



 POLITECNICO DI MILANO

Dipartimento di
Elettronica e Informazione

Planning and Managing Software Projects 2010-11
Session 18

Final Exam Preview

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

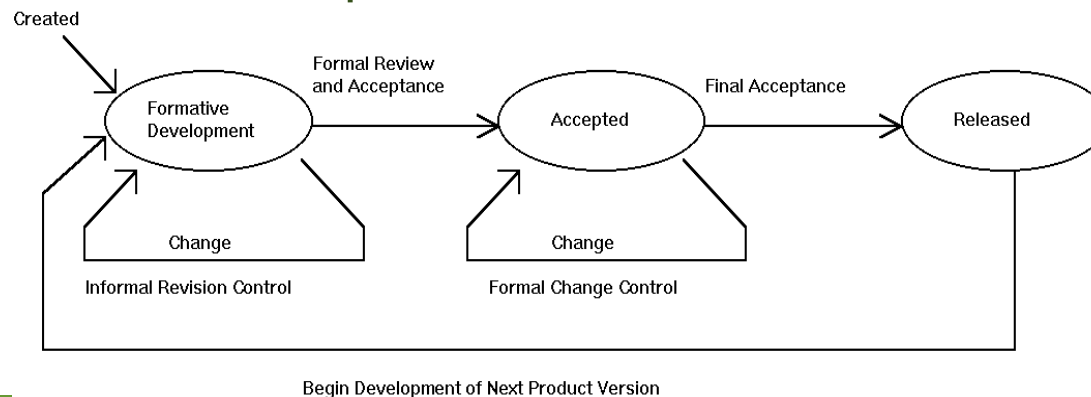
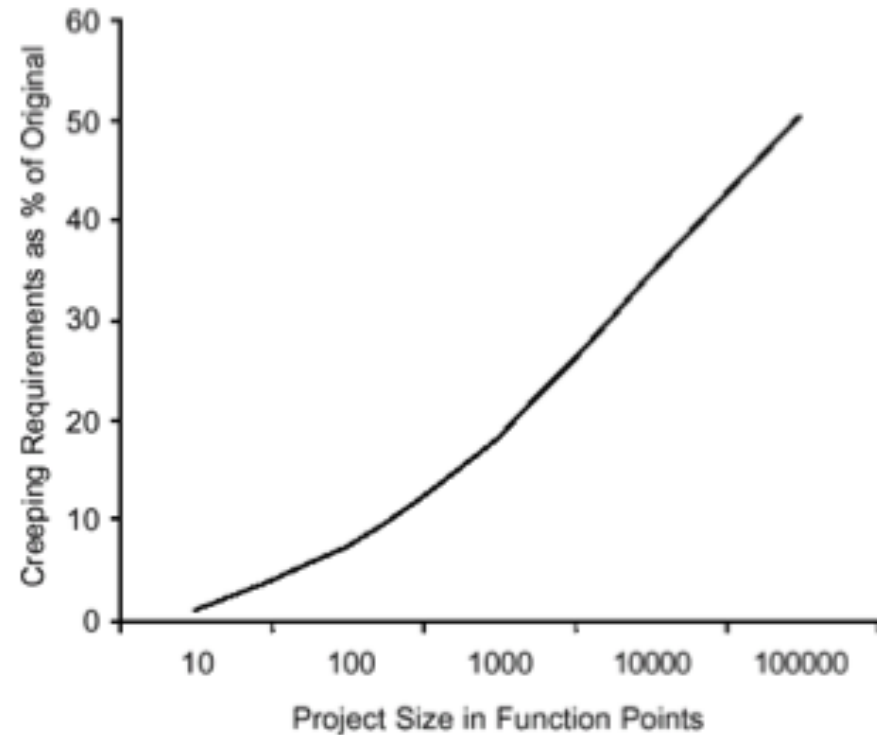
- Risk Management
 - Types of risk: schedule, cost, requirements
- Risk Identification
 - Involve the team
- Risk Analysis
 - Risk Exposure (RE = Prob. * Size)
 - Probability is 15%, size is 10 weeks
 - $.15 * 10w = 1.5w$
- Risk Prioritization
 - 80-20 rule; large size or prob. 1st; grouping; ignoring

- 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>

Requirements gathering techniques

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

- The feature creep phenomenon
 - Average project has 25% requirements change
- Sources of change
 - Marketing
 - Developers
 - Users
- Overly detailed specs. or prolonged requirements phase are not the answer
- Change control is a process



Begin Development of Next Product Version

- Early Stages
 1. Minimal Specification
 2. Requirements Scrubbing
 3. Versioned Development

- Mid-Project
 - Effective change control
 - Set up a Change Control Board
 - Structure
 - Process
 - **Like a Triage !!!**
 - Adopt Configuration Management Tools

- Late-Project
 - Feature cuts

- Staffing
 - Typical profile
 - Roll-on – Roll-off
- Hiring Guidelines
- Team Models
- Resource Allocation Tools
 - RAM
 - Skill Matrix

Hiring Guidelines

- Hire for attitude, train for skill
- Smart, gets things done
- Balance

- 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

Mythical Man Month

- What is the problem with measuring progress with Man-Month?
- Why is software project disaster so common?
 - Problems
 - Optimism
 - Communication Overhead
 - Sequential nature of the software development process
 - reliance on hunches and guesses
 - The myth of additional manpower
 - ... and fixes

- 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
 - $SPI (BCWP / BCWS)$, $CPI (BCWP / ACWP)$
 - $CR (SPI \times CPI)$
- 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

- 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

- Capability Maturity Model
- Five levels
 - Initial
 - Repeatable
 - Defined
 - Managed
 - Optimizing
- Know the functions in each level
 - (especially in the first 2)

Questions?

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