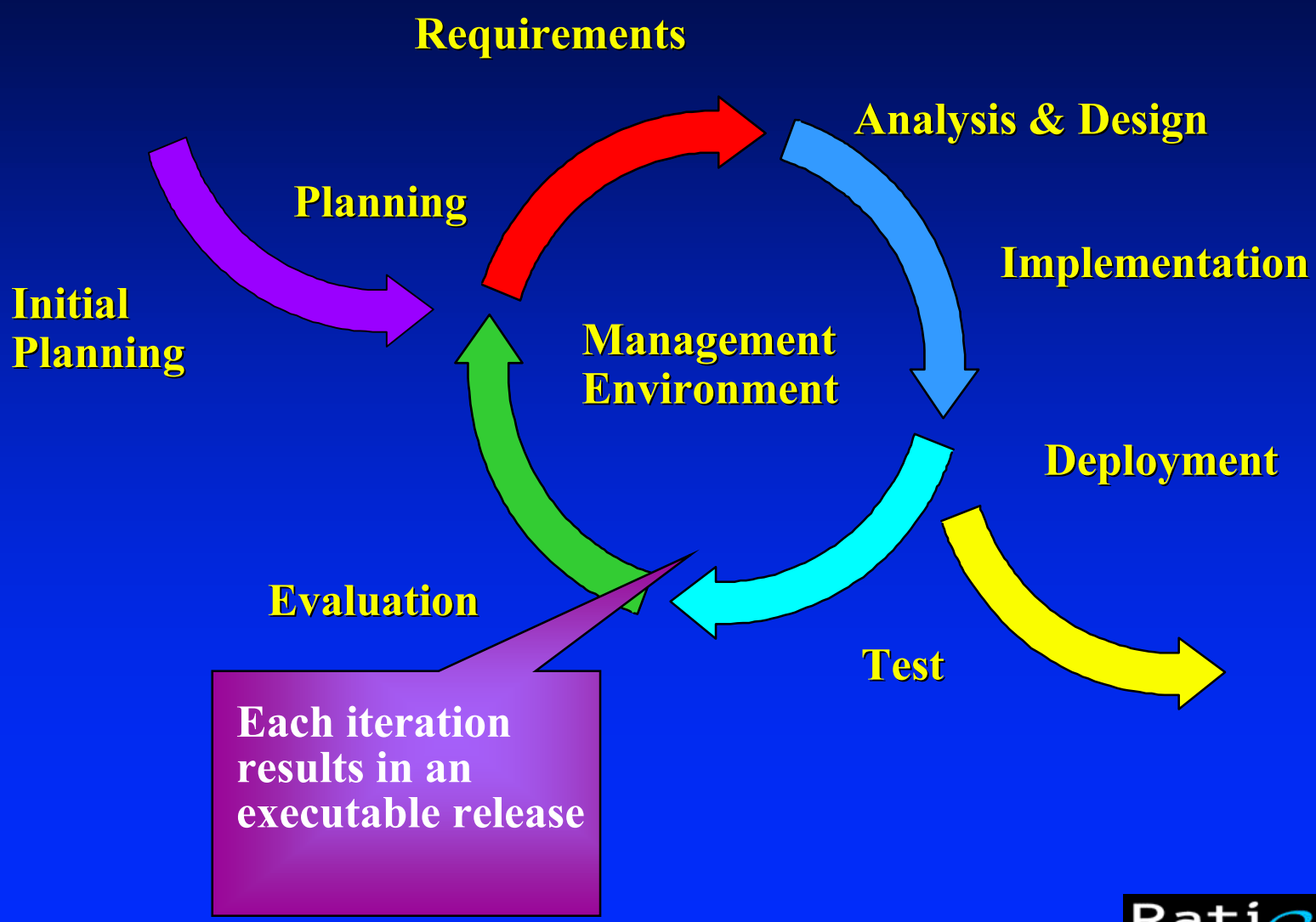
Iterative Development



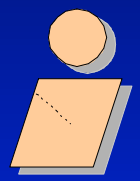
Iterative Development Advantages

- 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

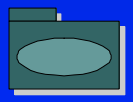
Signifies a *role* that may be played by an individual or a team of individuals in the development organization



Use-Case Specifier

responsible for

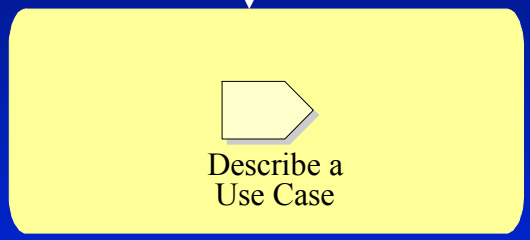
Use Case



Use-Case Package

Activity

Describes a piece of work a worker may be asked to perform.



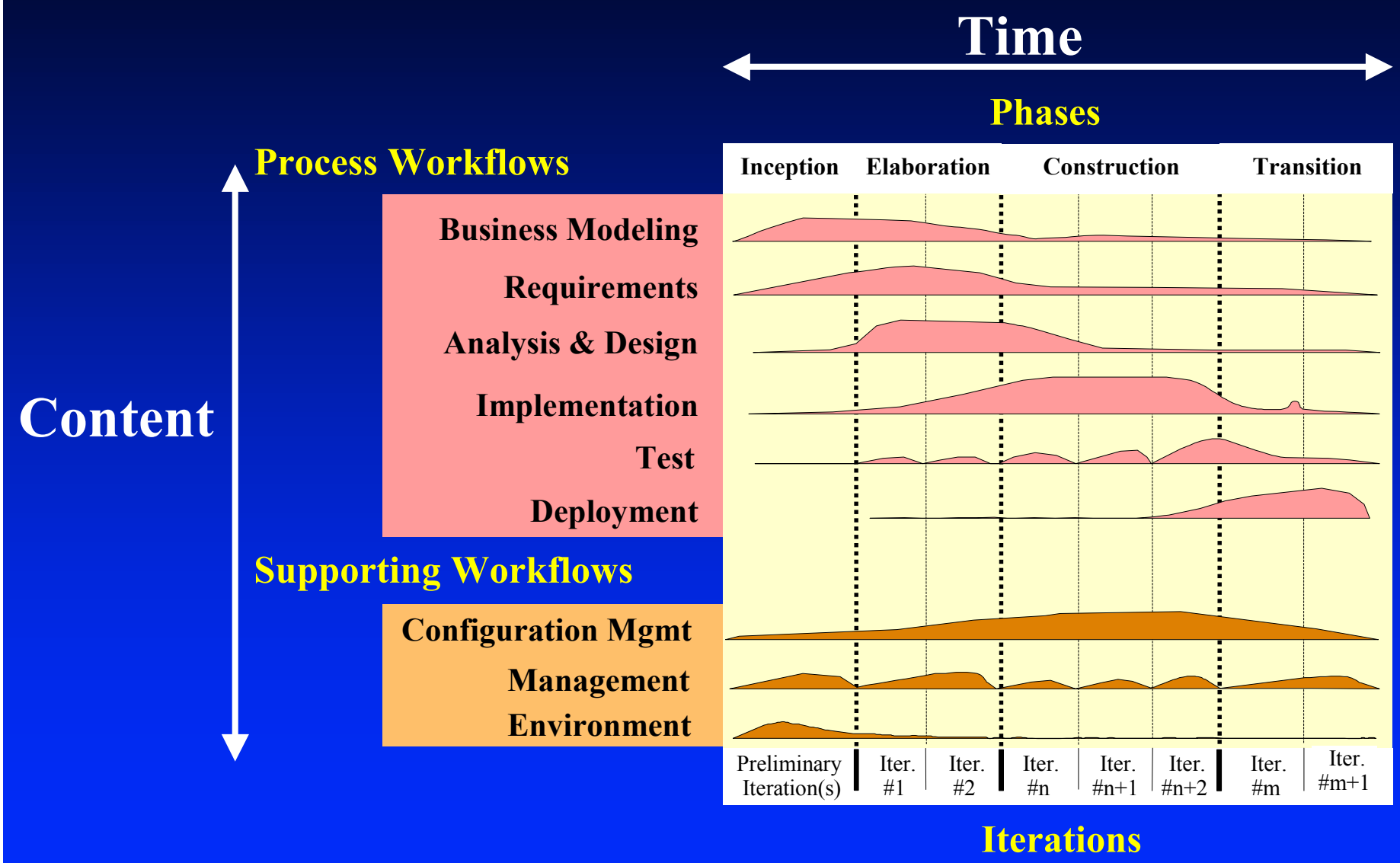
Artifact

Signifies a piece of information that is produced, modified, or used by a process

Workers Are Used for Resource Planning

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

Process Architecture



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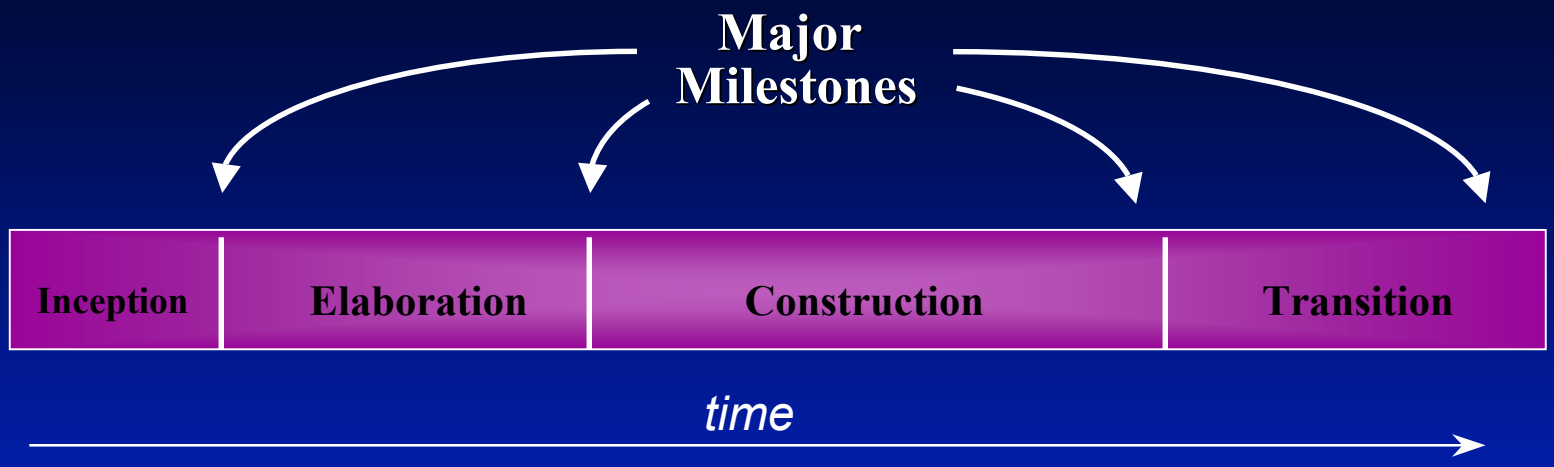
Phases in the Process



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

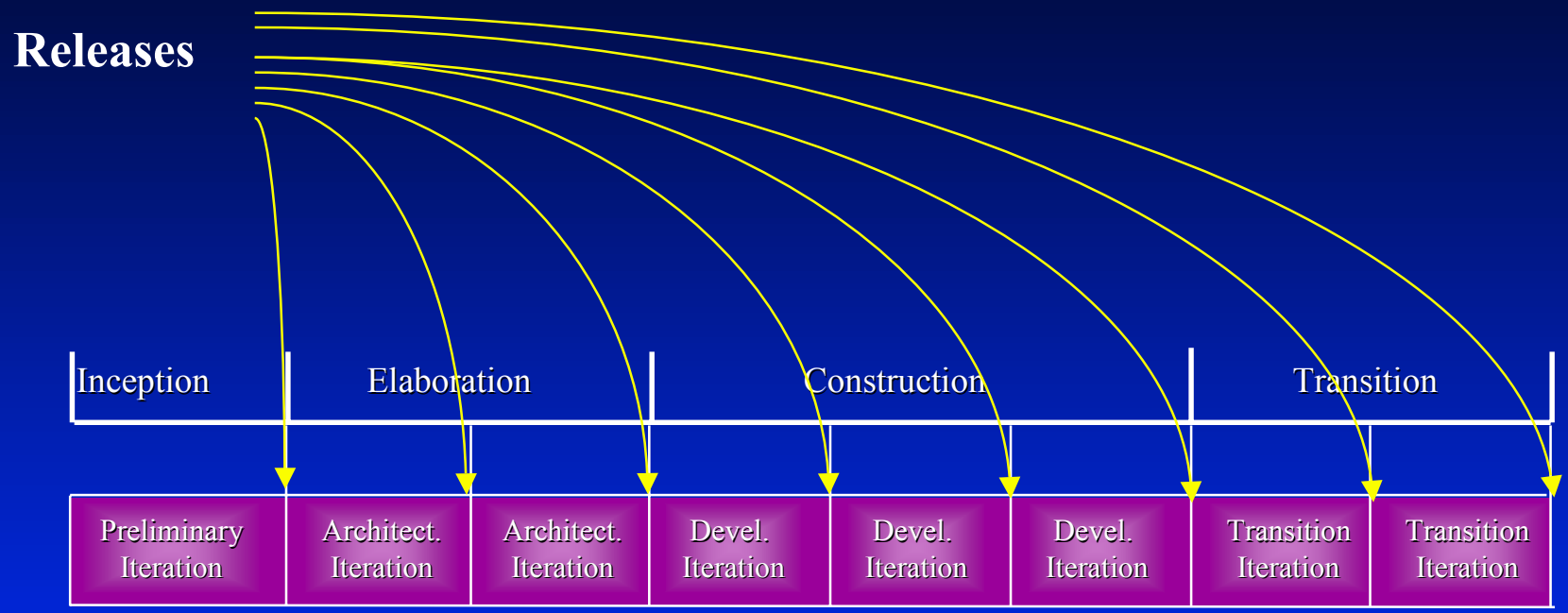
Construction Phase

- 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

Iterations and Phases



An *iteration* is a distinct sequence of activities with an established plan and evaluation criteria, resulting in an executable release (internal or external).

Iteration Assessment

Iteration N Cost and Schedule Actuals

Quality Assessment for Iteration N

- Test Results
- Defect Density
- Architecture Stability
- Other metrics

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

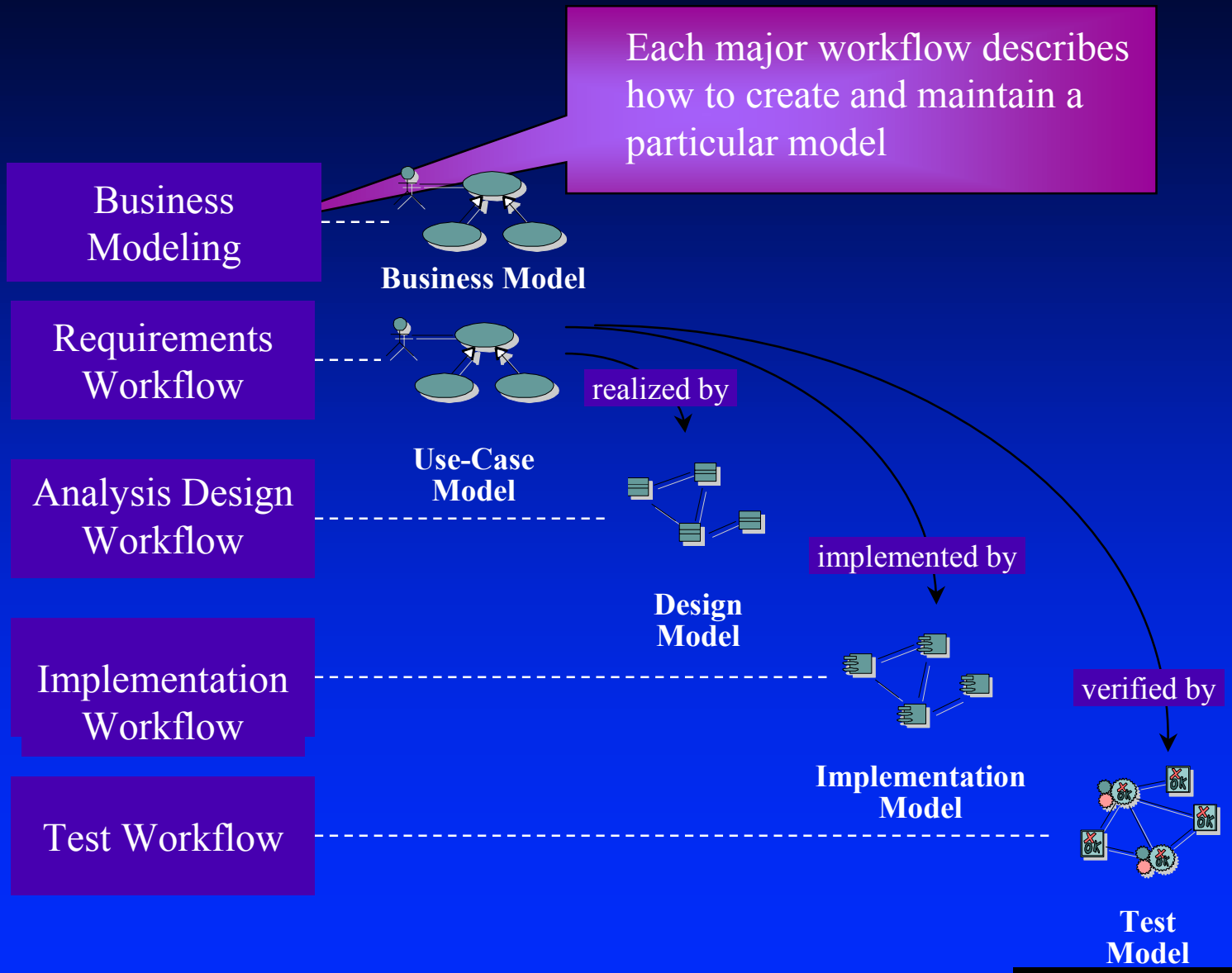
- Total Cost
- Overall Schedule
- Scope/Content

Iteration N+1 Plan

- Cost
- Schedule
- Content

Models and Workflows

Each major workflow describes how to create and maintain a particular model



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Bringing It All Together.

In an iteration, you walk through all workflows

Phases

Process Workflows

Business Modeling

Requirements

Analysis & Design

Implementation

Test

Deployment

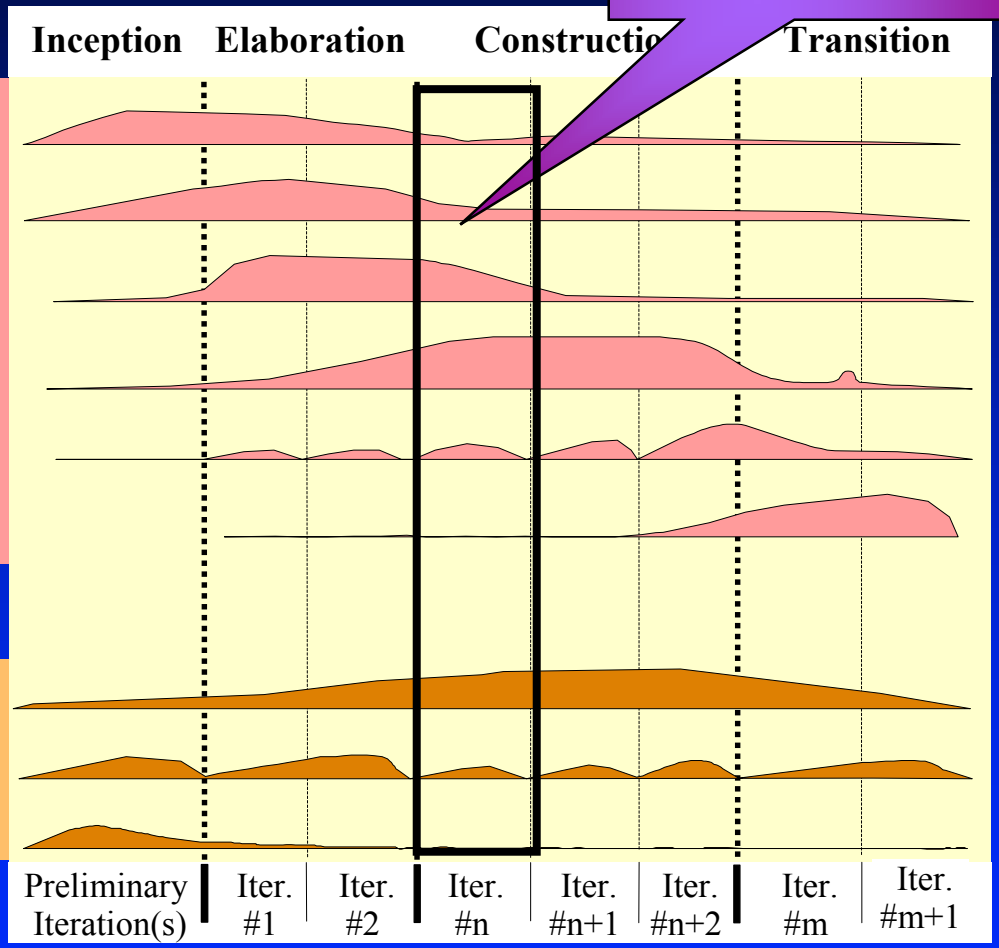
Supporting Workflows

Configuration Mgmt

Management

Environment

Workflows group activities logically



Iterations

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Example of a Workflow