Principles of Software Testing for Testers

Module 3: The RUP Test Discipline

Objectives

◆ Introduce concepts and vocabulary used in this course:

- The terminology of RUP

- The testing discipline in RUP

- The testing workflow structure

What is the Rational Unified Process (RUP)?

The Rational Unified Process (RUP) is a software engineering process framework that provides a disciplined yet flexible approach to assigning tasks and responsibilities within a software development organization.

RUP's goal is to support the production of high-quality software that meets the needs of its end users within a predictable schedule and budget.

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Module 3 - Agenda

➔ Overview of the software lifecycle in RUP

◆ Overview of the building blocks of RUP

◆ Roles in the Test Discipline

◆ Workflow Details in the Test Discipline
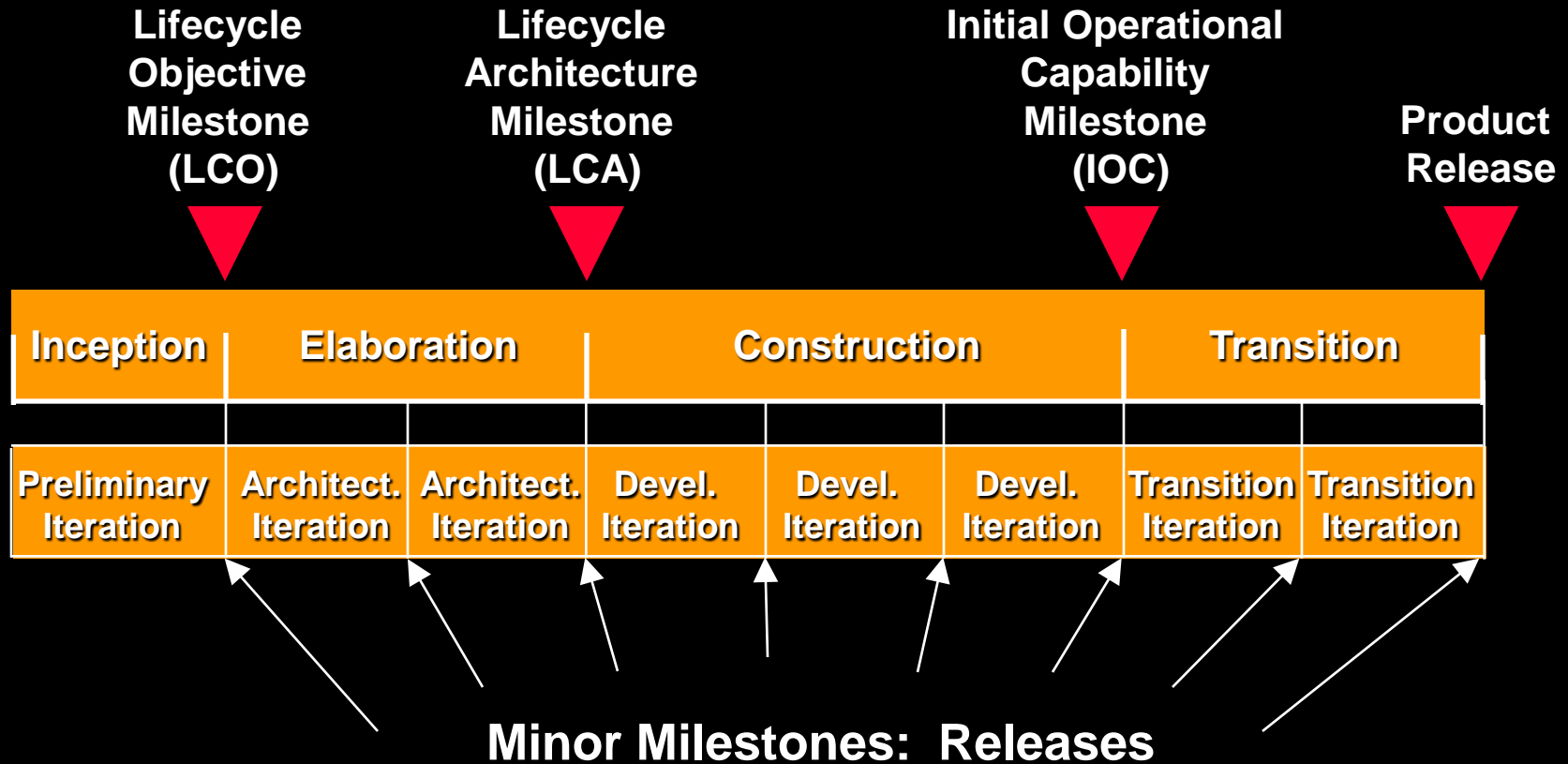
RUP Process Architecture

Disciplines

Lifecycle

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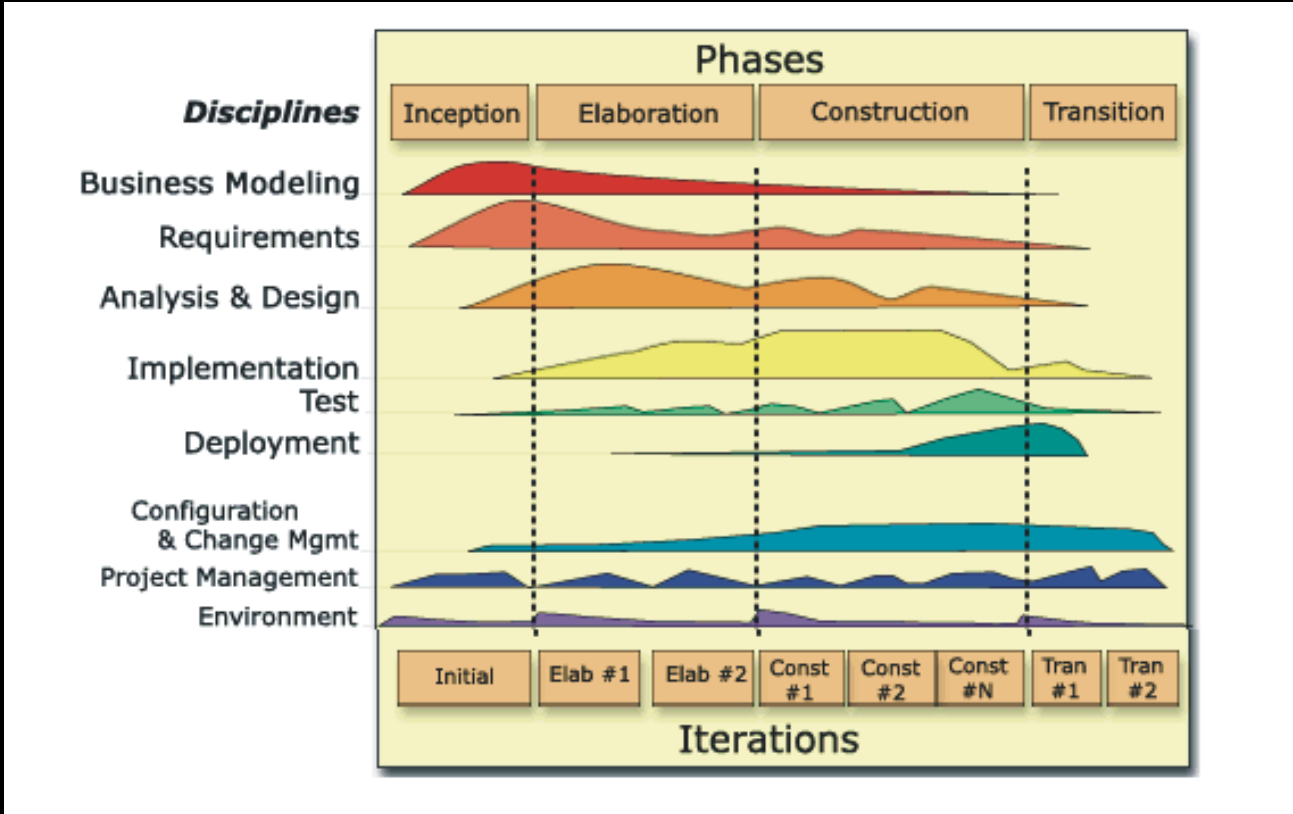
Process Structure - Lifecycle Phases

Inception	Elaboration	Construction	Transition

*time*

The Rational Unified Process has four phases:

- **Inception** - Define the project scope, gain agreement on project objectives, baseline the product Vision

- **Elaboration** - Address key technical risks, produce an evolutionary prototype, baseline the Architecture

- **Construction** - Iteratively and incrementally develop an operationally complete product

- **Transition** - Deliver the product into the live end-user environment

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The Lifecycle Has Phases and Iterations

Lifecycle Objective Milestone (LCO)

Lifecycle Architecture Milestone (LCA)

Initial Operational Capability Milestone (IOC)

Product Release

Inception	Elaboration		Construction			Transition	
Preliminary Iteration	Architect. Iteration	Architect. Iteration	Devel. Iteration	Devel. Iteration	Devel. Iteration	Transition Iteration	Transition Iteration

Minor Milestones: Releases

Each iteration results in an executable release (internal or external). Iterations are the "heartbeat" or rhythm of the project and a governing principle for testing in RUP.

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Bringing It All Together: The Iterative Approach

Disciplines group activities logically
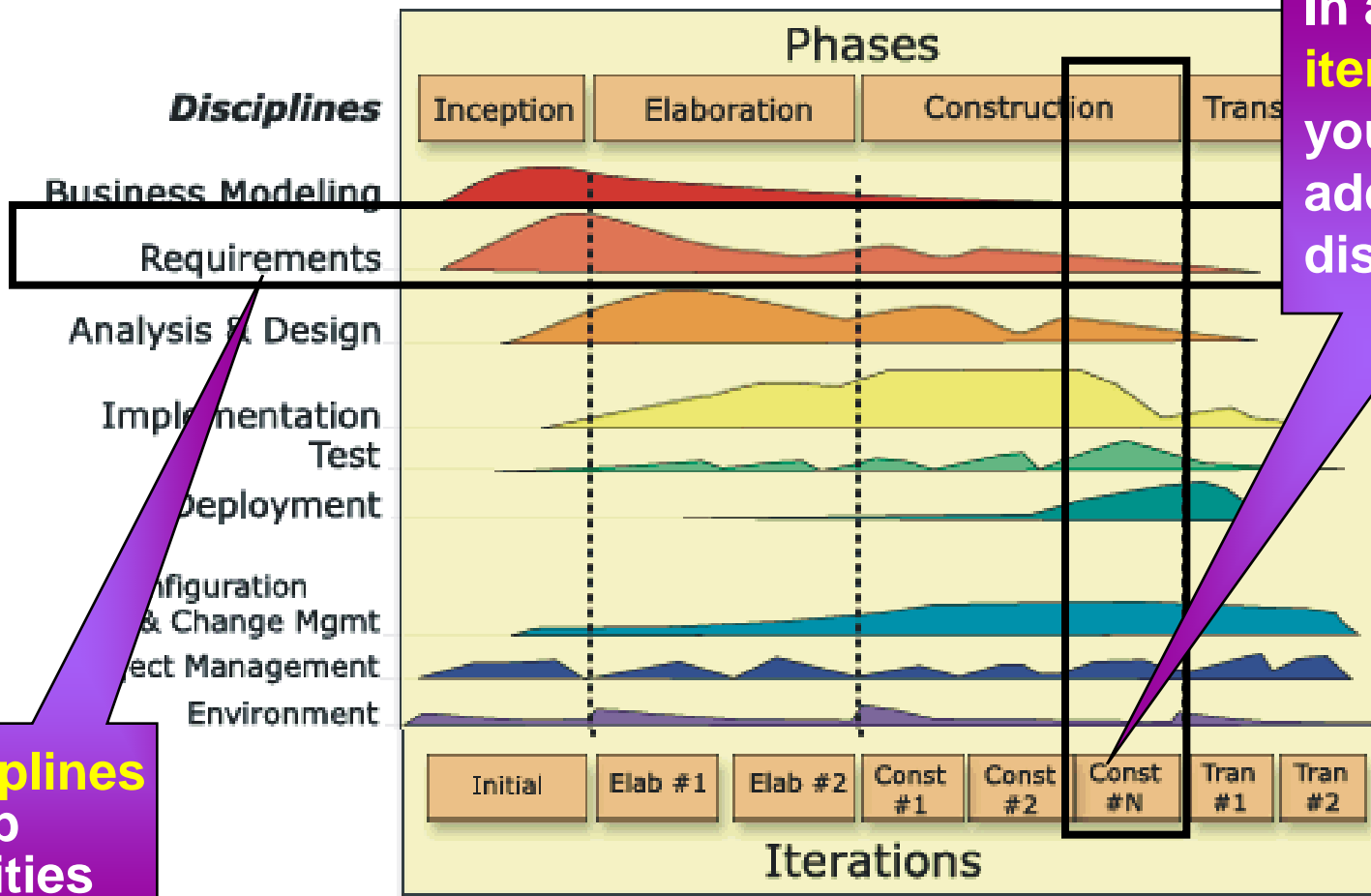
In an iteration, you typically address all disciplines

Module 3 - Agenda

- ◆ Overview of the software lifecycle in RUP
- ➔ **Overview of the building blocks of RUP**
- ◆ Roles in the Test Discipline
- ◆ Workflow Details in the Test Discipline

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Overview of Rational Unified Process Concepts
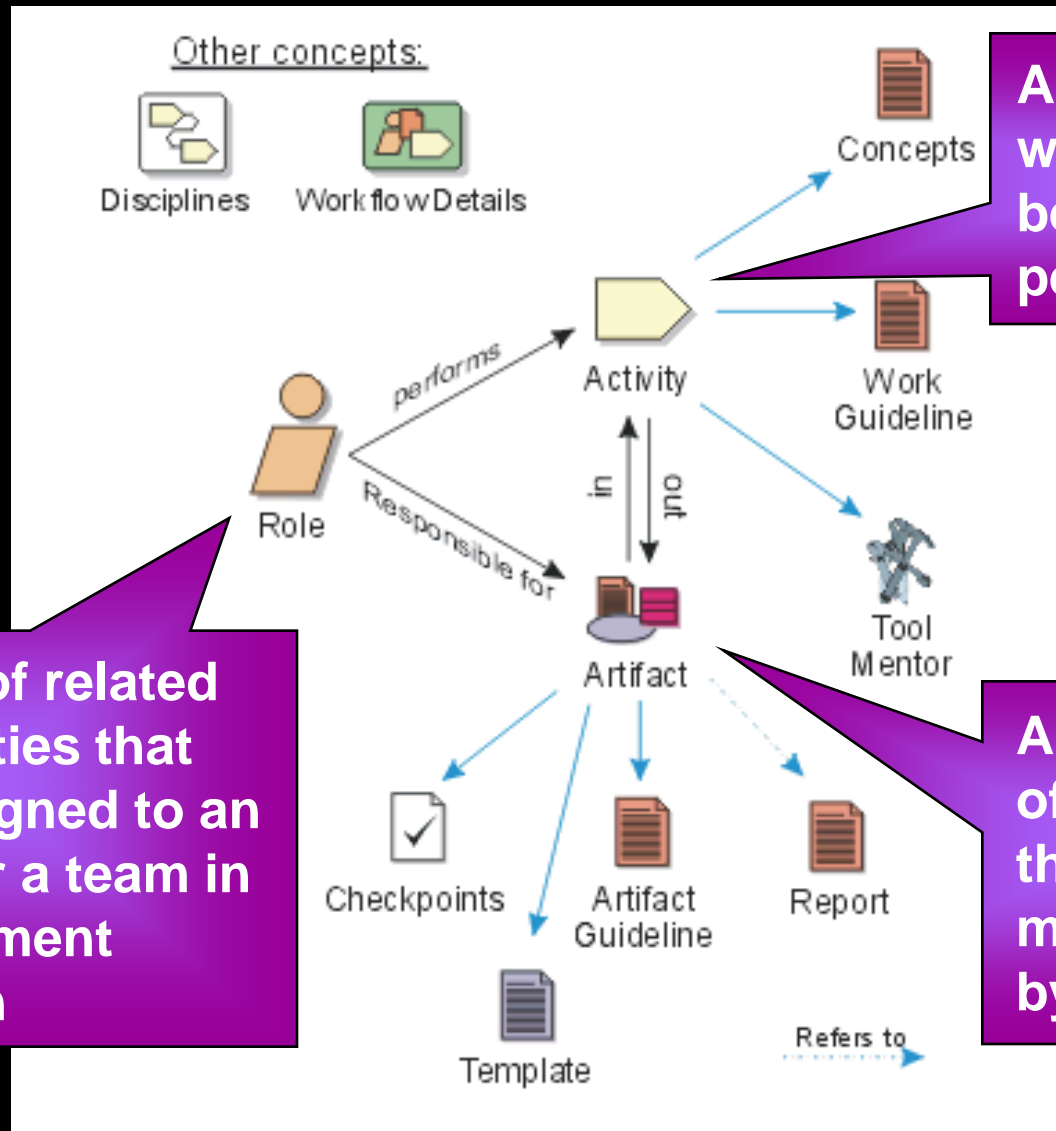
Activity: A unit of work a Role may be asked to perform

Role: A set of related responsibilities that may be assigned to an individual or a team in the development organization

Artifact: A piece of information that is produced, modified, or used by an Activity

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Roles Are Used for Resource Planning

Resource	Role	Activities
Paul	Architect	Identify Design Mechanisms
Mary	System Analyst	Find Actors and Use Cases
Joe	Requirements Specifier	Detail a Use Case
Sylvia	Test Analyst	Identify Test Ideas
Jane	Tester	Analy...

One role can be assigned to one or more individuals

Each individual in the project is assigned to one or more roles

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Module 3 - Agenda

- Overview of the software lifecycle in RUP
- Overview of the building blocks of RUP
- **➔ Roles in the Test Discipline**
- Workflow Details in the Test Discipline

RUP Test Manager Role, Activities, and Artifacts

Activities:
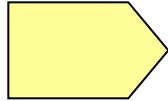
Test Manager | Agree Mission | Identify Test Motivators | Obtain Testability Commitment | Assess and Advocate Quality | Assess and Improve Test Effort
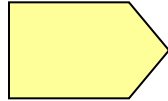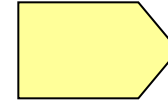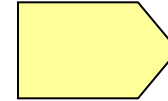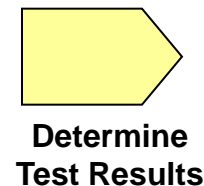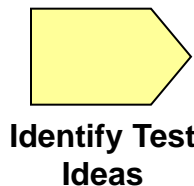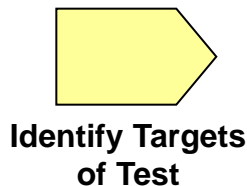
Artifacts:
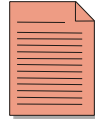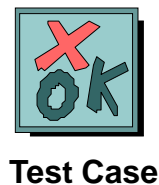

Test Manager | Test Plan | Test Evaluation Summary

The **Test Manager** role is tasked with the overall responsibility for the test effort's success.

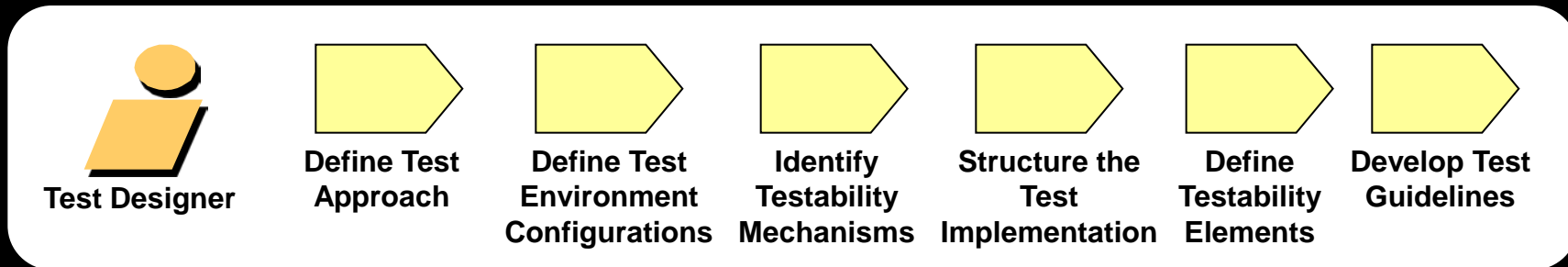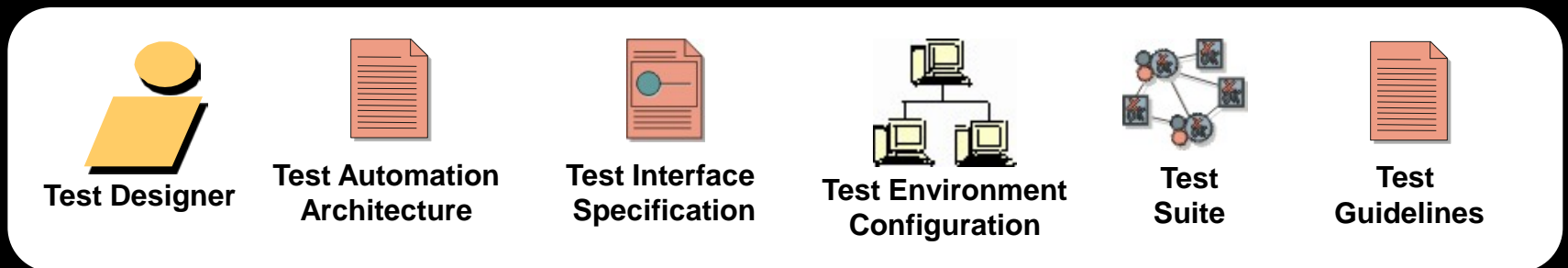# RUP Test Analyst Role, Activities, and Artifacts

Activities:

| Test Analyst | Identify Targets of Test | Identify Test Ideas | Define Test Details | Define Assessment and Traceability Needs | Determine Test Results |

Artifacts:

| Test Analyst | Test Ideas List | Test Case | Workload Analysis Model | Test Data | Test Results |
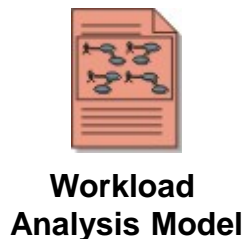
The **Test Analyst** role is responsible for initially identifying and defining the required tests, and subsequently evaluating the results of the test effort.

RUP Test Designer Role, Activities, and Artifacts

Activities:

| Test Designer	Define Test Approach	Define Test Environment Configurations	Identify Testability Mechanisms	Structure the Test Implementation	Define Testability Elements	Develop Test Guidelines

Artifacts:

Test Designer	Test Automation Architecture	Test Interface Specification	Test Environment Configuration	Test Suite	Test Guidelines

The **Test Designer** role is responsible for defining the test approach and ensuring its successful implementation.

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RUP Tester Role, Activities, and Artifacts

Activities:
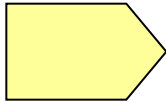
Tester   **Implement Test**   **Implement Test Suite**   **Execute Test Suite**   **Analyze Test Failure**
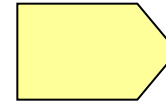
Artifacts:

Tester   **Test Scripts**   **Test Log**

The **Tester** role is responsible for the core activities of the test effort, which involves conducting the necessary tests and logging the outcomes of that testing.

Module 3 - Agenda

- Overview of the software lifecycle in RUP
- Overview of the building blocks of RUP
- Roles in the Test Discipline
- → **Workflow Details in the Test Discipline**

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Discipline Workflows Guide Iterative Development

Example Workflow:
Requirements

Example Workflow:
Test

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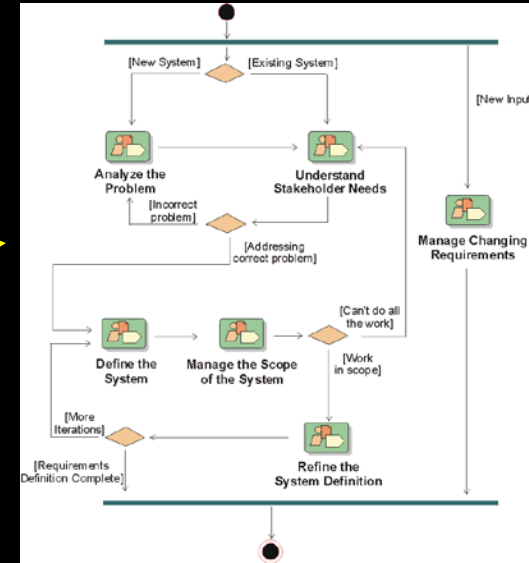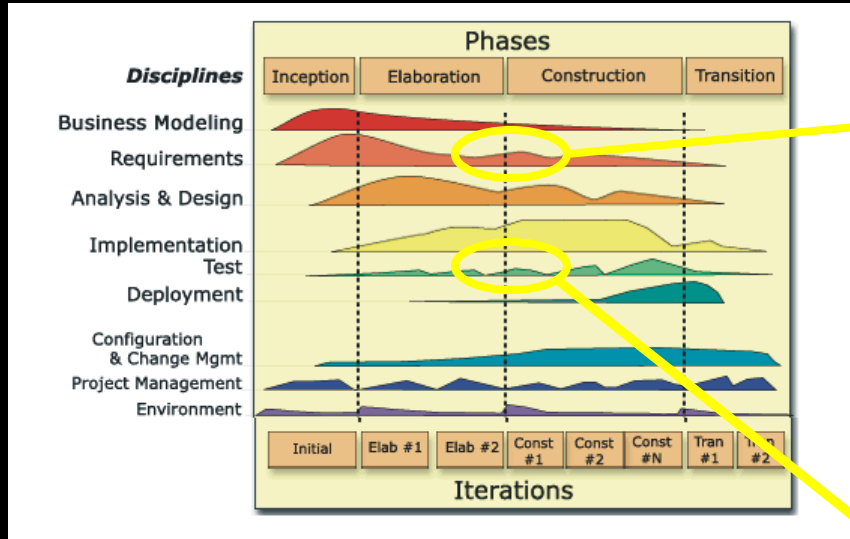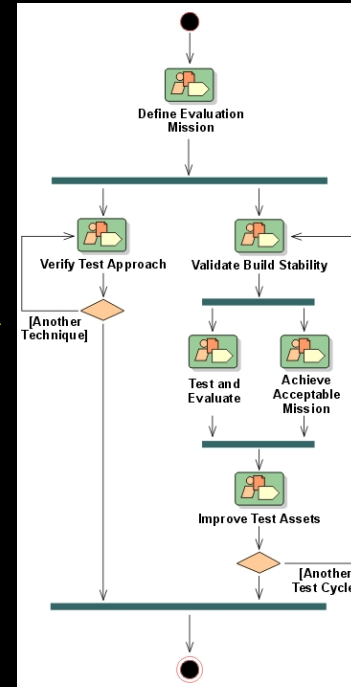
Discipline Workflows Sequence the Workflow Details

Example Workflow Detail: Validate Build Stability
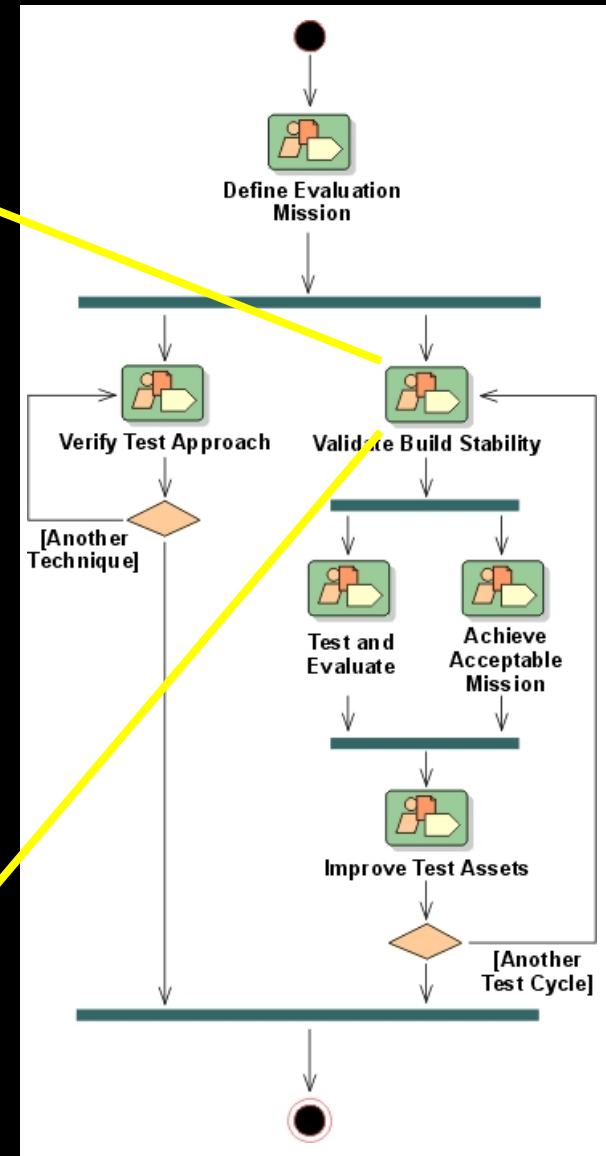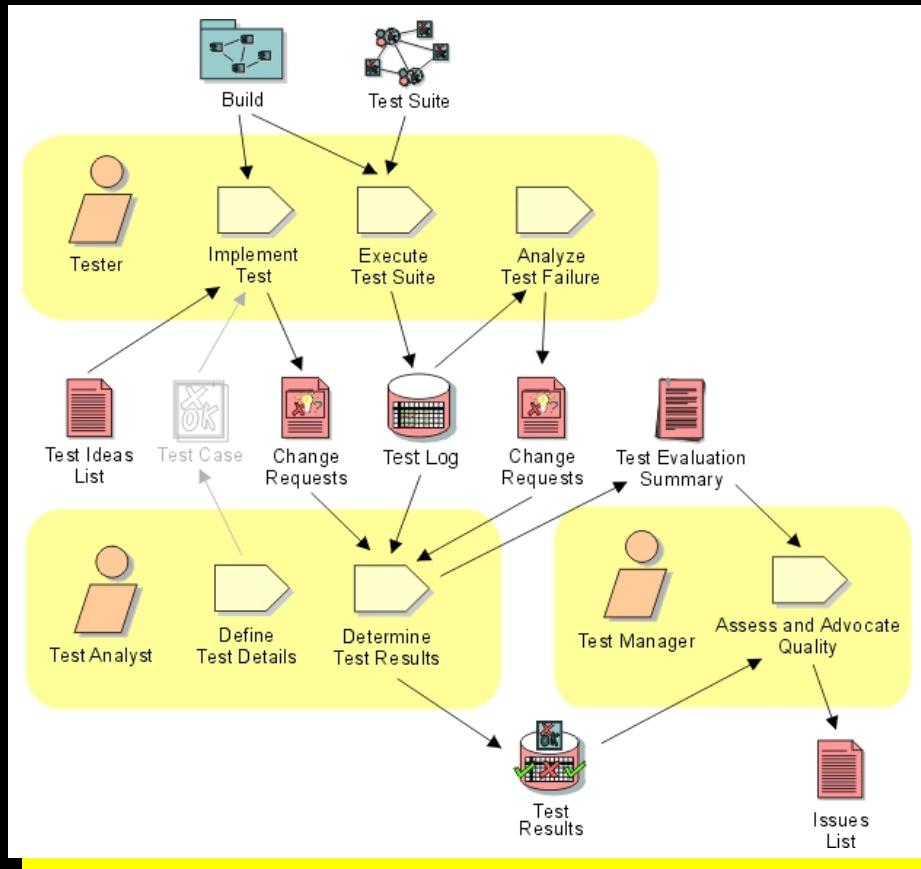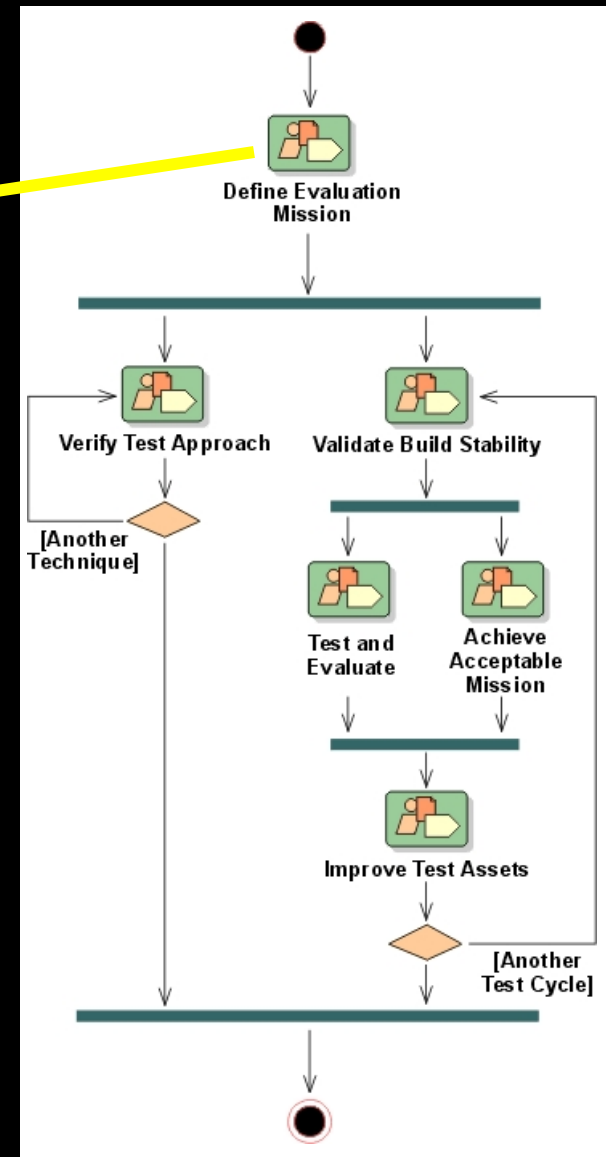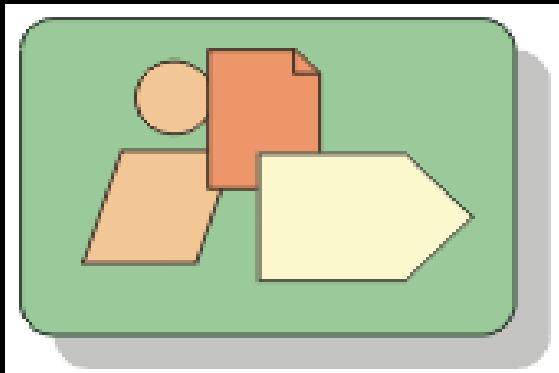
The RUP Test Discipline Workflow
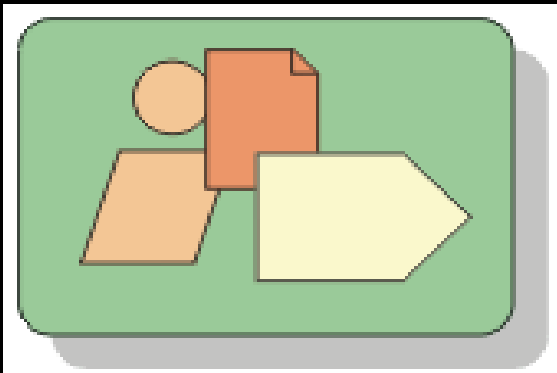
Define Evaluation Mission

- ◆ Identify the appropriate focus of the test effort for the iteration.

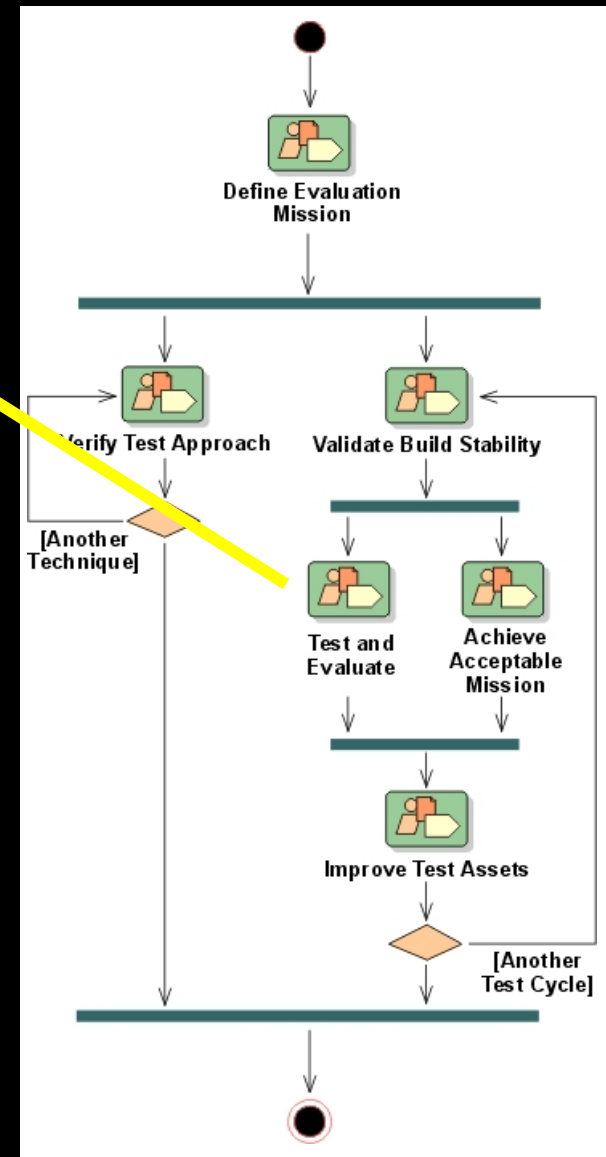- ◆ Gain agreement with stakeholders on the corresponding goals that will direct the test effort.

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The RUP Test Discipline Workflow
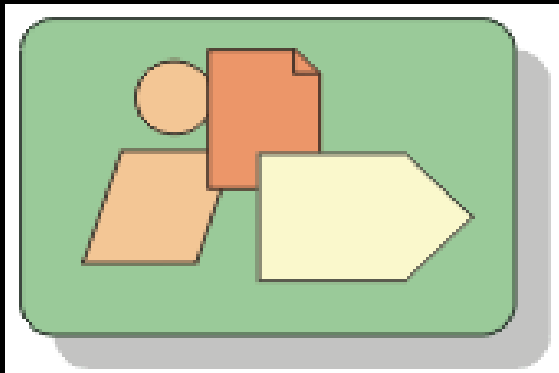

Test and Evaluate

◆ Achieve appropriate breadth and depth of testing to enable a sufficient evaluation of the targeted test items.

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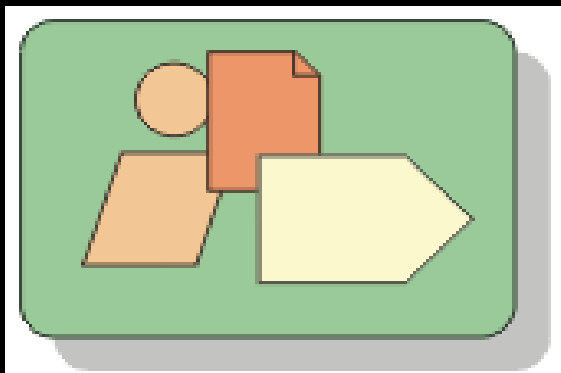the software development company

The RUP Test Discipline Workflow

Achieve Acceptable Mission

◆ Deliver a useful evaluation result to the stakeholders of the test effort.

◆ Actively prioritize the test work that remains to be conducted.
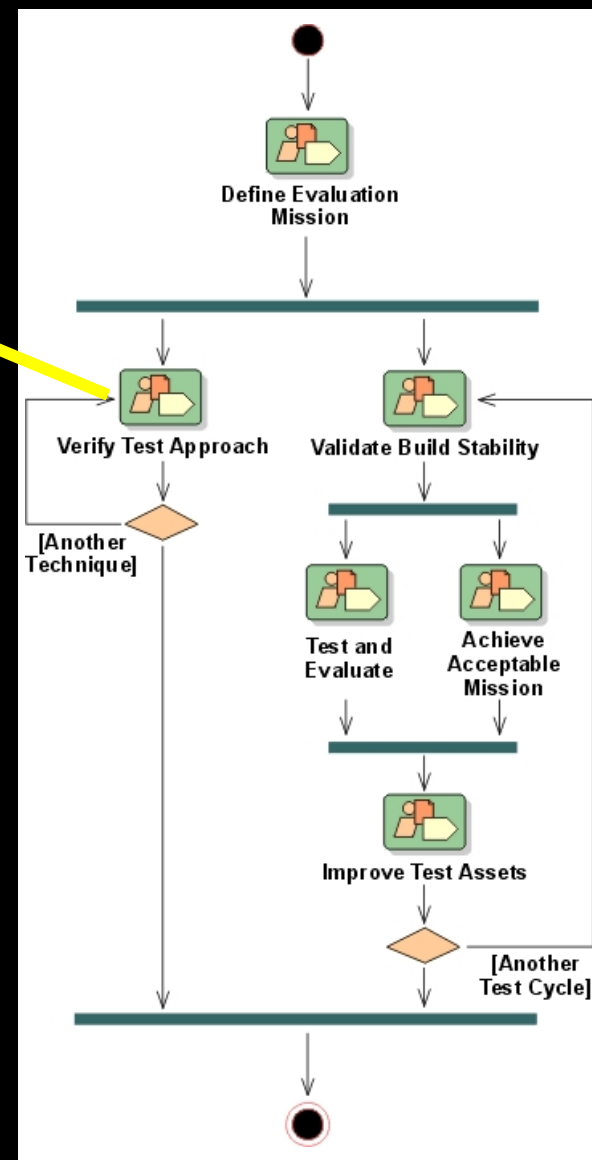
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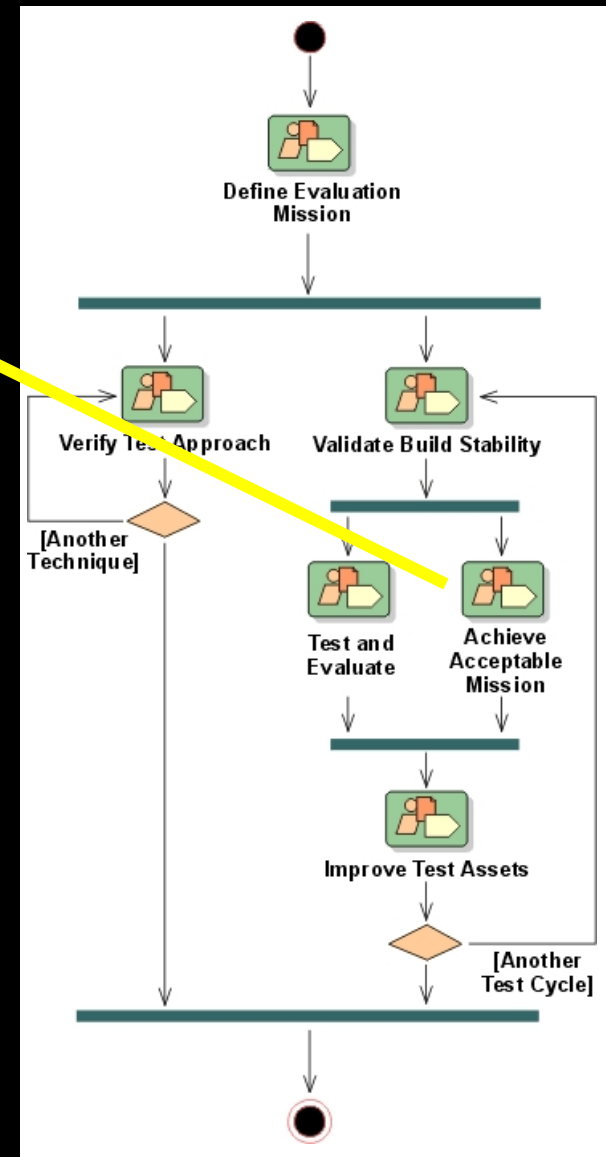
The RUP Test Discipline Workflow
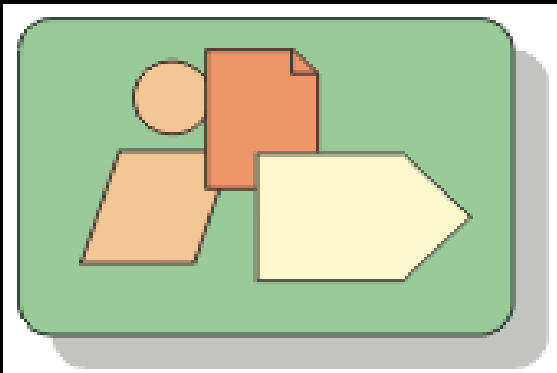

Verify Test Approach

◆ Demonstrate the techniques outlined in the Test Approach will support the required testing.

◆ Verify that the approach will work, produce accurate results and is appropriate for the available resources.
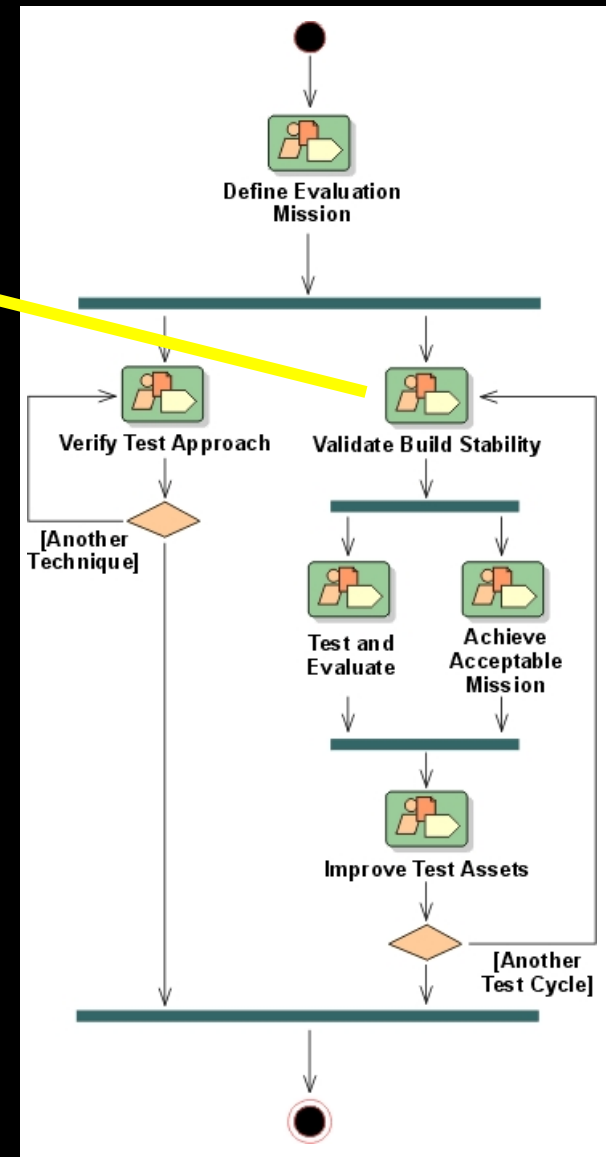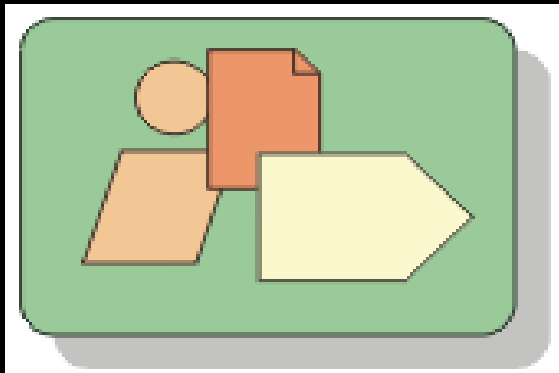
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The RUP Test Discipline Workflow

Validate Build Stability

◆ Validate that the build is stable enough for detailed test and evaluation work to begin.
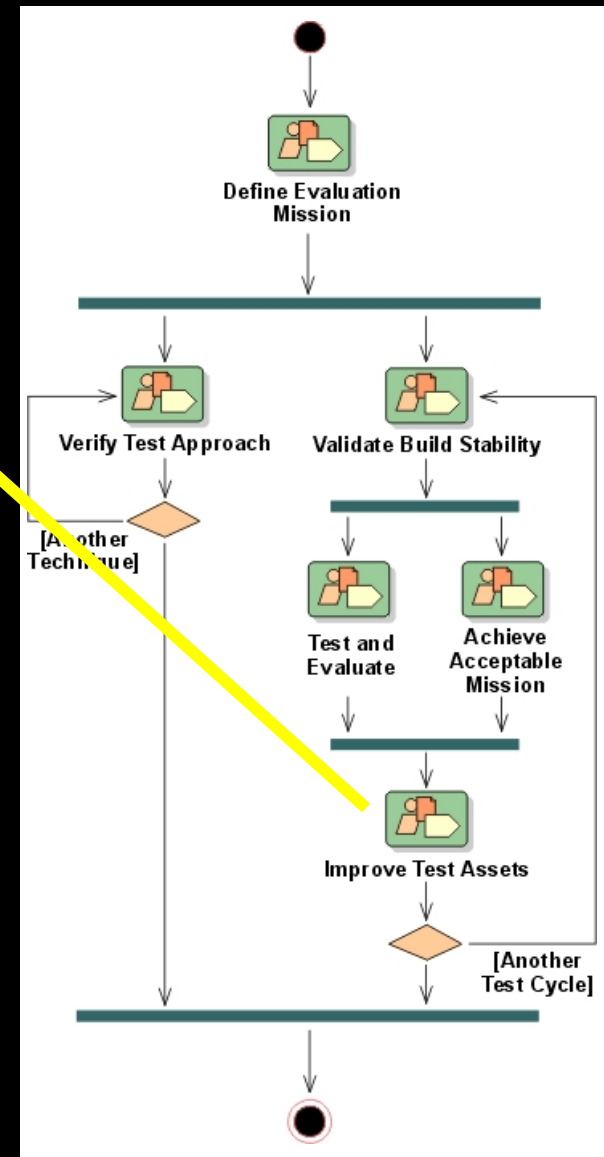
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The RUP Test Discipline Workflow

Improve Test Assets

◆ Maintain and improve the evolving test assets.

(e.g. Maintain test suites and test data; harvest test-ideas into catalogs; clarify change request details)

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Module 3 - Review

The RUP Test Discipline:

- ◆ Presents an iterative testing process
- ◆ Is Scalable and Customizable
- ◆ Is designed for Flexibility