Each iteration results in an executable release.
Iterative Development Advantages

- Critical risks are resolved before making large investments
- Initial iterations enable early user feedback
- Testing and integration are continuous
- Objective milestones provide short-term focus
- Progress is measured by assessing implementations
- Partial implementations can be deployed
**Process Notation**

- **Worker**: Signifies a role that may be played by an individual or a team of individuals in the development organization.
- **Use-Case Specifier**: Describes a piece of information that is produced, modified, or used by a process.
- **Activity**: Describes a piece of work a worker may be asked to perform.
- **Artifact**: Signifies a piece of information that is produced, modified, or used by a process.
- **Use Case**: Use-Case Package

**Diagram Notes**:
- Use-Case Specifier is responsible for Use Case and Use-Case Package.
- Worker interacts with Use-Case Specifier.
Workers Are Used for Resource Planning

Each individual in the project is assigned to one or several workers.
Phases in the Process

The Unified Software Process has four phases:

- Inception - Define the scope of project
- Elaboration - Plan project, specify features, baseline architecture
- Construction - Build the product
- Transition - Transition the product into end user community
Inception Phase

- **Purpose**
  - To establish the business case for a new system or for a major update of an existing system
  - To specify the project scope

- **Outcome**
  - A general vision of the project’s requirements, i.e., the core requirements
    - Initial use-case model and domain model (10-20% complete)
  - An initial business case, including:
    - Success criteria (e.g., revenue projection)
    - An initial risk assessment
    - An estimate of resources required

- **Milestone: Lifecycle Objectives**
Elaboration Phase

**Purpose**
- To analyze the problem domain
- To establish a sound architectural foundation
- To address the highest risk elements of the project
- To develop a comprehensive plan showing how the project will be completed

**Outcome**
- Use-case and domain model 80% complete
- An executable architecture and accompanying documentation
- A revised business case, incl. revised risk assessment
- A development plan for the overall project

**Milestone: Lifecycle Architecture**
Construction Phase

- **Purpose**
  - To incrementally develop a complete software product which is ready to transition into the user community

- **Products**
  - A complete use-case and design model
  - Executable releases of increasing functionality
  - User documentation
  - Deployment documentation
  - Evaluation criteria for each iteration
  - Release descriptions, including quality assurance results
  - Updated development plan

- **Milestone:** Initial Operational Capability
Transition Phase

- **Purpose**
  - To transition the software product into the user community

- **Products**
  - Executable releases
  - Updated system models
  - Evaluation criteria for each iteration
  - Release descriptions, including quality assurance results
  - Updated user manuals
  - Updated deployment documentation
  - “Post-mortem” analysis of project performance

- **Milestone: Product Release**
An iteration is a distinct sequence of activities with an established plan and evaluation criteria, resulting in an executable release (internal or external).
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 detailed plan for next iteration
  - Use revised risk list and select appropriate scenarios

Revised Risk List

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

Iteration N+1 Plan
- Cost
- Schedule
- Content

Quality Assessment for Iteration N
- Test Results
- Defect Density
- Architecture Stability
- Other metrics

Iteration N Cost and Schedule Actuals
Each major workflow describes how to create and maintain a particular model.
Bringing It All Together...

Process Workflows
- Business Modeling
- Requirements
- Analysis & Design
- Implementation
- Test
- Deployment

Supporting Workflows
- Configuration Mgmt
- Management
- Environment

In an iteration, you walk through all workflows.

Iterations

<table>
<thead>
<tr>
<th>Preliminary Iteration(s)</th>
<th>Iter. #1</th>
<th>Iter. #2</th>
<th>Iter. #n</th>
<th>Iter. #n+1</th>
<th>Iter. #n+2</th>
<th>Iter. #m</th>
<th>Iter. #m+1</th>
</tr>
</thead>
</table>

Phases
- Inception
- Elaboration
- Construction
- Transition
Example of a Workflow