Web Engineering

Project Management for Web Applications

Where we are?

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Overview

• Introduction
• Project Management For Web Applications
  – Challenges
  – Managing the Development Team
  – Managing the Development Process
  – Project Risks & Risk Management
• Wrap-up

INTRODUCTION
Purpose

- Project management
  - A systematic approach to planning and guiding project processes from beginning to end.
  - Project management is the discipline of planning, organizing, securing and managing resources to bring about the successful completion of specific project goals and objectives¹.

- It is usually a human-centered activity.

- Like in requirements analysis, conflict resolution is critical

- Many development teams are still “new” to the Web
  - Short history, inexperienced in management
  - Experienced in traditional software only

¹http://en.wikipedia.org/wiki/Project_management

Objectives & Tasks

- Planning
- Development
- Leadership
- Software Project
- Testing
- Implementation
- Monitoring
Balancing Conflicting Goals

- A change in one goal incurs trade-offs with the others.
- Be sure all stakeholders are aware of this relationship!
- eXtreme Programming (XP) is introducing additional variable – scope
  - Scope reductions can reduce budget, shorten the development time and rise the quality level.

PROJECT MANAGEMENT FOR WEB APPLICATIONS
Traditional vs. Web

• In Traditional Projects:
  – Quality product at lowest cost
  – 10-100 team members
  – 12-18 month horizon
  – $ millions
  – Requirements-based; structured phases; document-driven
  – OO methods
  – Rigid processes
  – Complex; poor reusability
  – Experienced, professional developers

• In Web Projects:
  – Usable product in shortest time
  – 3-10 team members
  – 3-6 month horizon
  – $ thousands
  – Agile methods; prototypes
  – Component-based methods; multimedia; visual programming
  – Ad-hoc processes
  – Standardized; high reusability
  – Multimedia designers; Web programmers; marketers

General Challenges

• Leadership
  – Poor/incomplete planning
  – Unique/legacy software systems
  – Highly technical leadership

• Development
  – Individuality
  – Many alternative solutions
  – Rapid change

• Monitoring
  – Scope of monitoring concerns
  – Correctness of monitored values
Development Challenges

- Novelty
  - Unknown & uninformed audiences
- Usability
  - No manuals, time to learn extremely short (the app must be intuitive)
- Dynamics
  - Time pressures
- Parallelism
  - Subteams and inter-communication
- Continuity
  - Development to transition
- Juvenility
  - Youth; less experience
- Immaturity
  - Inadequate tools

Product-Related Challenges

- Web apps are “simple”
- Aesthetics
- Spontaneity
- Ubiquity
- Compatibility
- Stability & Security
- Scalability
Managing the Development Team

- Success is largely determined by group dynamics & how well they are managed
  - Communication among team members
  - Motivation & coordination by the Project Manager
  - Identification & resolution of conflicts ASAP
  - Concurrent engineering
  - Primary & backup strategies
  - Documentation is everyone’s responsibility

The Web Project Team

- Web Project Team
  - Management: Project Manager, Multimedia Designer
  - Functionality: Software Engineer, Domain Expert
  - Data: Business Expert
The Roles of the Project Manager

- Mediator
- Motivator
- Communicator
- Translator
- Trainer
- Customer liaison
  - Requirements during development
  - Post-deployment?

10 Golden Rules

1. Promote the professional self-conception of each team member and ethical behavior.
2. Stress the importance of different app knowledge
3. Solve conflicts quickly
4. Keep roles well-defined
5. Look for parallel developments & synergies
6. Spread the documentation task fairly
7. Promote & coordinate continuous use of tools
8. Translate costs & values
9. Keep the customer involved
10. Monitor project progress and objectives
Managing the Development Process

- Tool-driven vs. document-driven
  - Requirements & test suites
  - Communication (Wikis)

- Configuration management
  - Versioning
  - Short iteration cycles
  - No project is too small for it!

- Measuring progress
  - System specification
  - The application itself

Project Risks

- Risk: the probability of an activity to result in a loss

- Most critical risks:
  - Personnel deficits
  - Unrealistic time and cost specs
  - Incompatible third-party components
  - Misunderstood properties
  - Poor user interface
Nielsen's Top Risks

• Unclear definition of objectives
• Wrong target audience
• Development-oriented page structure
• Inconsistent design
• Insufficient budget for maintenance
• Content recycling & poor linking
• Mixing Internet & intranet
• Marketing research is seen as usability research

Risk Management

• How likely is a problem to occur, what will be the impact, and what are the solutions?
• Assessment: Identify, analyze, & prioritize
• Control: Provision, monitor, mitigate
• Groups are better at assessing and managing risk than individuals
• Perform a cost-benefit analysis to justify risk management activities
WRAP-UP

Things to keep in mind (or summary)

• Project Management is part of the meta-development process (process about the process)
  – Minimize risks
  – Enable development process monitoring
  – Require integration with the development process (“probe” points)
Bibliography

• Mandatory reading

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