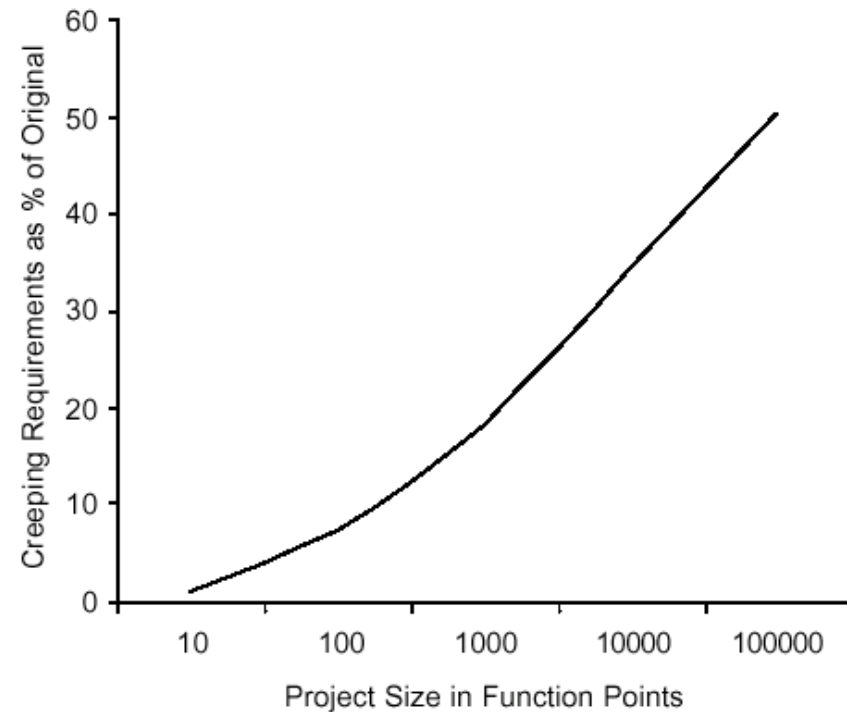 - 80-20 rule; large size or prob. 1st; grouping; ignoring

- Risk Control
  - Plan

- Risk Resolution (5 Types)
  - Avoidance (ex: scrub)
  - Assumption (just monitor)
  - Control (contingency)
  - Knowledge Acquisition (learn/buy/prototype)
  - Transfer (off project, team, critical path)

- Risk Monitoring
  - Top 10 Risk List (McConnell's example)
    - http://www.construx.com/Page.aspx?hid=1293

- Early phases
  - Minimal Specification
  - Requirements Scrubbing
  - Versioned Development

- Mid of the project
  - Effective Change Control

- Final stages
  - Feature Cuts

- Average project has 25% requirements change

- Sources of change

- Change control is a process

- Overly detailed specs. or prolonged requirements phase are not the answer

- Change Control Board (CCB)
  - Structure, process, **triage**

Chart: x-axis "Project Size in Function Points" (10, 100, 1000, 10000, 100000), y-axis "Creeping Requirements as % of Original" (0 to 60)

- Items: code, documents

- Change & Version control

- SCM

- Configuration Management Plan

- Maintenance

- Start with objective
  - Problem resolution, creativity, tactical execution

- Decentralized vs. Centralized

- Large teams
  - Decompose via hierarchy, into optimal sizes

- Optimal size?
  - 4-6 developers

- Business team
  - Technical lead + team; most common
  - Can be strong or loose hierarchy

- Chief-programmer team
  - Surgical team; star at top; ego issues

- Skunkworks team
  - Off-site; pro: buy-in; con: minimal visibility

- SWAT team
  - Highly skilled/specialized; Ex: security team

Team Model	Problem Resolution	Creativity	Tactical Execution
Business Team	***	*	**
Chief-Programmer Team		***	**
"Skunkworks" Team		***	
SWAT Team			***

LEGEND

*** Best suited

* Can be used

- Responsibility Assignment Matrix
  - Who does What
  - Be able to draw one

- Skills Matrix
  - Who has what skills
  - Be able to draw one

- Hire for attitude, train for skill

- Smart, gets things done

- Balance

- Functional vs. Non-functional (technical)
  - Functional
    - Features
  - Non-functional
    - Reliability
    - Usability
    - Performance
    - Operations: systems management, installation
    - Other: legal, packaging, hardware

- Requirements gathering techniques
  - Interviews
  - Document Analysis
  - Brainstorming
  - Requirements Workshops
  - Prototyping
  - Use Cases
  - Storyboards

- Capability Maturity Model

- Five levels
  - Initial
  - Repeatable
  - Defined
  - Managed
  - Optimizing

- Know the functions in each level
  - (especially in the first 2)

- Testing "Phases"
  - Unit
  - Integration
  - System
  - User Acceptance Testing

- Testing Types
  - Black-box
  - White-box

- Integration: 2 types
  - Top down
  - Bottom up

- Open Bugs (outstanding defects)
  - Ranked by severity

- Open Rates
  - How many new bugs over a period of time

- Close Rates
  - How many closed over that same period
  - Ex: 10 bugs/day

- Change Rate
  - Number of times the same issue updated

- Fix Failed Counts
  - Fixes that didn't really fix (still open)
  - One measure of "vibration" in project

- BCWS

- BCWP
  - Earned value

- ACWP

- Variances
  - CV (BCWP – BCWS), SV (BCWP – ACWP)

- Ratios
  - SPI (BCWP / BCWS), CPI (BCWP / ACWP)
  - CR (SPI x CPI)

- Benefits
  - Consistency, forecasting, early warning

- Migration Strategies
  1. Flash Cut
     A. Immediate Replacement
     B. Parallel Operation
  2. Staged
     – One part at a time

- Migration Plan

- Importance of 2-way communication
  - Find-out customer's key dates

- Minimize intrusiveness

- Back-out Plan

- Data Conversion

Other Final Steps

- Roll-Out
  - Release Check-List

- Training
  - More than just end-users
    - Users, systems ops, maintenance developers, sales

- Documentation
  - Many types: End-user, sales & marketing, operations, design

- 3 Approaches
  1. Cut the size of the software
  2. Increase process productivity
  3. Slip the schedule, proceed with damage control

- People Steps
  - Morale; focus; re-assign

- Process Steps
  - Fix classic mistakes; mini-milestones

- Product Steps
  - Stabilize; trim features; take out the garbage

- Focused on process not people

- Steps
  - Prepare survey form
  - Email team with survey and schedule meeting
    - Gather data
  - Conduct meeting
  - Prepare PPR report

Questions?