Universitas Esa Unggul

Smart, Creative and Entrepreneurial

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Chapter 21
Successfully Implementing
The Information System

Systems Analysis and Design
Kendall and Kendall
Fifth Edition

Major Topics

- Client/server computing
- Network types
- Groupware
- Training
- Security
- Organizational metaphors
- Evaluation

Implementation

- Implementation is the process of assuring that the information system is operational

- Well-trained users are involved in its operation

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Distributed Systems

- Distributed systems
  - Use telecommunications technology and database management to interconnect people
  - A distributed system includes work stations that can communicate with each other and with data processors
  - The distributed system may have different configurations of data processors

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Client/Server Computing

- The client/server (C/S) model consists of clients requesting and the server fulfilling the request

- The client is a networked computer, running a GUI interface

- A file server stores programs and data

- A print server receives and stores files to be printed

Advantages and Disadvantages of Client/Server

- ■ The advantages of a client/server system are greater computer power and greater opportunity to customize applications

- ■ The disadvantages of a client/server system are greater expense and applications must be written as two separate software components running on separate machines

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Network Types

- Standard types of networks include the wide-area network (WAN) and the local area network (LAN)

Network Configurations

■ There are four types of network configurations:

- ■ Hierarchical
- ■ Star
- ■ Ring
- ■ Bus

Hierarchical

- A hierarchical network will contain several levels, with a host at the top
- A host computer has many smaller computers that only communicate with the host, not with each other
- The host controls all other nodes
- Computers on the same level do not communicate with each other

Star

- The host computer can communicate with other computers which can communicate with each other only through the host

Ring

- All computers communicate with each other, passing messages around the ring
- There is no central computer
- Each node is in direct communication with its neighbor

Bus

- A single central cable is used to connect all the computers
- It has a single, central cable which serves as the only communication path connecting several different devices

Network Models

- Several models are available for designing a network:
  - A network decomposition diagram provides an overview of the system and is drawn first
  - A hub connectivity shows how the major hubs are connected and is drawn second
  - A workstation connectivity diagram shows the details of connecting the workstations

Groupware

- Groupware is software that supports people working together in an organization

Groupware Functions

- Groupware helps group members
  - Schedule and attend meetings
  - Share data
  - Create and analyze documents
  - Unstructured communication via e-mail
  - Hold group conferences
  - Departmental-level image management
  - Manage and monitor workflow

Advantages of Distributed Systems

- **Advantages of distributed systems are**
  - Data are stored where it does not affect the processing of online real-time transaction processing
  - Data are stored using less expensive media at local sites
  - Lowered equipment costs

Advantages of Distributed Systems

- Advantages of distributed systems, continued
  - Provide flexibility in choice of equipment manufacturer
  - Initially less expensive than large systems

Disadvantages of Distributed Systems

- Disadvantages of distributed systems are
  - Networks must be reliable
  - Security may be breached
  - The relationships between subsystems must not be ignored

Training

- New system training must be performed
- Analysts must consider
  - Who needs to be trained
  - Who will train them
  - Objectives of training
  - Methods of instruction to be used
  - Sites
  - Materials

Sources of Training

- Possible sources of training for users of information systems include
  - Vendors
  - Systems analysts
  - External paid trainers
  - In-house trainers
  - Other system users

Conversion Strategies

- Five conversion strategies are
  - Direct changeover
  - Parallel conversion
  - Phased conversion
  - Modular prototype conversion
  - Distributed conversion

Security

- Security considerations must be included when implementing a system
- These include
  - Physical security
  - Logical security
  - Behavioral security

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Security

- Physical security is controlling access to physical computer resources

- Logical security is controlling software access

- Behavioral security is building procedures to prevent persons from misusing computer hardware and software

Web Security

- Precautions used to protect the computer network from both internal and external Web security threats include
    - Virus protection software
    - Email filtering products
    - URL filtering products
    - Firewalls, gateways, and virtual private networks

Web Security

- **Precautions, continued**
  - Intrusion detection products
  - Vulnerability management products
  - Security technologies such as secure socket layering for authentication
  - Encryption technologies
  - Public key infrastructure use and obtaining a digital certificate

Ecommerce Privacy Guidelines

- Privacy is essential to ecommerce
- Some privacy policy guidelines are
  - Start with a corporate policy on privacy
  - Only ask for information required to complete the transaction
  - Make it optional for customers to fill out personal information on the Web site

Ecommerce Privacy Guidelines

- **Further privacy policy guidelines are**
  - Use sources that allow you to obtain anonymous information about classes of customers
  - Be ethical in data gathering

Evaluation Approaches

- Several evaluation approaches can be used:
  - Cost-benefit analysis
  - Revised decision evaluation approach
  - User involvement evaluations
  - The information system utility approach

Organizational Metaphors

■ Organizational metaphors may be used to assist in a successful implementation of a new system

Organizational Metaphors

- Zoo
- Jungle
- War
- Journey
- Machine

- Society
- Family
- Organism
- Game

Interpreting Organizational Metaphors

- Zoo indicates success is likely with traditional MIS systems and decision support systems

- Jungle indicates success is likely with decision support systems, cooperative systems, competitive systems, and executive information systems

Interpreting Organizational Metaphors

- ■ War indicates success is likely with competitive systems

- ■ Journey indicates success is likely with cooperative systems

- ■ Machine indicates success is likely with traditional MIS systems and expert systems/artificial intelligence

Interpreting Organizational Metaphors

- Society indicates success is likely with traditional MIS systems and decision support systems

- Family indicates success is likely with traditional MIS systems and decision support systems

Interpreting Organizational Metaphors

- ■ Organism indicates success is likely with decision support systems, expert systems/artificial intelligence, cooperative systems, competitive systems, and executive information systems

Interpreting Organizational Metaphors

- Game indicates success is likely with expert systems/artificial intelligence, cooperative systems, competitive systems, and executive information systems

Information System Utility Evaluation

- The information system utility framework is a way to evaluate a new system based on utilities of
  - Possession
  - Form
  - Place
  - Time
  - Actualization
  - Goal

Information System Utility Evaluation

- Possession utility answers the question of who should receive output
- Goal utility answers the why of information systems by asking whether the output has value in helping the organization achieve its objectives
- Place utility answers the question of where information is distributed

Information System Utility Evaluation

- Form utility answers the question of what kind of output is distributed to the decision maker

- Time utility answers the question of when information is delivered

- Actualization utility involves how the information is introduced and used by the decision maker

Web Site Evaluation

- Corporate Web sites should be evaluated
- The following is a list of key things to learn about the Web site visitors:
  - Know how often the Web site is visited
  - Learn details about specific pages on the site
  - Find out demographic and other information about Web site visitors

Web Site Evaluation

- Web site evaluation, continued
  - Discover if visitors can properly fill out the Web forms
  - Find out who is referring Web site visitors to the client's Web site
  - Determine what browsers visitors are using
  - Find out if the client's Web site visitors are interested in advertising the Web site