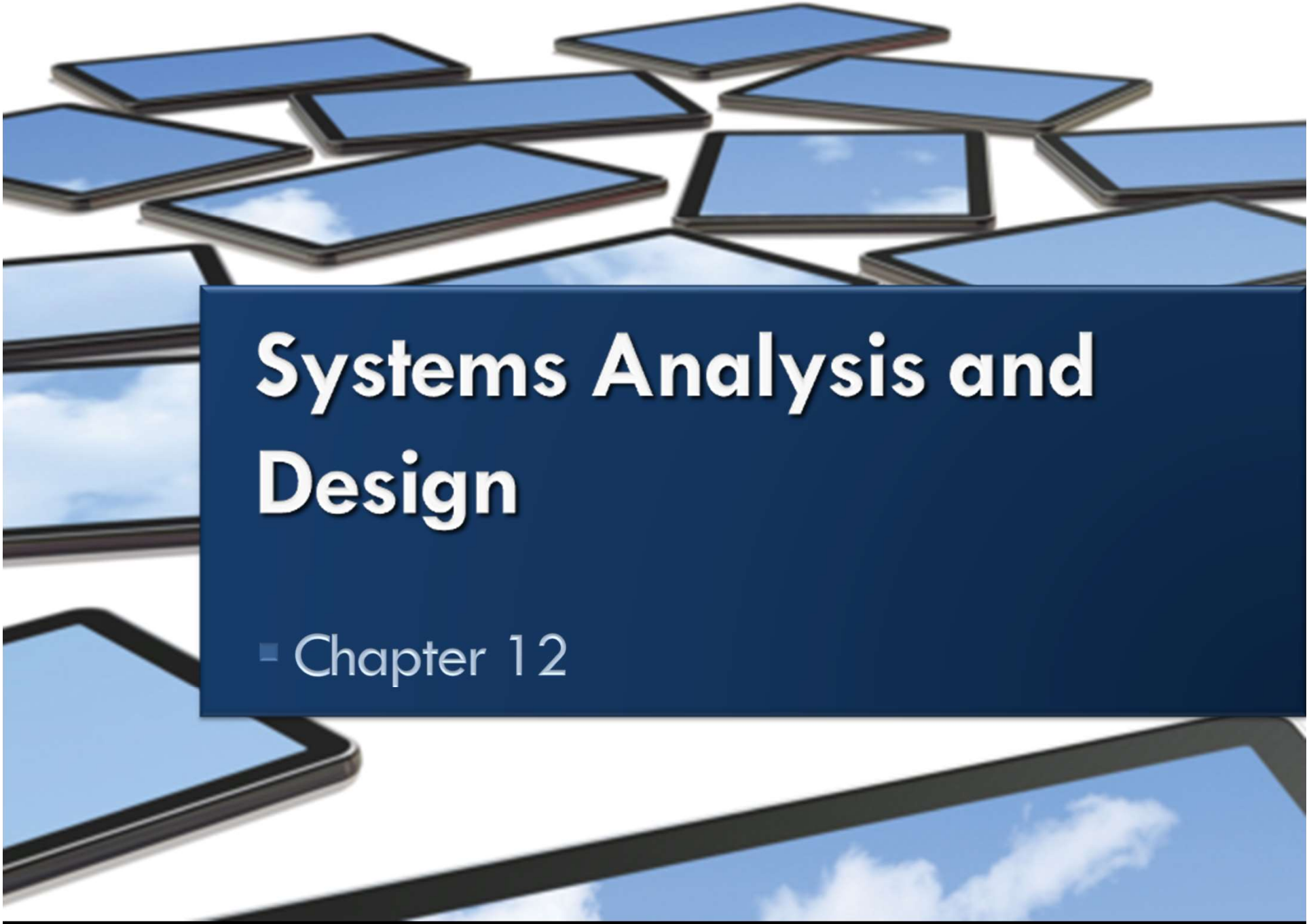
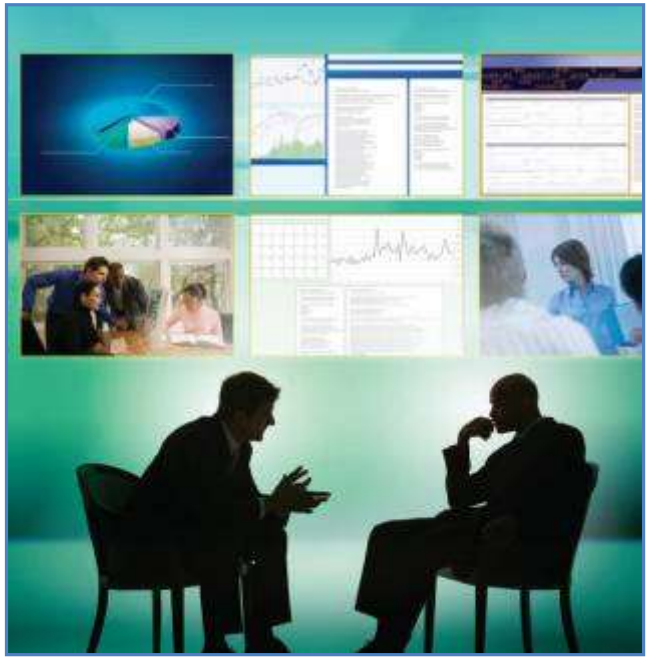


Systems Analysis and Design

- 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)

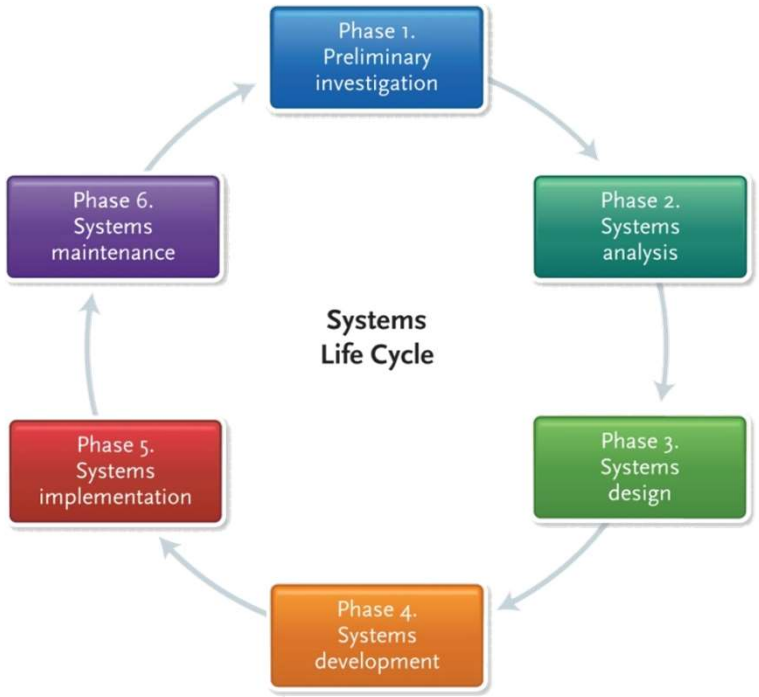
- Identify, acquire, and test new system software and hardware.
- Switch from an existing information system to a new one with minimal risk.
- Perform system audits and periodic evaluations.
- Describe prototyping and rapid applications development.

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.

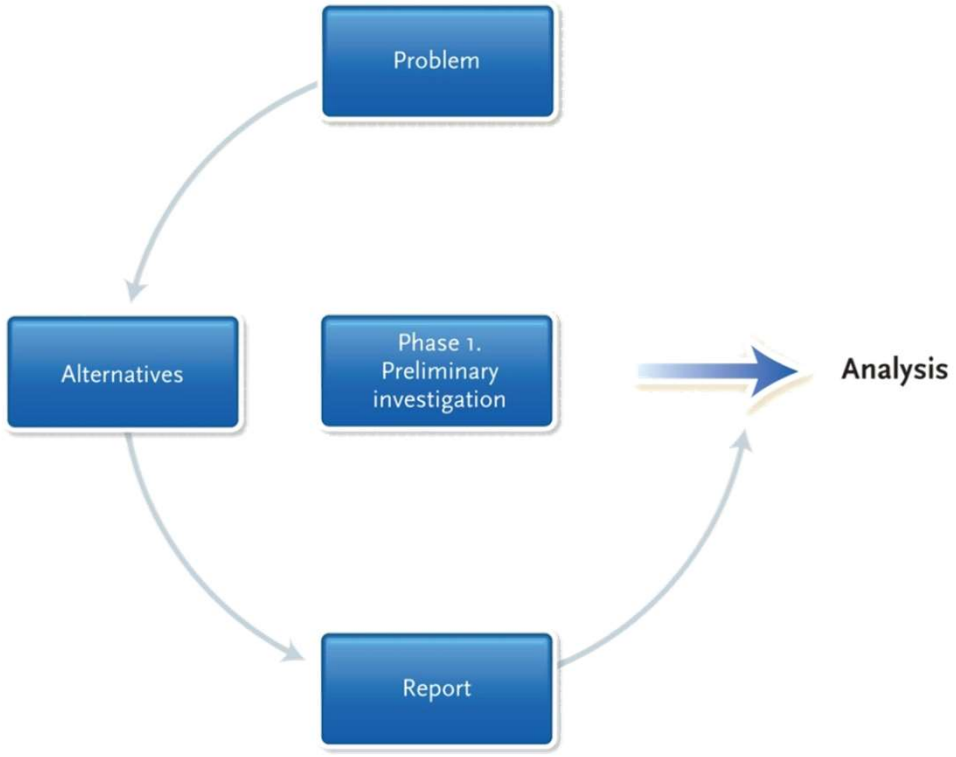
System Analysis and Design

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



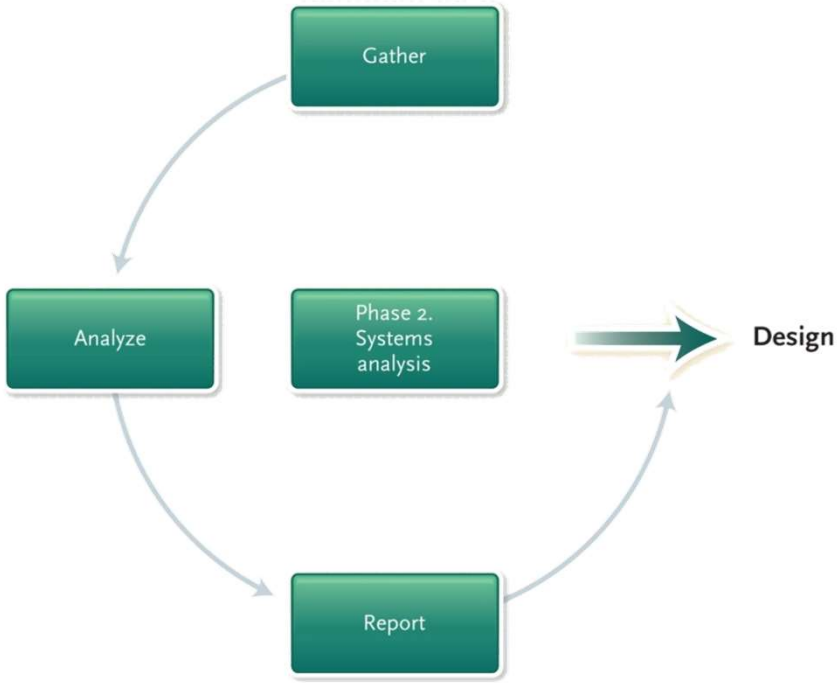
Phase 1: Preliminary Investigation

- 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)

Data Analysis Tools in Phase 2 (Page 1 of 2)

Grid Chart

	Reports (output)		
Forms (input)	Client billing	Personnel expense	Support cost
Time sheet	✓	✓	
Telephone log	✓		✓
Travel log	✓		✓

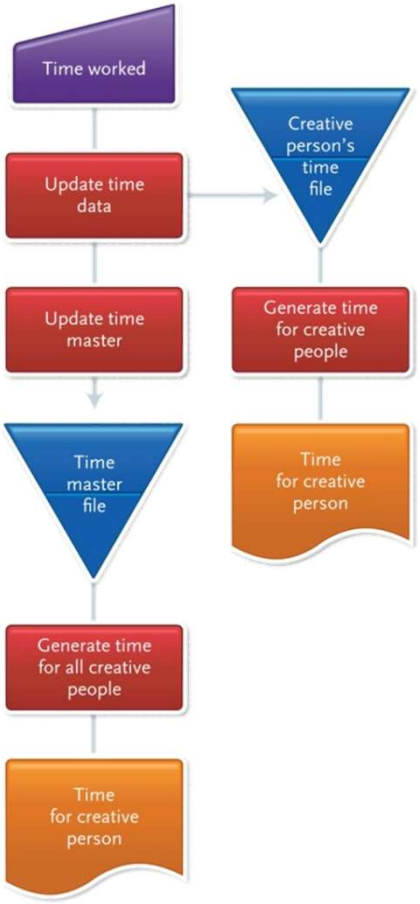
Decision Table

	Decision rules			
Conditions	1	2	3	4
1. Project less than $10,000	Y	Y	N	N
2. Good credit history	Y	N	Y	N
Actions	1	2	3	4
1. Accept project	✓	✓	✓	
2. Require deposit		✓	✓	
3. Reject project				✓

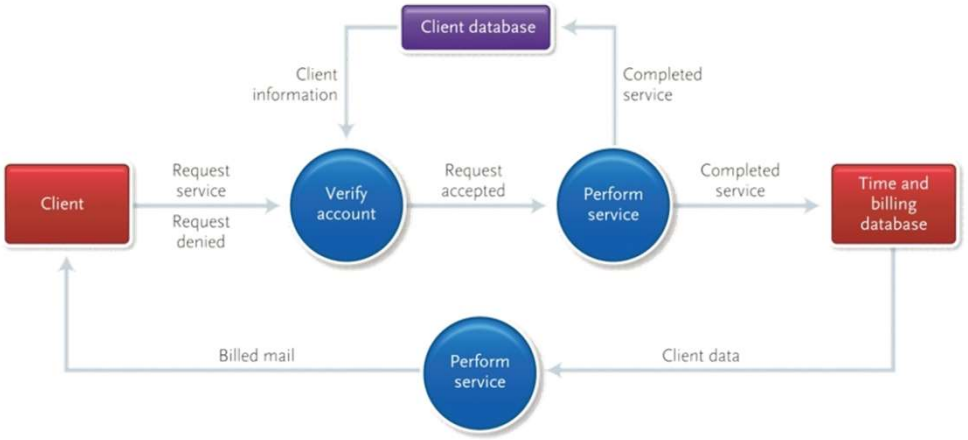
Return

Data Analysis Tools in Phase 2 (Page 2 of 2)

System Flowchart



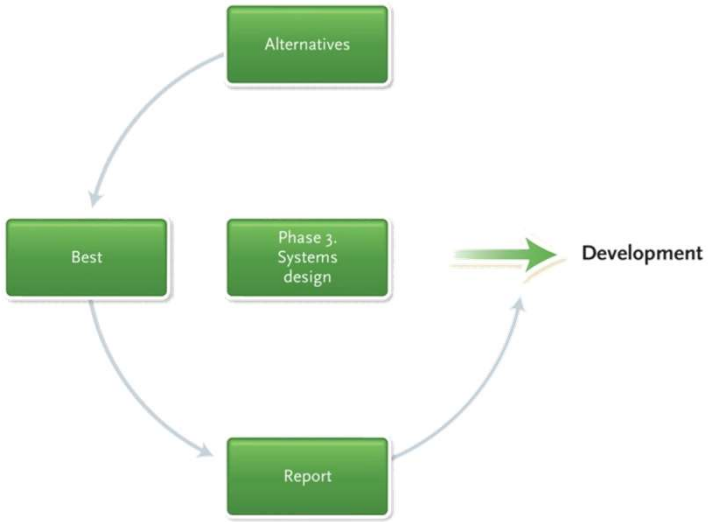
Data Flow Diagram



Return

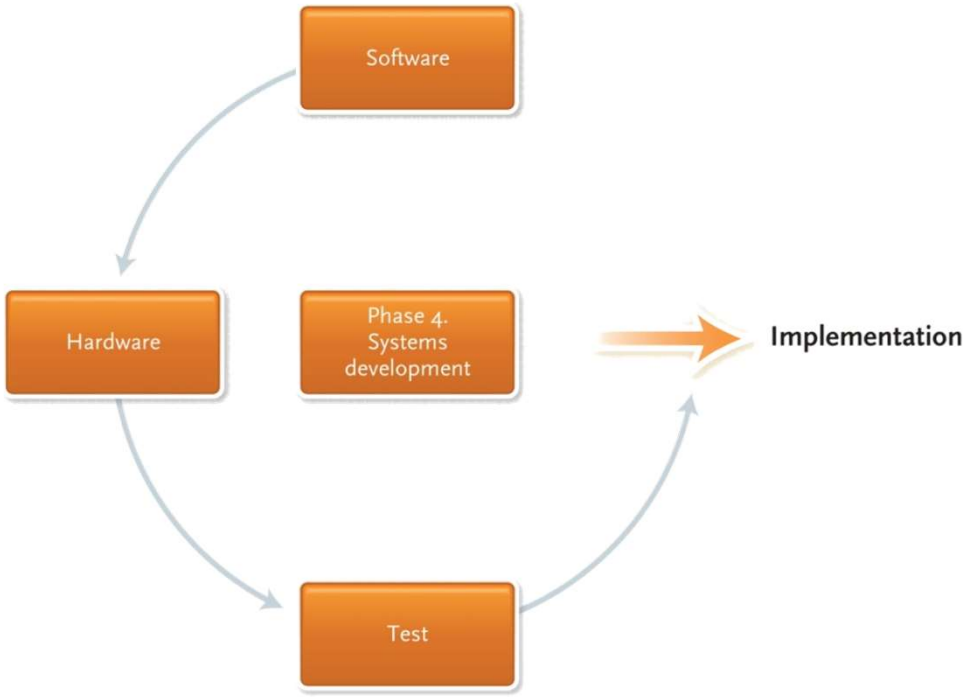
Phase 3: Systems Design

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



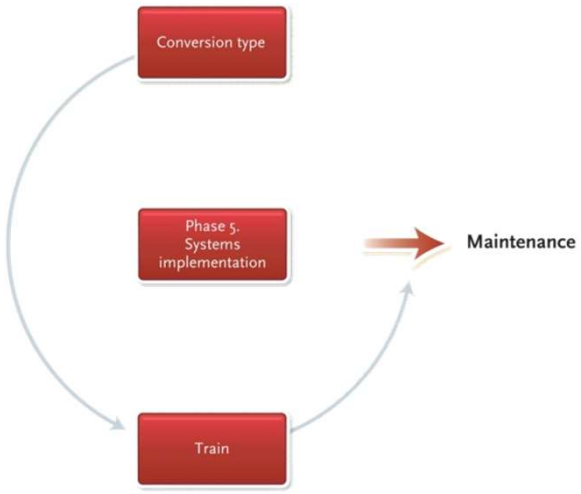
Phase 4: Systems Development

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



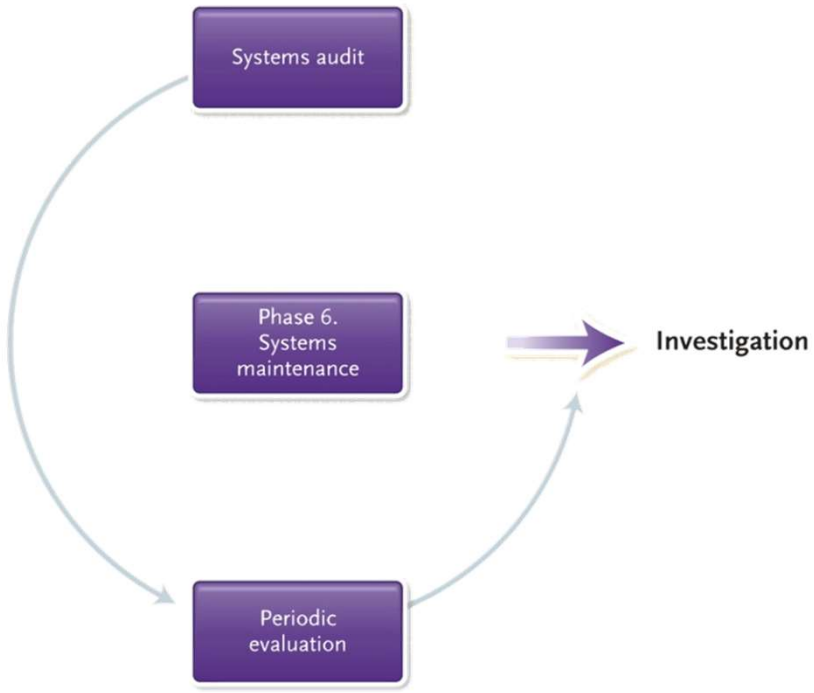
Phase 5: Systems Implementation

- 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 applications development (RAD)

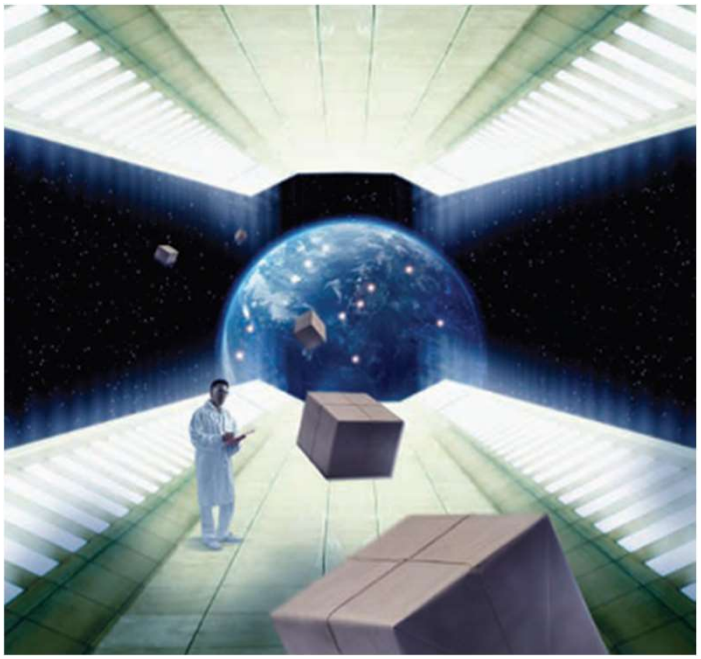
Careers in IT

- 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?