Unit #14

MIS5203

Maintenance and Post Implementation Review

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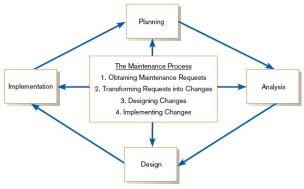
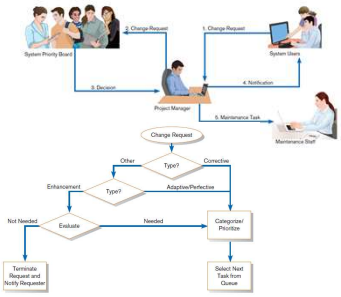
Maintenance – repeats the SDLC to change and improve existing systems





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Agenda

- Implementation
- Documentation / Training
- Maintenance
- Post-implementation review
- Project Team Status reports

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Installation

- **Installation**: the organizational process of changing over from the current information system to a new one
- Four installation strategies:
  - Direct Installation
  - Parallel Installation
  - Single-location installation
  - Phased Installation

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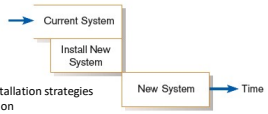
Direct Installation

- **Direct installation**: changing over from the old system to a new one by turning off the old system when the new system is turned on



Comparison of installation strategies
(a) Direct installation

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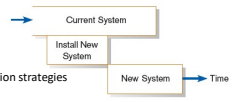
Parallel Installation

- **Parallel installation**: running the old information system and the new one at the same time until management decides the old system can be turned off



Comparison of installation strategies
(b) Parallel installation

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Single-Location Installation

- **Single-location installation**: trying out an information system at one site and using the experience to decide if and how the new system should be deployed throughout the organization
- Also known as location or pilot installation

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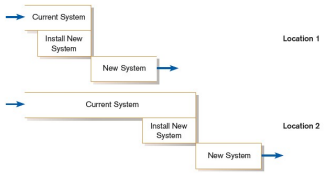
Single-Location Installation (cont.)



Comparison of installation strategies
c) Single-location installation (with direct installation at each location)

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Phased Installation

- **Phased Installation**: changing from the old information system to the new one incrementally, starting with one or a few functional components and then gradually extending the installation to cover the whole new system

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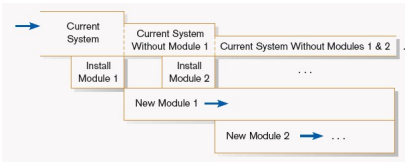
Phased Installation (cont.)



Comparison of installation strategies
(d) Phased installation

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Planning Installation

- Considerations
  - Data conversion
    - Error correction
    - Loading from current system
  - Planned system shutdown
  - Business cycle of organization

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Documenting the System

- **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

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TABLE 13-5 SDLC and Generic Documentation Corresponding to Each Phase

Generic Life-Cycle Phase	Generic Document
Requirements Specification	System Requirements Specification
	Resource Requirements Specification
Project Control Structuring	Management Plan
	Engineering Change Proposal
System Development	
Architectural design	Architecture Design Document
Prototype design	Prototype Design Document
Detailed design and implementation	Detailed Design Document
Test specification	Test Specifications
Test implementation	Test Reports
System Delivery	User's Guide
	Release Description
	System Administrator's Guide
	Reference Guide
	Acceptance Sign-Off

(*Source:* Adapted from Bell and Evans, 1989.)

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Generic User's Guide Outline

Preface
1. Introduction
   1.1. Configurations
   1.2 Function flow
2. User interface
   2.1 Display screens
   2.2 Command types
3. Getting started
   3.1 Login
   3.2 Logout
   3.3 Save
   3.4 Error recovery
   3.n [Basic procedure name]

n. [Task name]

Appendix A—Error Messages
([Appendix])

Glossary
Terms
Acronyms

Index

Source: Adapted from Bell and Evans, 1989.)

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Training and Supporting Users

- **Support**: providing ongoing educational and problem-solving assistance to information system users
- For in-house developed systems, support materials and jobs will have to be prepared or designed as part of the implementation process.

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Training Information Systems Users

- Potential training topics
  - Use of the system
  - General computer concepts
  - Information system concepts
  - Organizational concepts
  - System management
  - System installation

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Types of Training Methods

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

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Supporting Information Systems Users

- Support is important to users but has often been inadequate.
- Providing support can be expensive and time-consuming.
- Vendors usually charge for their support, using 900- numbers, or charge a fee for unlimited or monthly support.

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Automating Support

- One approach is through automation.
  - Internet-based online support forums and documentation
  - Voice response systems
  - Knowledge bases

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Providing Support Through a Help Desk

- **Help desk**: a single point of contact for all user inquiries and problems about a particular information system or for all users in a particular department

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Providing Support Through a Help Desk (Cont.)

- Requires
  - *Technical skills*: extensive knowledge about how to use the system and typical problems that can be encountered
  - *People skills*: good listening and communication, dealing with complaints and frustrations

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Support Issues for the Analyst to Consider

- User questions and problems
- Recovery and backup
- Disaster recovery
- PC maintenance
- Writing newsletters
- Setting up user groups

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Organizational Issues in Systems Implementation

- Why does implementation sometimes fail?
- Traditional wisdom of primary success factors:
  - Management support
  - User involvement
  - But these are not enough
- Other important factors
  - Commitment to project
  - Commitment to change
  - Extent of project definition and planning

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Factors Influencing System Use

- Personal stake of users
- System characteristics
- User demographics
- Organizational support
- Performance
- Satisfaction

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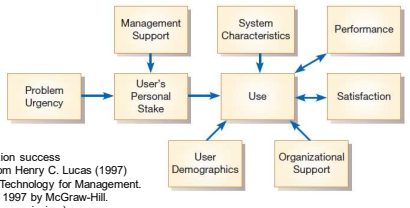
Success Factors



Implementation success
(*Source:* From Henry C. Lucas (1997) Information Technology for Management. Copyright © 1997 by McGraw-Hill. Reprinted by permission.)

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Security Issues

- Increasingly important issue for organizations and their management
- **Mal**icious soft**ware** (*malware*): includes Trojan horses, worms, viruses, and other kinds
- External sources of threats include laptop theft, system penetration, and denial of service
- Weakest link: the user!

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TABLE 13-8 Selected Statistics on IT Security (Data compiled from various sources.)

Information Security Budget by Company Size, 2014	
Small (revenues less than $100 million)	$0.73 million
Medium (revenues $100 million – $1 billion)	$3.0 million
Large (Revenues greater than $1 billion)	$10.8 million
Average Financial Losses due to Security Incidents, 2014	
Small (revenues less than $100 million)	$0.41 million
Medium (revenues $100 million – $1 billion)	$1.3 million
Large (Revenues greater than $1 billion)	$5.9 million
Top Three Insider Sources of Security Incidents, 2014	
Current Employees	35%
Former Employees	30%
Current Service Providers/Consultants/ Contractors	18%

Top Three Identified External Sources of Security Incidents, 2014	
Hackers	24%
Competitors	24%
Activists/Activist Organization/Hacktivists	16%
Information Brokers	16%
Top Five Security Products in Use, 2014	
Firewalls	93%
Email Security and Spam Filtering	90%
Endpoint Protection (e.g., antivirus)	89%
Virtual Private Network (VPN)	83%
Data Encryption	73%
Top Five Security Breaches, 2014	
Malware (e.g., viruses)	76%
Phishing	59%
Web or Software Applications Exploited	35%
Denial of Service	26%
Theft of Computers or Storage Devices	25%

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Project Close-Down

- Evaluate team.
  - Reassign members to other projects.
- Notify all affected parties that the development project is ending and that you are switching to operation and maintenance mode.
- Conduct post project reviews.
- Close out customer contract.
  - Formal signoff

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Maintenance Types

- **Corrective maintenance**: changes made to a system to repair flaws in its design, coding, or implementation
- **Adaptive maintenance**: changes made to a system to evolve its functionality to changing business needs or technologies
- **Perfective maintenance**: changes made to a system to add new features or to improve performance
- **Preventive maintenance**: changes made to a system to avoid possible future problems

(*Sources: From Valacich MSAD,* Based on Andrews and Leventhal,1993; Pressman, 2005.)

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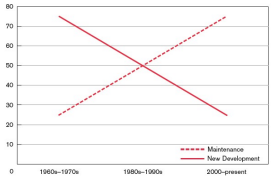
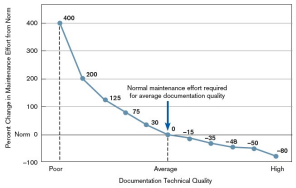
Maintenance cost:

Many organizations allocate 60-80% of information systems budget to maintenance.





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Post-implementation

The overall organizational environment has a significant impact on the success of application system implementation, this includes:

- Alignment between IT and the business
- Maturity of the development process
- Use of change control and other project management tools

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Post-implementation review

- During post-implementation review the Project Manager gains feedback about project deliverables and business needs
- Primary purpose of a post-implementation review is to determine if the project objectives have been met
  - Answers the question:
    - ***Does the project's deliverables meet business needs and risk acceptance criteria?***
- Evaluates projected cost-benefits, i.e. return on investment (ROI) to verify that the original business case benefits are delivered

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Post-implementation review

- **Volume testing** evaluates the impact of incremental volume of records (not users) on a system
- **Stress testing** determines the capacity of the system to cope with an abnormally large number of users or simultaneous operations
- **Load testing** evaluates performance of the system under normal and peak conditions
- **Recovery testing** evaluates the ability of the system to recover after failure
- **Lessons learned** for future projects – a project team has something to learn from each project. It is important for the organization to accumulate lessons learned and integrate them into future projects

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