Supporting Workflow Overview
Objectives: Supporting Workflows

- Define the supporting workflows
- Understand how to apply the supporting workflows
- Understand the activities necessary to configure a process for a project
- Comprehend the basic concepts of configuration and change management
- Understand the context of Project Management within the scope of a project
Supporting Workflows: Topics

- Introduction
- Environment workflow concepts
- Configuration and Change Management workflow concepts
- Project Management workflow concepts
- Checkpoints
INTRODUCTION
Supporting Workflows in Context

Workflows:
- Business Modeling
- Requirements
- Analysis & Design
- Implementation
- Test
- Deployment
- Configuration & Change Mgmt
- Project Management
- Environment

Phases:
- Inception
- Elaboration
- Construction
- Transition

Iterations:
- Initial
- Elab #1
- Elab #2
- Const #1
- Const #2
- Const #N
- Tran #1
- Tran #2
Process vs Supporting Workflow

- **Process Workflow**
  - Development activities
  - Stronger emphasis in specific phases

- **Supporting workflow**
  - Management and infrastructure activities
  - Equal emphasis in all phases
Environment Workflow in Context

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Objectives: Environment
Workflow

- Focuses on the activities necessary to configure the process for a project
- Describe the activities required to develop the guidelines in support of a project
- Provide the software organization with the processes AND tools that will support the development team
Environment Artifacts

- Development Case
- Use-case Modeling Guidelines
- Requirements Attributes Guidelines
- Business Modeling Guidelines
- Programming Guidelines
- Development Organization Assessment
- Test Guidelines
- Design Guidelines
- Manual Styleguide
- User-Interface Guidelines
Environment Workflow

Overview

1. Inception
   - Iterations
     - Prepare environment for project
       - Prepare environment for iteration
       - Prepare guidelines for iteration
     - Support environment during an iteration
Process Configuration

- Two levels at which the software engineering process can be configured
  - Organization Level
  - Project level
Configuring the Rational Unified Process or the like at the project-process level, requires the creation of a Development Case.

- A Development Case is a project specific instance of the Rational Unified Process.
- The Development Case is created at the onset of the project and ideally should undergo few modifications.
Making the Development Case Accessible

- Develop a minimal set of web pages for the Development Case then access the Rational Unified Process via hyperlinks
Developing Guidelines

- Guidelines are captured at the beginning of the process and also as the project progresses.

- Capture guidelines for:
  - Business modeling
  - Use Case modeling
  - Design modeling
  - Programming
  - Testing
Configuration and Change Management Workflow
Configuration and Change Management Workflow in Context
Definition: Configuration & Change Management

- Configuration and Change Request Management control change to, and maintain the integrity of, a project’s artifacts
  - (SEI CMM)
  - Configuration of your project – toward software construction/build
  - Control and manage new features/enhancements as well as defects
Configuration & Change Management Artifacts

- Configuration Manager
  - CM Plan
  - Configuration Audit Findings
  - Change Request
Configuration & Change Management Overview

- Plan Project Configuration and Change Control
- Create Project CM Environments
- Change and Deliver Configuration Items
- Manage Baselines and Releases
- Monitor and Report Configuration Status
- Manage Change Requests
The Major Aspects of a CM System

- Change Request Management
- Configuration Management
- Change Tracking
- Version Selection
- Software Manufacture
Change Request Management

- Provide a mechanism to associate any modifications to your project
- Provide multiple interfaces for mixed platform support
- Allow for easy submission from any member of the team
- Flexible customization of request lifecycle
- Understanding of assignments and priorities
Change Request Management

- Metrics and reporting to assess quality of product
- Easy to access to project status information
- Understanding of resource allocation
- Integration with CM for full traceability
Configuration Management (CM) Plan

- Responsibilities
- Tools
- Environment, Infrastructure
- Identification methods
- Change Control Board
- Change Request Processing and Approval
- Configuration Status Accounting
Creating the CM Report

- Use the MS Word template provided in the Rational Unified Process
Change Request

- Identification
- Problem Description
- Proposed Change
- Resolution
- Assessment
- Disposition
Submitting a Change Request

- Submit a change request using ClearQuest
Change Control Board

- Ensures all proposed changes receive technical analysis and review
- Approves all changes to baseline configuration items
- Prioritizes all approved changes
- Enforces the change request process
Project Management Workflow
Project Management Workflow in Context

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Objectives: Project Management

- To provide a framework for managing software-intensive projects
- To provide practical guidelines for planning, staffing, executing and monitoring projects
- To provide a framework for managing risk
Objectives: Project Management

- NOT
  - Managing people
  - Managing budget
  - Managing contracts
Project Management Artifacts
Project Management Overview
Inception Phase

Evaluation Criteria:

- Stakeholder concurrence on scope definition and cost/schedule estimates
- Requirements understanding for the primary use cases
- Credibility of the estimates, priorities, risks, development process, etc.
Inception Phase

- Depth and breadth of architectural prototype (optional)
- Actual expenditures versus planned expenditures

Milestone: Lifecycle Objectives (LCO)
Elaboration Phase

Evaluation Criteria:

- Vision of the product is stable
- Requirements understanding (use-case model >= 80% complete and supplementary specifications complete)
- Executable architecture baselined and stable
- Major technical risks ‘retired’
- Sufficient software development plan for construction
Elaboration Phase

- Stakeholder agreement that the vision can be met with the plan and architecture in place
- Actual expenditures versus planned expenditures

Milestone: Lifecycle Architecture (LCA)
Construction Phase

Evaluation Criteria:
- Complete product of sufficient quality available
- Deployment plan ready
- Packaging
- Pricing
- Roll-out
- Support
Construction Phase

- Training
- Production
- Transition strategy
  - User documentation available
- Milestone: Initial Operational Capability (IOC) “beta”
Transition Phase

- Evaluation Criteria:
  - Previous products and artifacts, updated as necessary
  - Customer/user acceptance of released product
  - Post-mortem analysis of the organization’s performance; additional assets; potential evolutions

- Milestone: Product Release (“GA” or general availability release)
Major Milestones: Business

Decision Points

- Inception
  - Lifecycle Objective Milestone
- Elaboration
  - Lifecycle Architecture Milestone
- Construction
  - Initial Operational Capability Milestone
- Transition
  - Product Release

- Commit resources for construction
- Commit resources for Elaboration phase
- Product sufficiently mature for customers
- Customer acceptance or end of life
Concept: Iteration

- One pass through a sequence of process workflows. From a development perspective the software lifecycle is a succession of iteration, through which the software develops incrementally.
Project Management Workflow in Context

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Beyond Transition: Development Cycles

- A development cycle includes one execution of all four phases and produces a software generation.

- Most software systems require multiple cycles.
  - An initial development cycle leading to the initial delivery.
Beyond Transition: Development Cycles

- Subsequent cycles to maintain and enhance the system
- Cycles may be sequential, but more commonly overlap
Strategies for Iterative Development
Minor Milestones: Technical
Visibility Points

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Minor Milestones: Releases
Minor Milestones: Iteration Feedback Loop

### Iteration N Assessment
- Compare iteration actual cost, schedule and content with iteration plan
- Determine rework (if any) to be done
  - Assign to future iteration(s)
- Determine what risks have been eliminated, reduced, or newly identified in this iteration
- Update project plan
- Prepare iteration plan for next iteration
  - Use revised risk list and select

### Revised Project Plan
- Total Cost
- Overall Schedule
- Scope/Content

### Revised Risk List

### Iteration N Cost and Schedule Actuals

- Quality assessment for iteration N
  - Test results
  - Defect density
  - Architecture stability
  - Other metrics
Iteration Planning

- Define Objective evaluation criteria
- Identify what concrete, measurable artifacts will be developed or updated and the activities required to build them
- Use a standard work breakdown structure
- Use estimates to assign duration and effort to each activity
- Adjust as necessary to keep all numbers within resource constraints
How many and How Long?

- How many iterations should be included in the project plan?
- How long should each iteration take?
- Depends on a number of factors:
  - Size of the system being built: The larger the system, the longer the duration
  - Number of people: The larger the number of people, longer the duration.
Iteration Scope

- The scope of an iteration is driven by four factors:
  - The functionality required of the system
  - The time allocated to the iteration in the Project Plan
  - The top risks to the project
  - The phase and its specific objectives
Creating the Iteration Plan

- From the tree browser, select templates
- Select MS Word
- Scroll down to management
- Click on the Iteration Plan link
- Select the ‘Iteration Plan- Word 97/2000 Template’
- Save the file in a doc format
- Fill in your project’s information in the appropriate sections
Risk Terms

- **RISK** - whatever may stand in the way of our success
- **DIRECT RISK** - the project has a large degree of control
- **INDIRECT RISK** - the project has little or no control

**Risk attributes:**
- Probability of occurrence
- Impact on the project (severity)

**Risk magnitude indicator:**
- High, Significant, Moderate, Minor, Low
Risk Strategies

- **Risk Avoidance**: reorganize the project so that it will not be affected by the risk.
- **Risk Transfer**: reorganize the project so that someone else bears the risk.
- **Risk Acceptance**: live with it.
- **Risk Mitigation**: reduce the probability or impact.
- **Definition of a contingency plan**: what course of action to take if the risk becomes an actual problem ("Plan B")
Creating the Risk Management Plan

- From the tree browser, select templates
- Select MS Word
- Scroll down to management
- Click on the Risk Management Plan link
- Select the ‘Risk Management Plan - Word 97/2000 Template’
- Save the file in a doc format
- Fill in your project’s information in the appropriate sections
Checkpoints
Checkpoints

- Does your team understand the process you will implement for the project?
- Have you set up a Change Control Board?
- Have you defined procedures for managing change?
- Do you know what your most important risks are?
- Have you decided how you will manage the project risk?