



Systems Analysis and Design

■ Chapter 12

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 and evaluate the feasibility of alternative systems.



Competencies (Page 2 of 2)

- 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.
- Describe prototyping and rapid applications development.

Introduction

- Most people in an organization are involved with an information system of some kind.
- For the organization to create and use the system requires thought and effort.
- In this chapter, you learn about a six step process for performing systems analysis and design.



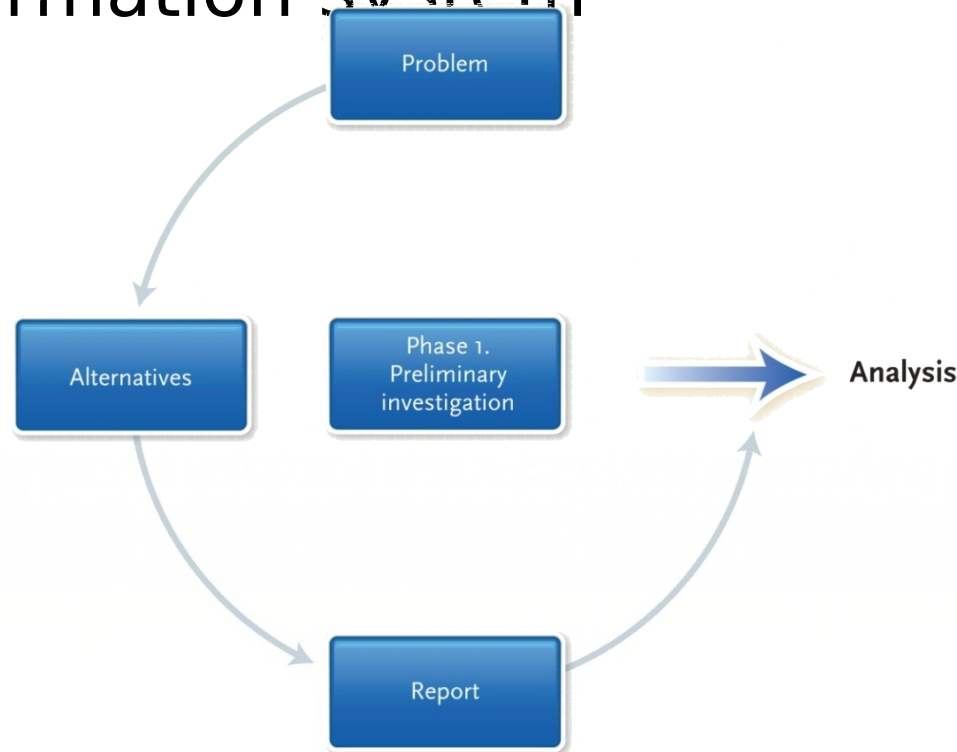
System Analysis and Design

- Six-phase problem-solving procedure for examining and improving an information system



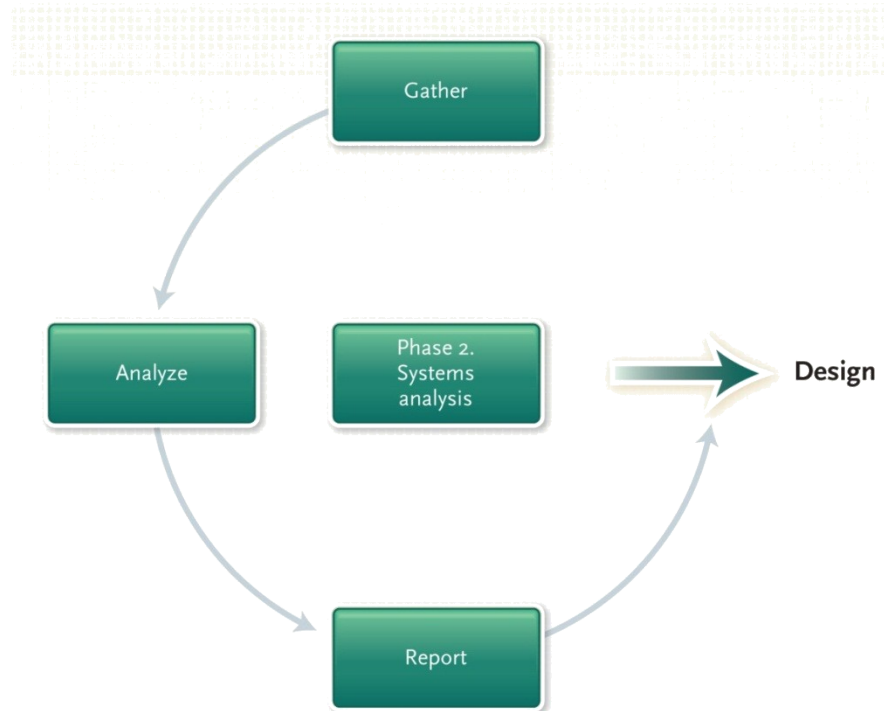
Phase 1: Preliminary Investigation

- The preliminary investigation determines the need for a new information system



Phase 2: Systems Analysis

- Data is collected about the present system and then analyzed to determine the new requirements



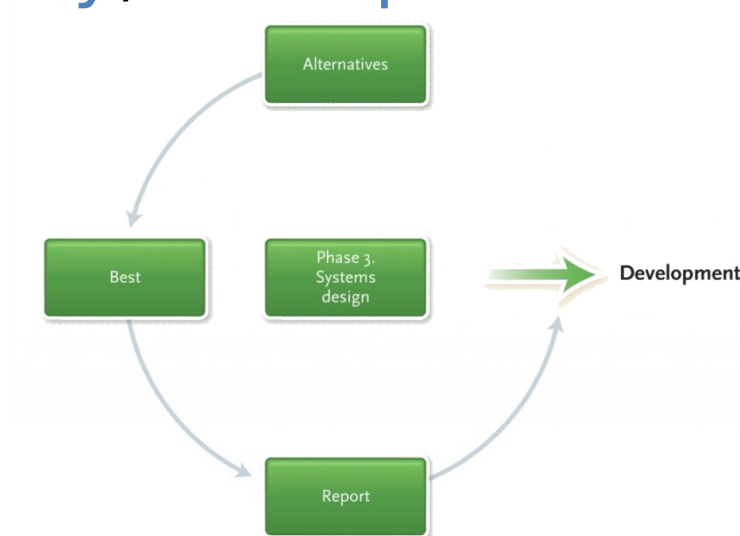
Analyzing the Data in Phase 2

- Checklists
- Top-down analysis method
- Grid charts
- Decision tables
- System flowcharts
- Data flow diagrams
- Automated design tools
 - Computer-aided software engineering tools (CASE)



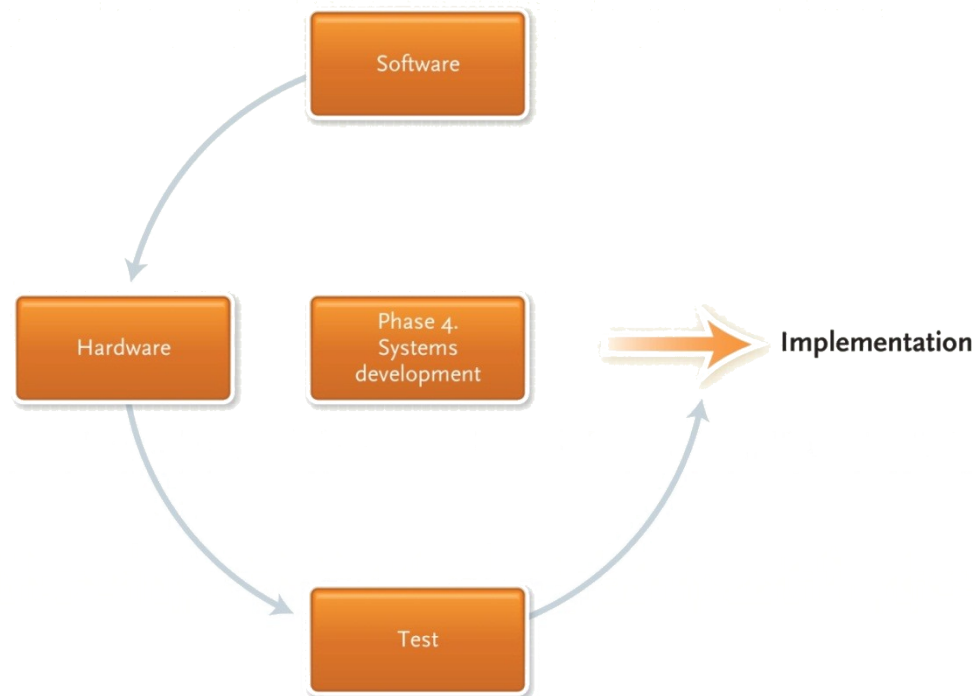
Phase 3: Systems Design

- Define the alternatives, select the best system, and write a **systems design report**
- Evaluate systems according to **economic feasibility, technical feasibility, and operational feasibility**



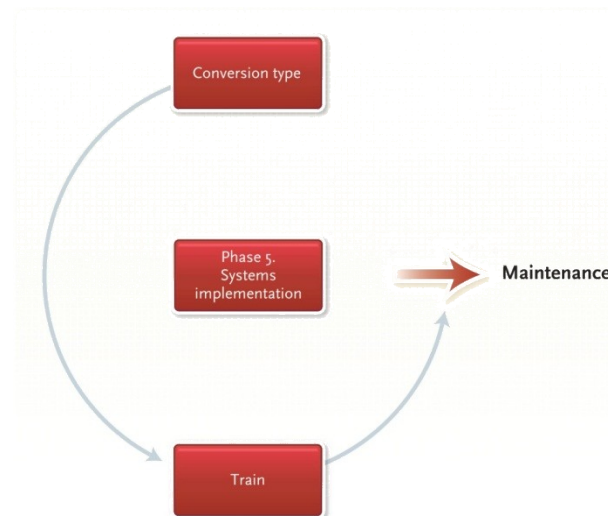
Phase 4: Systems Development

- In the development phase, you acquire the software and hardware, and test the new system



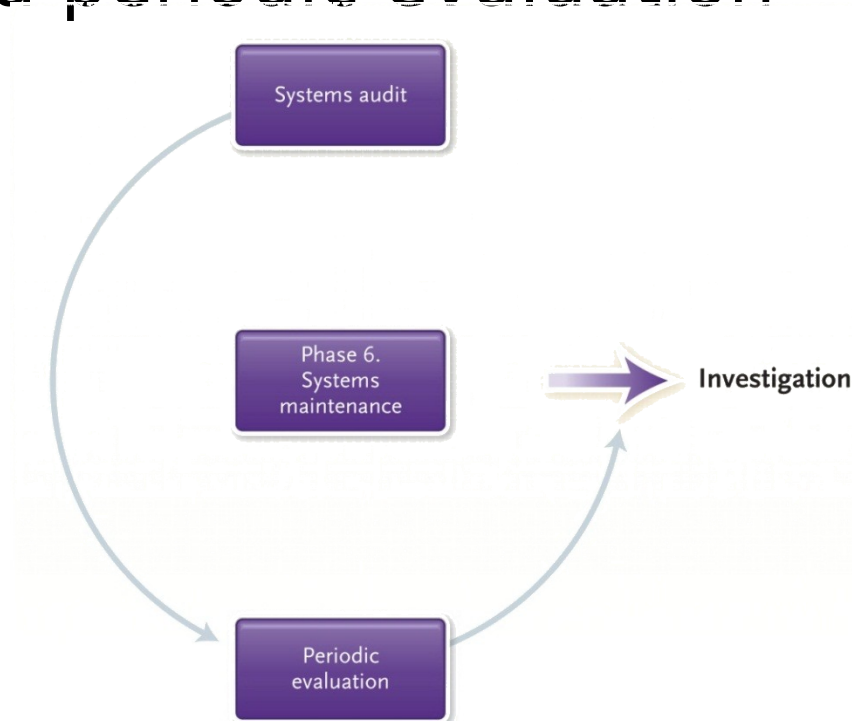
Phase 5: Systems Implementation

- Also known as **conversion**
- Converting from the old system to the new one
- Training people to use the new system
- Types of conversion approaches include:
 - **Direct**
 - **Parallel**
 - **Pilot**
 - **Phased**



Phase 6: Systems Maintenance

- Systems maintenance is a very important, ongoing activity that includes a systems audit and a periodic evaluation



Prototyping and Rapid Applications Development

- Alternatives to the systems life cycle may be used if the system is not feasible
 - Prototyping is building a model
 - Rapid Prototyping and Development (RAD)



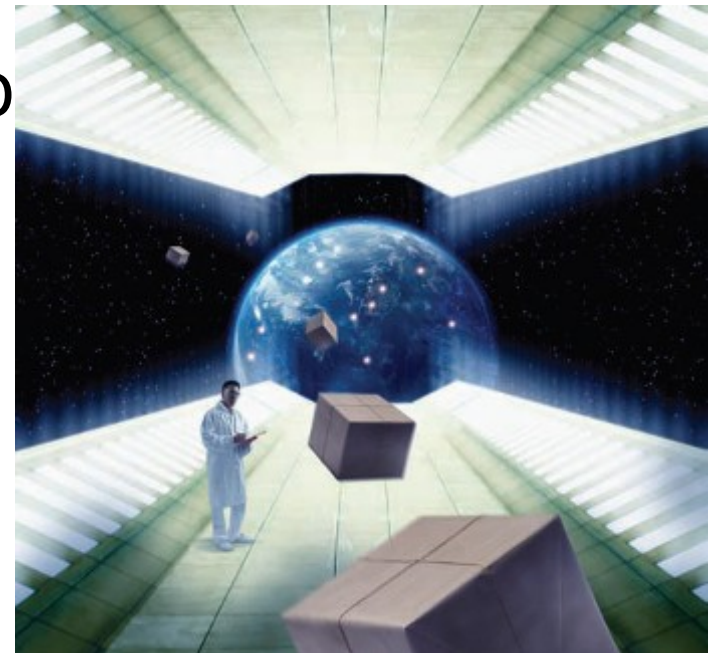
Careers in IT

- A **systems analyst** plans and designs new systems, following the **systems life cycle**
- Requires a Bachelor's degree in Computer Science or Information Systems and technical experience
- Can expect to earn an annual salary of \$54,500 to \$87,500



A Look to the Future

- The Challenge of Keeping Pace
 - To stay competitive with today's fast business pace, new technologies must be incorporated
 - Increased use of RAD and prototyping
 - Increased use of outside consulting



Open-Ended 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?

Open-Ended Questions (Page 2 of 2)

- Describe each type of system conversion. Which is the most commonly used?
- What is system maintenance? When does it occur?
- Explain prototyping and RAD. When might they be used by corporations?