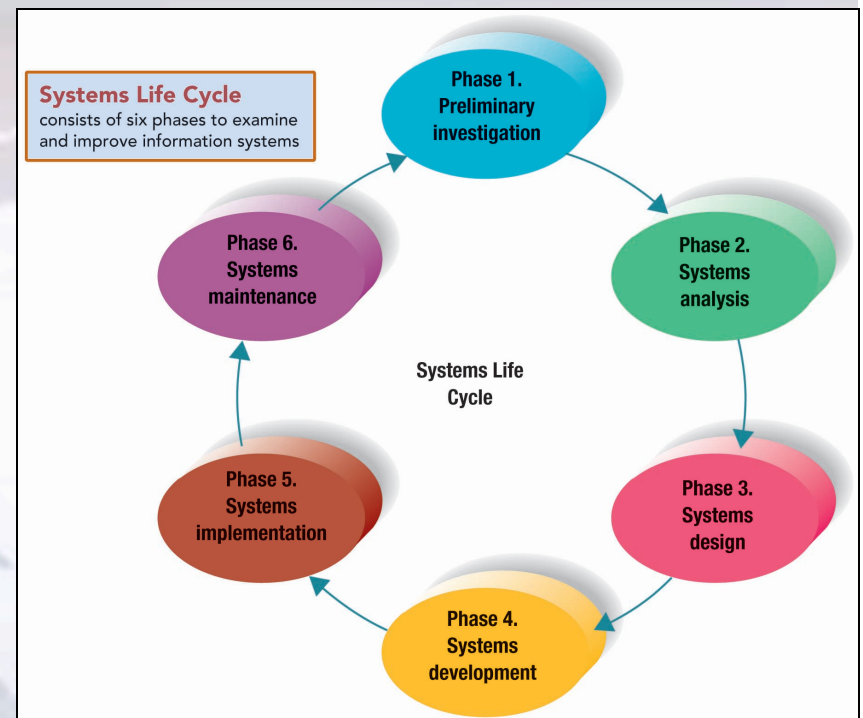


# Chapter 13

## Systems Analysis and Design

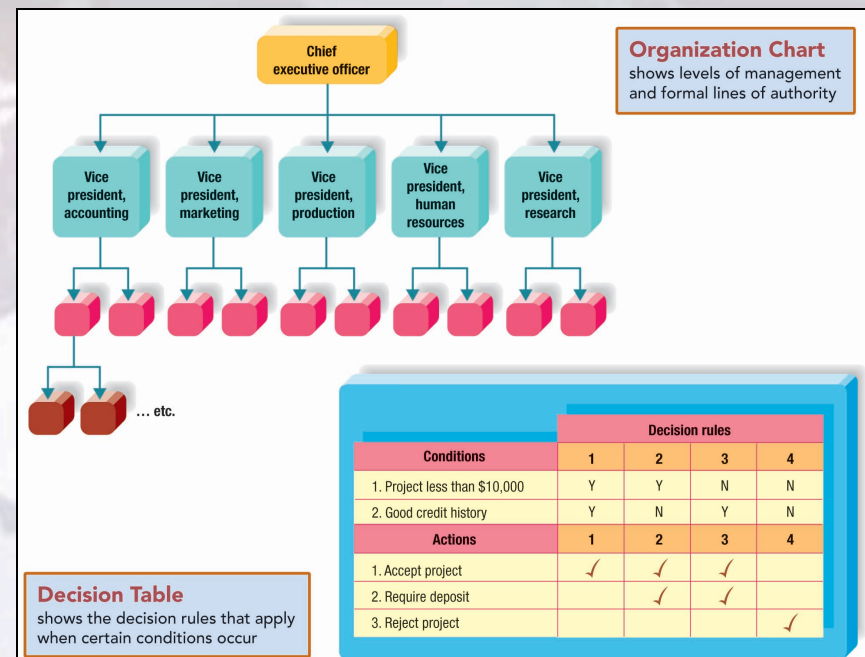
# Competencies (Page 1 of 2)

- 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



# 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



# Introduction

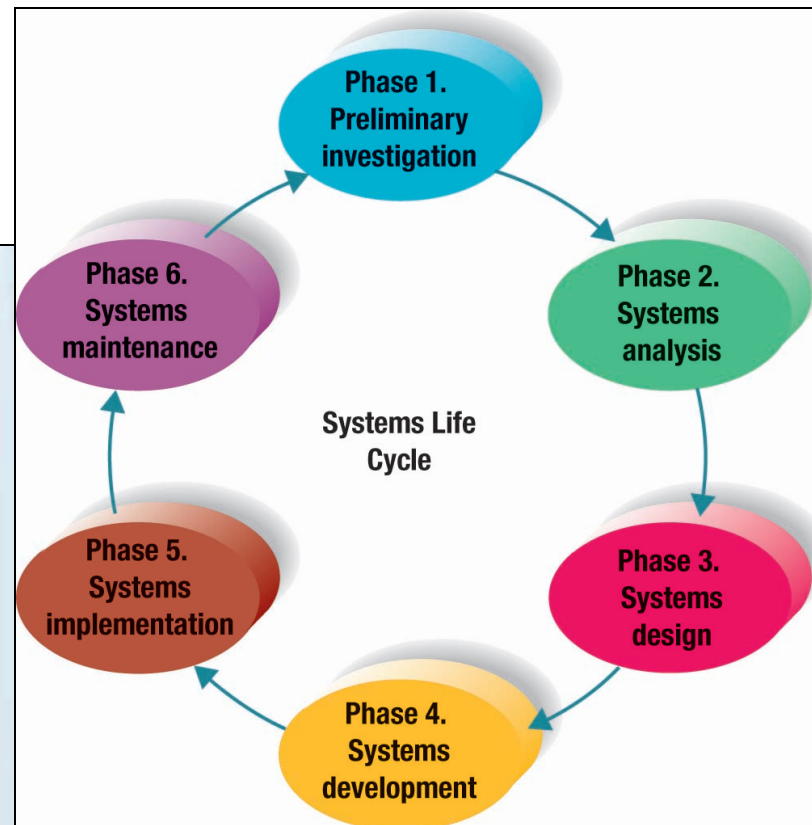
**Most people in an organization are involved with an information system of some kind.**

**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.**

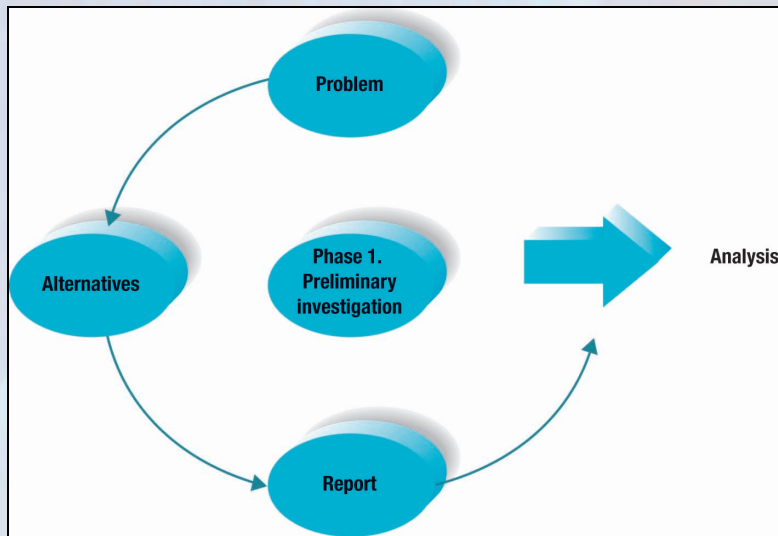
# System Analysis and Design

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



# Phase 1

## Preliminary Investigation

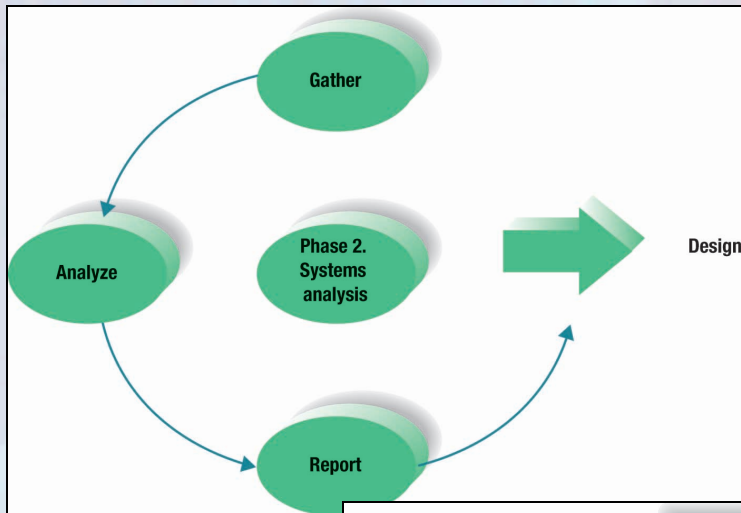


- **Preliminary Investigation includes:**
- **Define the problem**
- **Suggest alternative systems**
- **Prepare a short report**



# Phase 2

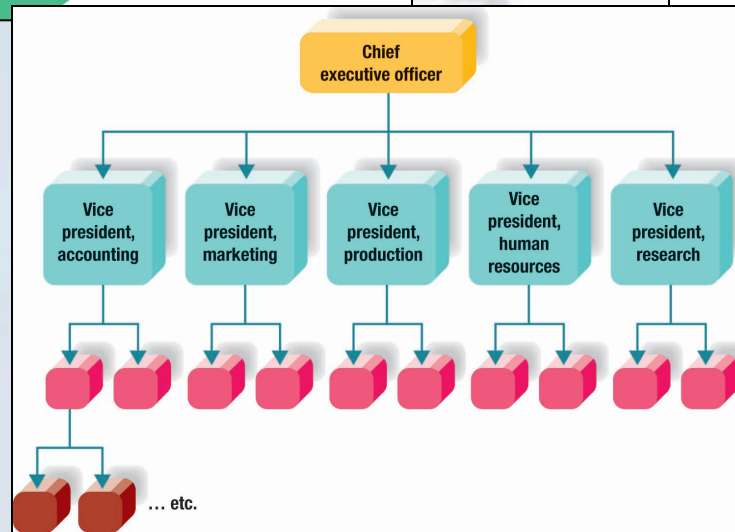
## Systems Analysis



- **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



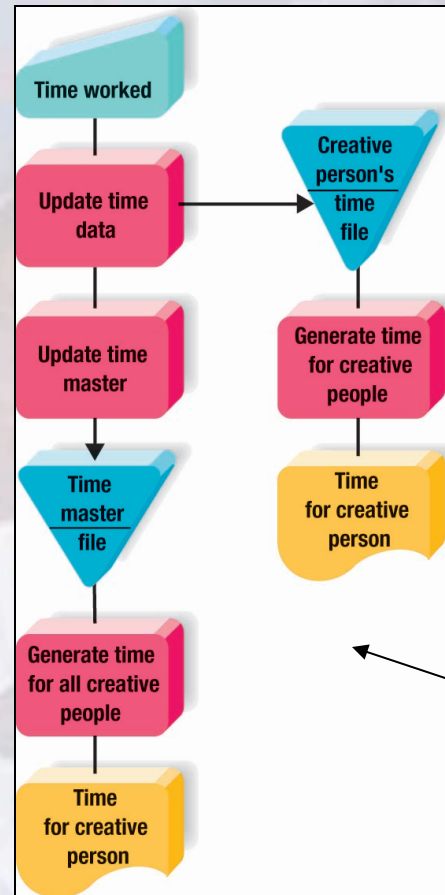
# Analyzing Data Tools

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

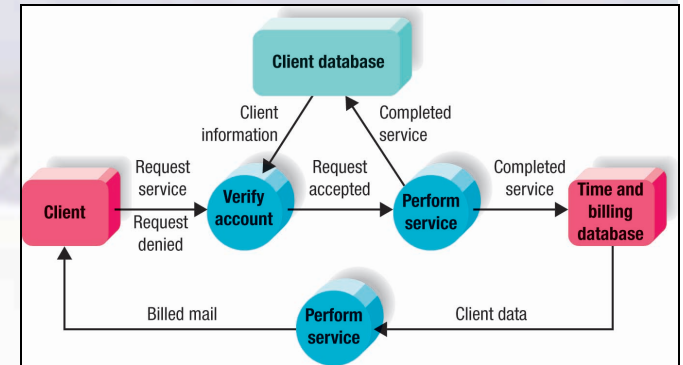
Grid chart

Conditions	Decision rules			
	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				✓

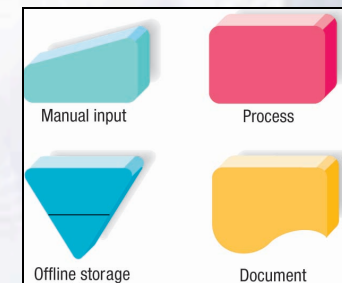
Decision table



System flowchart



Data flow diagram

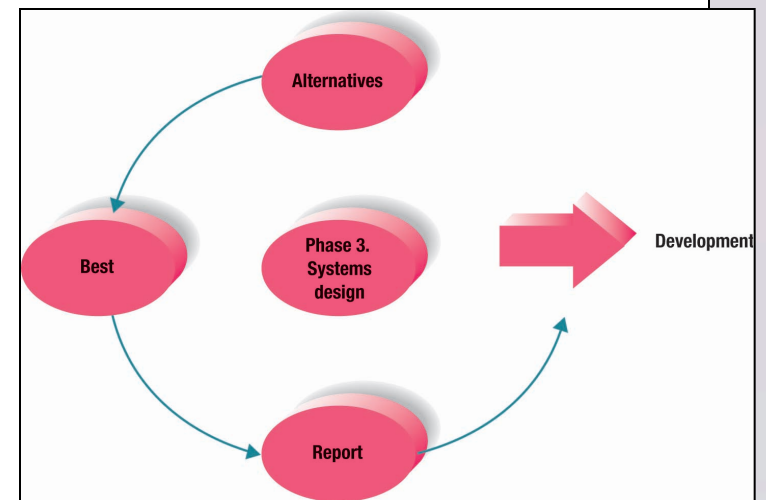


Flowchart symbols

# Phase 3

## Systems Design

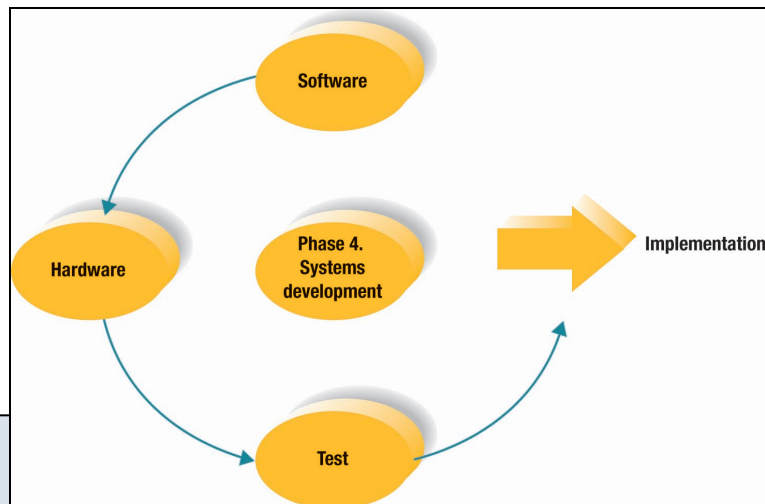
- **Design includes 3 major tasks:**
- **Designing alternative systems**
  - **Economic feasibility**
  - **Technical feasibility**
  - **Operational feasibility**
- **Selecting the best system**
- **Writing the systems design report**



# Phase 4

## Systems Development

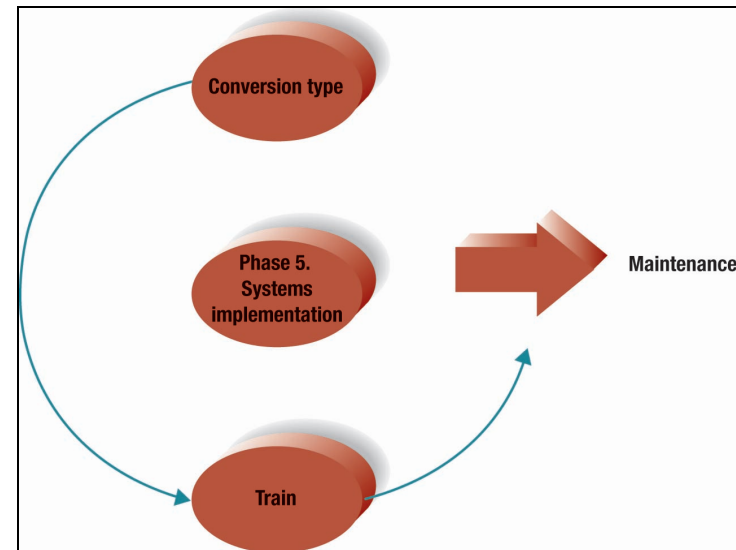
- **The tasks in the Development Phase include:**
  - **Acquiring software**
  - **Acquiring hardware**
  - **Testing the new system**



# Phase 5

## Systems Implementation

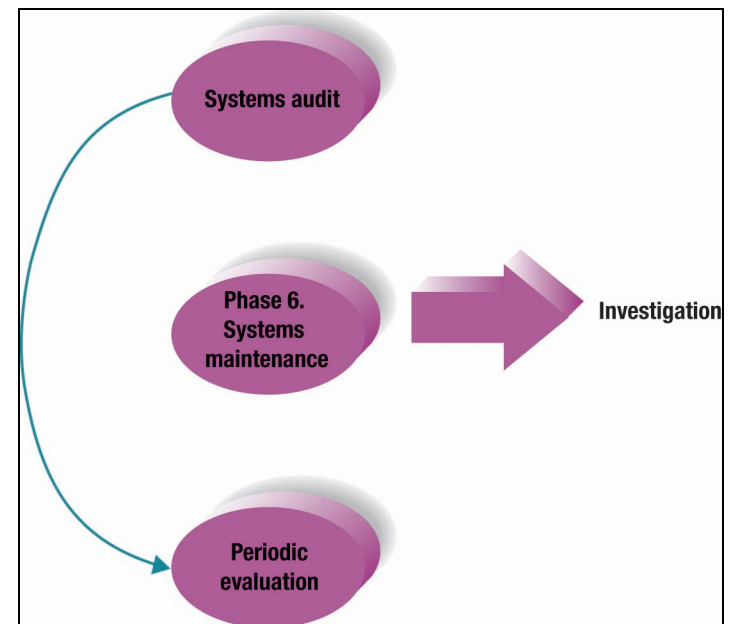
- **New system is installed and people are trained to use it**
- **Types of conversion**
  - **Direct**
  - **Parallel**
  - **Pilot**
  - **Phased**
- **Training**



# 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



The screenshot shows a Microsoft Internet Explorer browser window displaying the IBM SimuSys for iSeries website. The address bar shows the URL: <http://www-304.ibm.com/jct09002c/gsdod/solutiondetails.do?solution=1816&expand=true&lc=en>. The page features the IBM logo and navigation tabs for Home, Products, Services & solutions, Support & downloads, and My account. The main content area is titled "SimuSys for iSeries" and includes a search bar, a "Contact information" section with details for Gus Kenyon, and a "Solution details" section with a "Detailed solution description" that states: "SimuSys enables new systems to be prototyped without having to write any code. System designers can work with users to create designs on the screen which can be executed like the finished application. Existing".

# Careers in IT

- **Systems Analysts plan and design new systems or reorganize a computer's resources to best utilize them**
- **They follow the systems life cycle**
- **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?**