

Moving into Implementation Transition to the New System

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Moving into Implementation

Introduction

- The **implementation phase** consists of developing and testing the system's software, documentation, and new operating procedures
- **Managing the programming process** is the major task of the systems analyst in this phase
- While programmers work on programming, the systems analyst design a variety of **tests** to ensure that the system does what it was designed to do
- During this phase, the systems analysts finalize the **system documentation** and develop the **user documentation**

Outline

- Managing the programming process
- Testing
- Developing documentation

Managing The Programming Process

- The project manager's tasks during the process of programming:
 - assigning programming tasks
 - coordinating the activities
 - managing the programming schedule

Coordinating Activities

- Many project teams set up **3** areas for programmers:
 - development area
 - testing area
 - production area
- Implement **change control** techniques:
 - keeping files and programs in different places according to completion status
 - using a **program log** to keep track of program changes

Outline

- Managing the programming process
- Testing
- Developing documentation

Testing

- The attention paid to testing is justified by the high costs associated with downtime and failures caused by software bugs

Brokerage Service	\$6.4 million
Energy	2.8 million
Telecom	2.0 million
Manufacturing	1.6 million
Retail	1.1 million
Health Care	636,000
Media	90,000
"Assessing the Financial Impact of Downtime," Vision Solutions, 2008, www.visionsolutions.com	

Estimated Lost Income Resulting from One Hour of System Downtime, By Industry

Test Planning

- Testing starts with the tester's developing a **test plan** that defines a series of tests that will be conducted
- A test plan describes a set of very specific **test cases** to examine, and defines the expected results
- The tester develops a series of test cases to ensure that the quality of programs is validated

Test Planning

- There are **4** general stages of tests
 - unit tests
 - integration tests
 - system tests
 - acceptance tests

Test Plan

Test Plan Page ____ of ____

Program ID: _____ Version number: _____

Tester: _____ Date designed: _____ Date conducted: _____

Results: Passed Open items: _____

Test ID: _____ Requirement addressed: _____

Objective: _____

Test cases

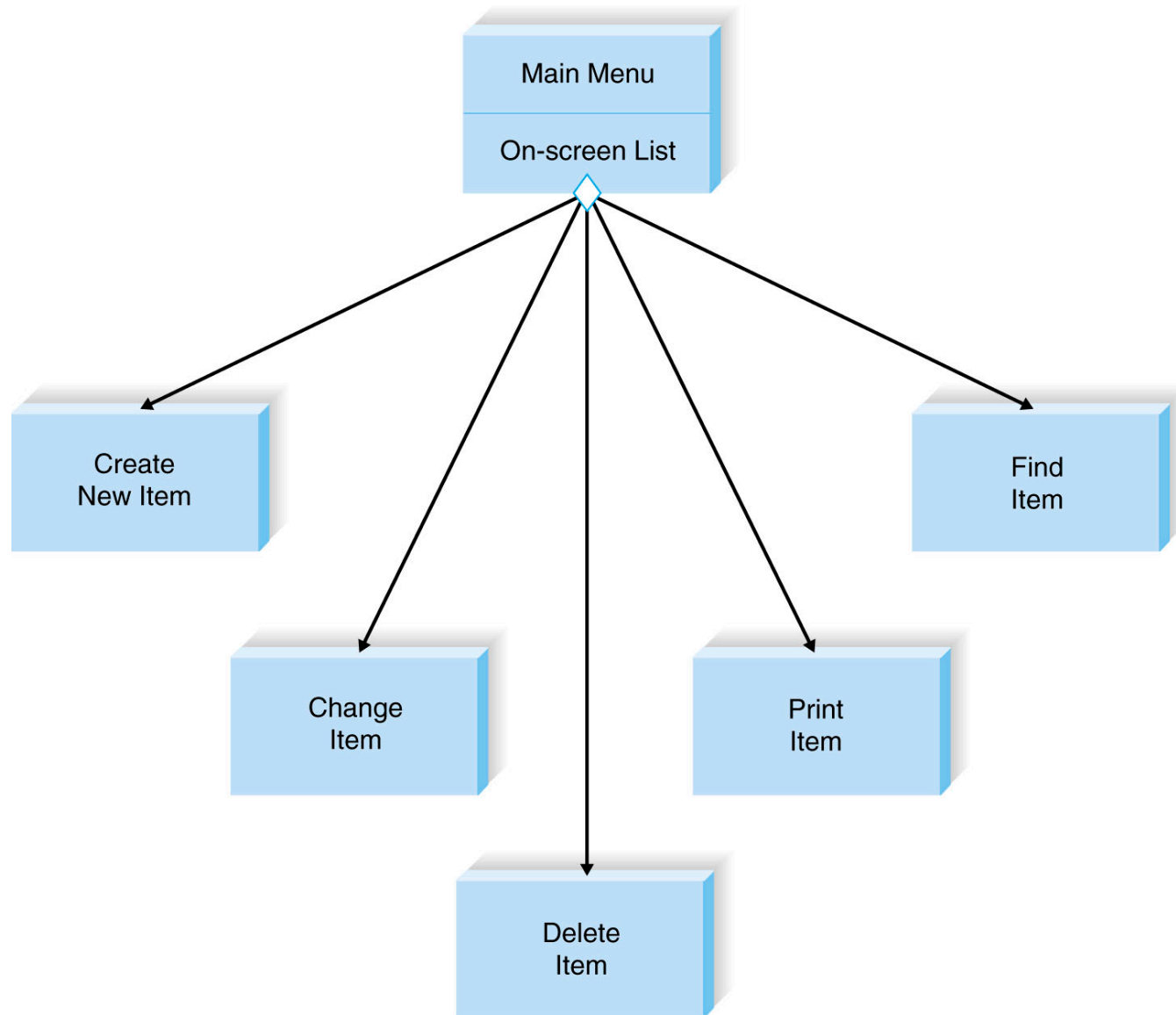
Interface ID	Data Field	Value Entered
1. _____	_____	_____
2. _____	_____	_____
3. _____	_____	_____
4. _____	_____	_____
5. _____	_____	_____
6. _____	_____	_____

Script

Expected results/notes

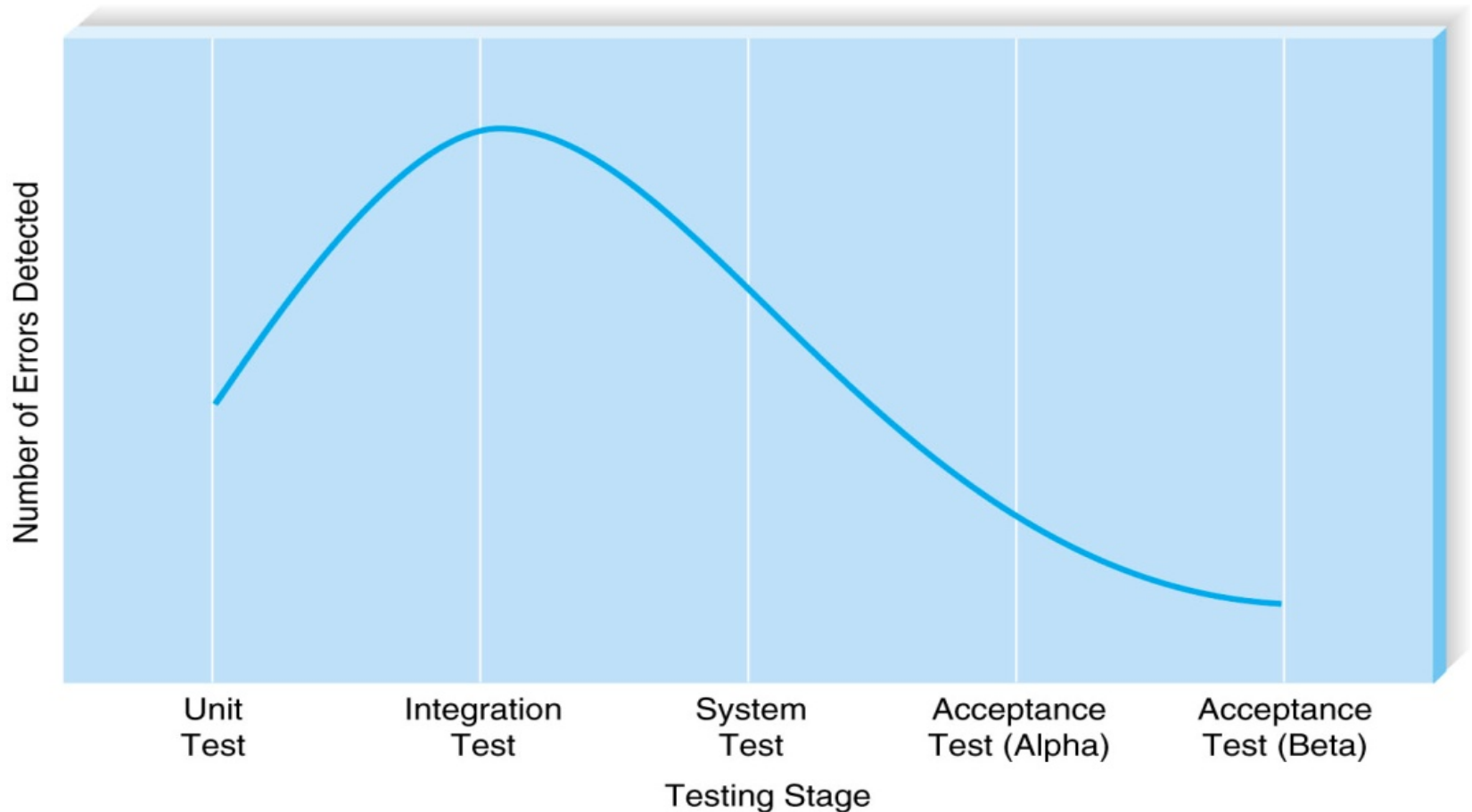
Actual results/notes

Test Plan



Error Discovery Rates

- Error Discovery Rates for Different Stages of Tests



Unit Tests

- Unit tests focus on one unit - a program or a program module that performs a specific function that can be tested
- There are **2** approaches to unit testing:
 - **Black-box testing**
 - The test plan is developed directly from the program specification.
 - **White-box testing**
 - The tester reviews the actual program code

Integration Tests

- Integration tests assess whether a set of modules or programs that must work together without error
- There are **4** approaches to integration testing:
 - user interface testing
 - use scenario testing
 - data flow testing
 - system interface testing

System Tests

- System tests are usually conducted by the systems analysts to ensure that all modules and programs work together without error
- System tests examine
 - how well the system meets business requirements,
 - usability,
 - security,
 - performance under heavy load, and
 - system's documentation

Acceptance Tests

- Acceptance tests are done primarily by the users
- The goal of acceptance tests is to confirm that the system is complete, meets the business needs, and is acceptable to the users
- Acceptance testing is done in **2** stages:
 - **alpha testing** - users test the system using made-up data
 - **beta testing** - users begin to use the system with real data and carefully monitor the system for errors

Outline

- Managing the programming process
- Testing
- **Developing documentation**

Developing Documentation

- There are **2** fundamentally different types of documentation:
 - **system documentation** is intended to help programmers and systems analysts understand the system and enable them to build it or maintain it
 - **user documentation** is designed to help the user operate the system

Types of User Documentation

- There are **3** fundamental types of user documentation:
 - **Reference Documents** are designed to be used when the user needs to learn how to perform a specific function
 - **Procedural Manuals** describe how to perform business task
 - **Tutorials** teach people how to use major components of the system

Transition to the New System

Introduction

- Managing the **change** to a new system is one of the most difficult tasks in any organization
- There are **business issues**, **technical issues**, and **people issues** that must be addressed for the transition from the as-is system to the to-be system
- Important support and **follow-up activities** should be performed following the installation of the new system

Outline

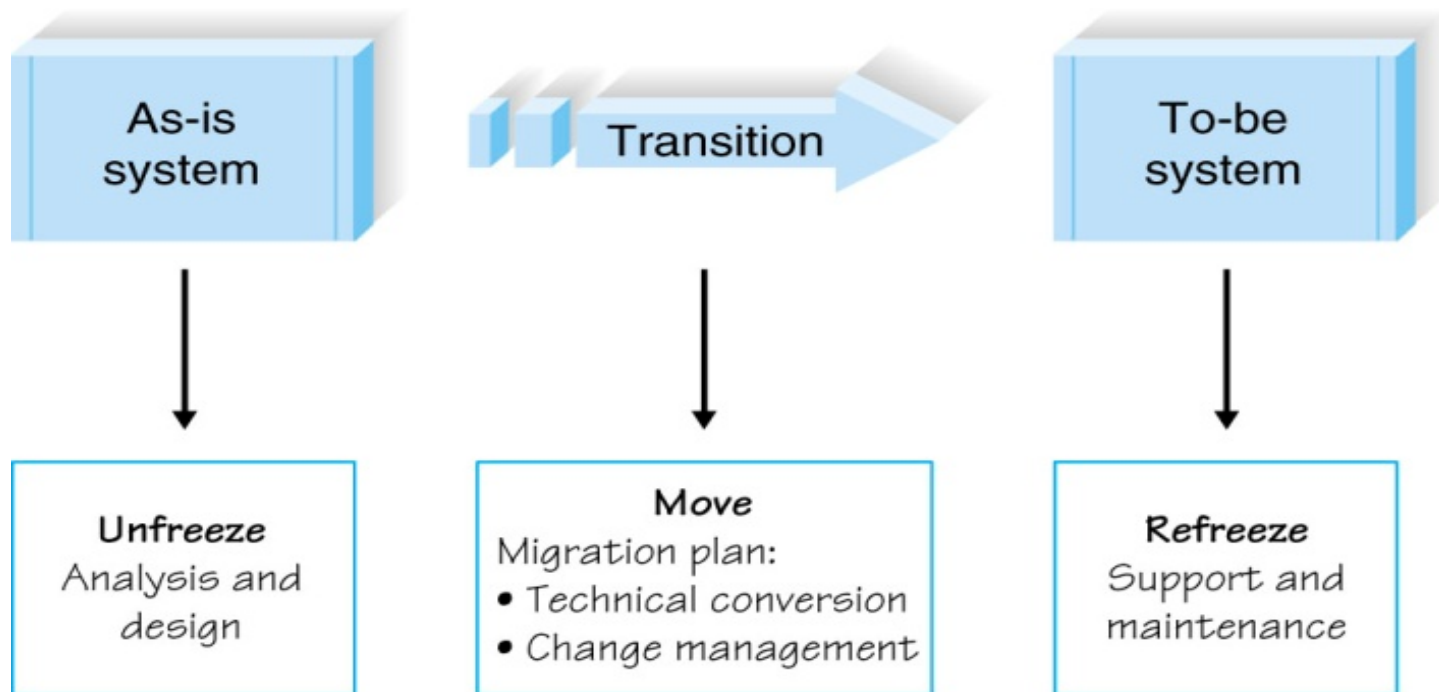
- Making the transition to the new system
- The migration plan
- Post-implementation Activities

Transition to the New System

- The existing systems or work processes often limit people's activities and make it difficult for them to change
- Change is a **3-step** process:
 - **Unfreeze** the existing habits and norms
 - **Move**, or transition, from the old system to the new
 - **Refreeze** the new system as the habitual way of performing the work processes

Transition to the New System

- Implementing change



Outline

- Making the transition to the new system
- The migration plan
- Post-implementation Activities

Migration Plan

- The decisions, plans, and procedures that will guide the transition are outlined in the **migration plan**
- It specifies what activities will be performed when and by whom as the transition is made
- The migration plan includes **business contingency plans** to ensure that the business can continue its operations even in the event of technical glitches in the new system

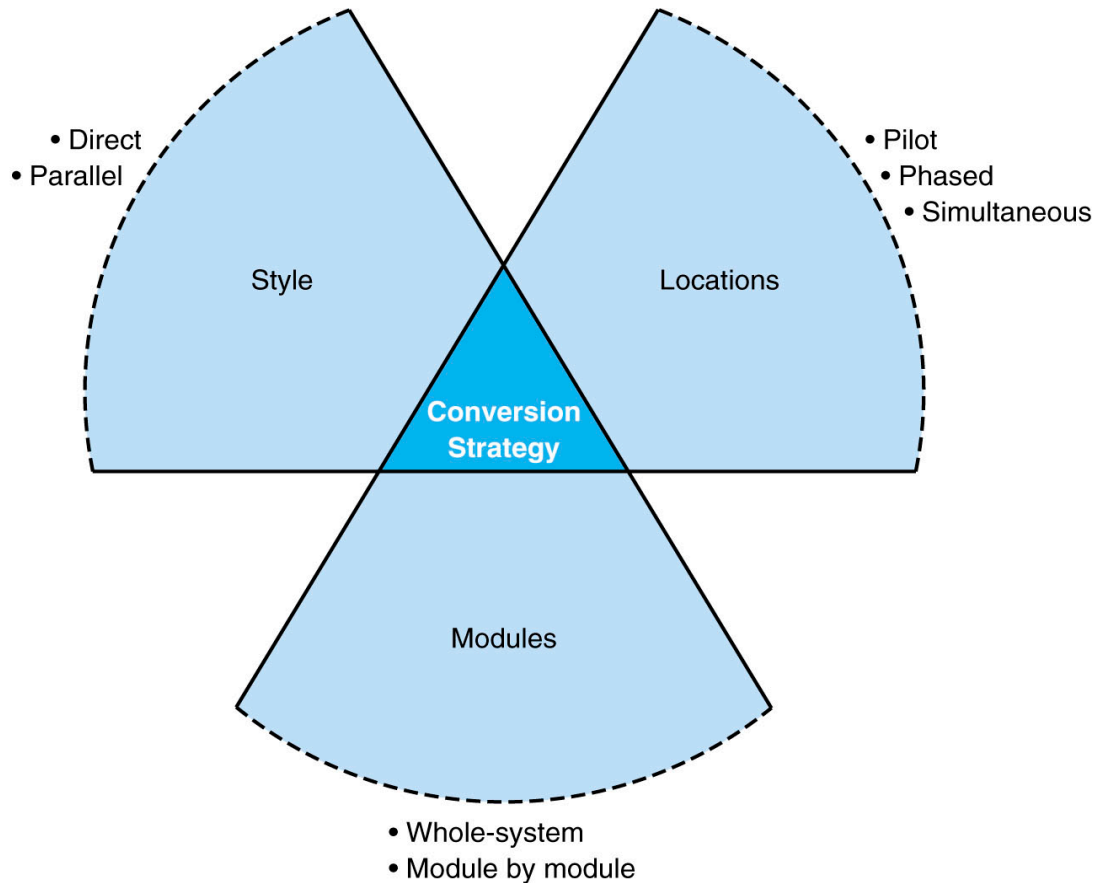
Migration Plan

- Elements of a migration plan

Migration Plan		
Preparing the Business	Preparing the Technology	Preparing the People
<input checked="" type="checkbox"/> Select a conversion strategy.	<input checked="" type="checkbox"/> Install hardware.	<input checked="" type="checkbox"/> Revise management policies.
<input checked="" type="checkbox"/> Prepare a business contingency plan.	<input checked="" type="checkbox"/> Install software.	<input checked="" type="checkbox"/> Assess costs and benefits.
	<input checked="" type="checkbox"/> Convert data.	<input checked="" type="checkbox"/> Motivate adoption.
		<input checked="" type="checkbox"/> Conduct training.

Migration Plan

- Conversion strategies



Conversion Style

- **Direct conversion**

- The new system instantly replaces the old one

- **Parallel conversion**

- Both the old and new systems are used simultaneously for a period of time
- The old system is discontinued when the new system is proven fully capable

Conversion Location

- **Pilot conversion**
 - It selects one or more locations to be converted first as a part of a pilot test
 - If the pilot test is successful, then the system is installed at the remaining locations
- **Phased conversion**
 - A first set of locations is converted, then a second set, then a third set, and so on, until all locations are converted
- **Simultaneous conversion**
 - All locations are converted at the same time

Evaluating the Strategy Choices



Characteristic	Conversion Style		Conversion Location			Conversion Modules	
	Direct Conversion	Parallel Conversion	Pilot Conversion	Phased Conversion	Simultaneous Conversion	Whole-System Conversion	Modular Conversion
Risk	High	Low	Low	Medium	High	High	Medium
Cost	Low	High	Medium	Medium	High	Medium	High
Time	Short	Long	Medium	Long	Short	Short	Long

Evaluating the Strategy Choices

- There are **3** important factors:
 - **Risk**
 - The introduction of the new system exposes the organization to risk associated with problems and errors that may impede business operations
 - **Cost**
 - The various conversion strategies have different costs
 - **Time**
 - Time is needed to convert between the old and new system

Motivating Adoption

- The simple and most important factor in motivating a change is providing clear and convincing evidence of the need for change
- There are **2** basic strategies to motivating adoption:
 - An **informational strategy** is to convince potential adopters that change is for the better
 - A **political strategy** is to use organizational power to motivate change
- Potential adopters include:
 - ready adopters
 - reluctant adopters
 - resistant adopters

Outline

- Making the transition to the new system
- The migration plan
- **Post-implementation Activities**

Post-implementation Activities

- The goal of postimplementation activities is to institutionalize the use of the new system
- **3** key post-implementation activities:
 - support
 - maintenance
 - project assessment

Project Assessment

- The goal of project assessment is to understand what was successful about the system and the project activities, and what needs to be improved
- Project assessment is important component in organizational learning
- It is particularly important for junior staff members

System Review

- The focus of the system review is understanding the extent to which the proposed **costs** and **benefits** were actually recognized from the implemented system
- System review helps the organization improve in future projects

END OF CHAPTER