SYSTEMS ANALYSIS & DESIGN

# SYSTEM IMPLEMENTATION

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# Chapter Description

## Expected Outcomes

- To define activities in the implementation phase
- To know types of testing during development
- To identify type of installation strategies

## References


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# System Implementation

There are six major activities during implementation which are coding, testing, installation, documentation, training and support.

The purpose of these activities is to convert physical design into working software and hardware.

# System Implementation

Coding

Coding and testing can proceed in parallel

Testing

Installation

# Application Testing

Master test plan must be developed during analysis. Master test plan actually is a collection of documents

Unit test plan, integration test plan and system test plan are developed during design phase.

# Testing Types

Static testing means the code being tested is not executed.

Dynamic testing means the code being tested involves execution.

Automated test means computer conducts the test

Manual means people conducts the test.

# Testing Types

Inspections (static, manual)

testing technique where participants examine program code for expected language-specific errors.

Walkthroughs (dynamic, manual)

a peer group review of any product created during the systems development process, including code

# Testing Types

Desk Checking ( dynamic, manual)

a testing technique in which the program code is sequentially executed manually by the reviewer

Syntax checking (static, automated)

Unit Test ( dynamic, automated)

each module is tested alone in an attempt to discover any errors in its code

# Testing Types

Integration Test ( dynamic, automated)

the process of bringing together all of the modules that a program comprises for testing purposes

Modules are typically integrated in a top-down incremental fashion.

# Testing Types

System Test ( dynamic, automated)

the bringing together of all of the programs that a system comprises for testing purposes

Programs are typically integrated in a top-down, incremental fashion.

# User Acceptance Test

User acceptance testing (UAT) is the final phase of the software testing process.

UAT is one of the critical software project procedures that must occur before newly developed software is rolled out to the market.

# User Acceptance Test

There are two types of UAT:

Alpha testing:

User test a completed information system using simulated data

Beta testing:

User test a completed information system using real data in the real user environment

# Installation

A process by organization to change over from the current information system to a new one.

Four approaches of installation:

- Direct Installation
- Parallel Installation
- Single-location Installation
- Phased Installation

# Direct Installation

Direct Installation

The organization switches off the old system and switches on the new one. This is probably the most straightforward method but is also probably the uncertain.

# Parallel Installation

The organisation runs both the old and new system in parallel for a time. Once the organisation is certain that the new system is working properly and that staff are ready to begin using it they will make the decision to completely change over.

During a quiet period, perhaps during the night or at a weekend, the data is fully transferred from the old system which is then shut down.

# Single-location Installation

The complete new system is installed and tested in a small number of departments or branches. They then use the system and report their feedback and any issues to the analyst.

Once the organisation is confident that the system is working as expected, it will be rolled out across the whole organisation.

# Phased Installation

The old system is still running but parts of the new system or modules are brought in.

Once any problems are smoothed out with the new modules then extra modules will be introduced.

Effectively the installation happens in gradually.

# Documentation

System Documentation:

Detailed information about a system's design specifications, its internal workings, and its functionality

User Documentation:

Written or other visual information about an application system, how it works, and how to use it

# Documentation

Internal documentation:

System documentation that is part of the program source code or is generated at compile time

External documentation:

System documentation that includes the outcome of structured diagramming techniques such as data flow and E-R diagrams

# Training and Support

Type of training needed will vary by system type and user skill.

Possible topic which need to be trained such as :

- Use of the system
- Information System concept
- System management
- System installation
- Etc.

# Types of Training

Several methods of training:

- Resident expert
- Resident expert
- Traditional instructor-led classroom training
- E-learning, distance learning
- Blended learning (instructor plus e-learning)
- External sources (e.g. vendors)

# Support

Support means providing ongoing educational and problem-solving assistance to information system users

Support is extremely vital to users.

Providing support can be expensive and time-consuming.

# Automating Support

Automated support can cut the costs of providing support to user site.

Example of automated support:

- Internet-based online support forums
- On-demand fax
- Voice response systems
- Knowledge bases

# Help Desk Support

This is a centralized point of contact for all user inquiries and problems about a particular information system or for all users in a particular department.