Chapter 13

Systems Analysis and Design
Competencies (Page 1 of 2)

- Describe the six phases of the systems life cycle
- Identify information needs and formulate possible solutions
- Analyze existing information systems & evaluate the feasibility of alternative systems
• Identify, acquire, and test new system software and hardware

• Switch from an existing information system to a new one with minimal risk

• Perform system audits and periodic evaluations
Introduction

Most people in an organization are involved with an information system of some kind. Thought and effort is required for the organization to create and use the system. There is a six step process for accomplishing this, as this chapter will explain.
System Analysis and Design

- Six-phase problem-solving procedure for examining and improving an information system
Phase 1
Preliminary Investigation

- Preliminary Investigation includes:
  - Define the problem
  - Suggest alternative systems
  - Prepare a short report
Phase 2
Systems Analysis

• Analysis tasks include:
  – Gathering data
  – Analyzing the data
  – Document systems analysis
Analyzing the Data

- Checklist
- Top-down analysis method
- Grid charts
- Decision tables
- System flowcharts
- Data flow diagrams
- Automated design tools -CASE
Analyzing Data Tools

Grid chart

Decision table

System flowchart

Data flow diagram

Flowchart symbols
Phase 3
Systems Design

• Design includes 3 major tasks:
  • Designing alternative systems
    – Economic feasibility
    – Technical feasibility
    – Operational feasibility
  • Selecting the best system
  • Writing the systems design report
Phase 4
Systems Development

- The tasks in the Development Phase include:
  - Acquiring software
  - Acquiring hardware
  - Testing the new system
Phase 5
Systems Implementation

- New system is installed and people are trained to use it
- Types of conversion
  - Direct
  - Parallel
  - Pilot
  - Phased
- Training
Phase 6
Systems Maintenance

- Systems maintenance is very important and is an ongoing activity
- Two parts
  - Systems audit
  - Periodic evaluation
Prototyping and Rapid Applications Development

- Alternatives to the systems life cycle - Use if systems life cycle is not feasible
  - Prototyping is building a model
  - RAD – Rapid applications development
Careers in IT

- Systems Analysts plan and design new systems or reorganize a computer’s resources to best utilize them.
- They follow the systems lifecycle.
- Requires a bachelor’s degree in computer science and technical experience.
- Can expect to earn an annual salary of $44,000 to $87,000.
A Look to the Future
The Challenge of Keeping Pace

- Pace of business is now faster
- To stay competitive, new technologies must be incorporated
- Increased use of RAD and prototyping
- Increased use of outside consulting
Discussion Questions (Page 1 of 2)

• What is a system? What are the six phases of the systems life cycle? Why do corporations undergo this process?

• What are the tools used in the analysis phase? What is top-down analysis? How is it used?

• Describe each type of system conversion. Which is the most commonly used?
Discussion Questions (Page 2 of 2)

• What is system maintenance? When does it occur?
• Explain prototyping and RAD. When might they be used by corporations?