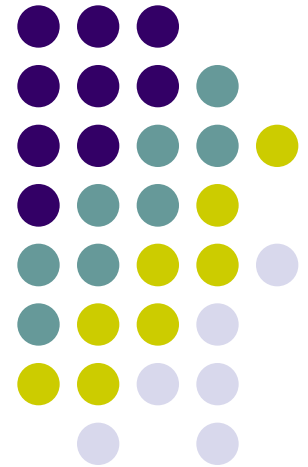


---

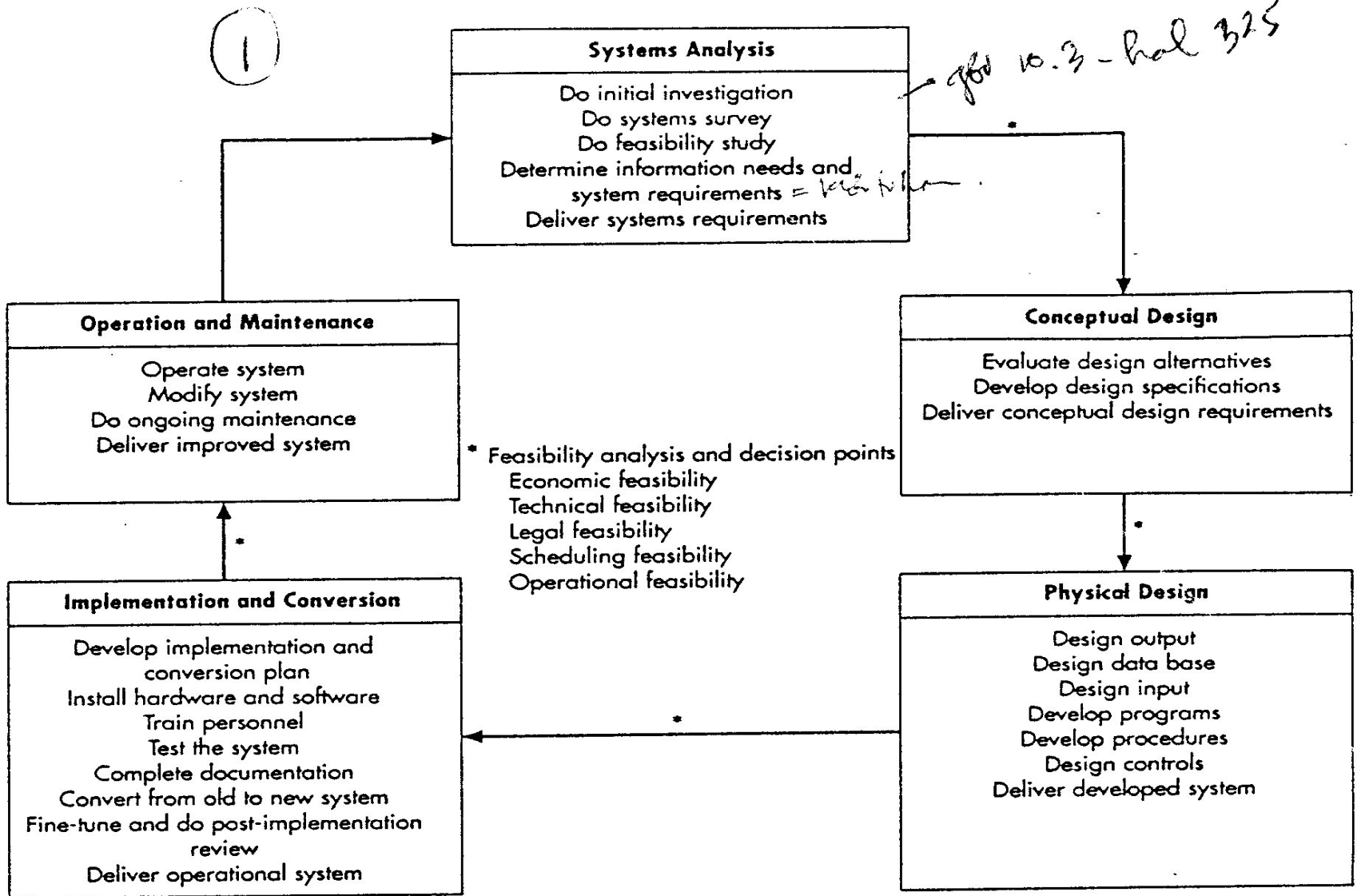
# SYSTEMS ANALYSIS



# REASONS WHY A COMPANY CHANGES IT'S AIS :



1. Changes in user or business needs
2. Technological changes
3. Improves business processes
4. Competitive advantage
5. Productivity gains
6. Growth
7. Downsizing
8. Quality improvements



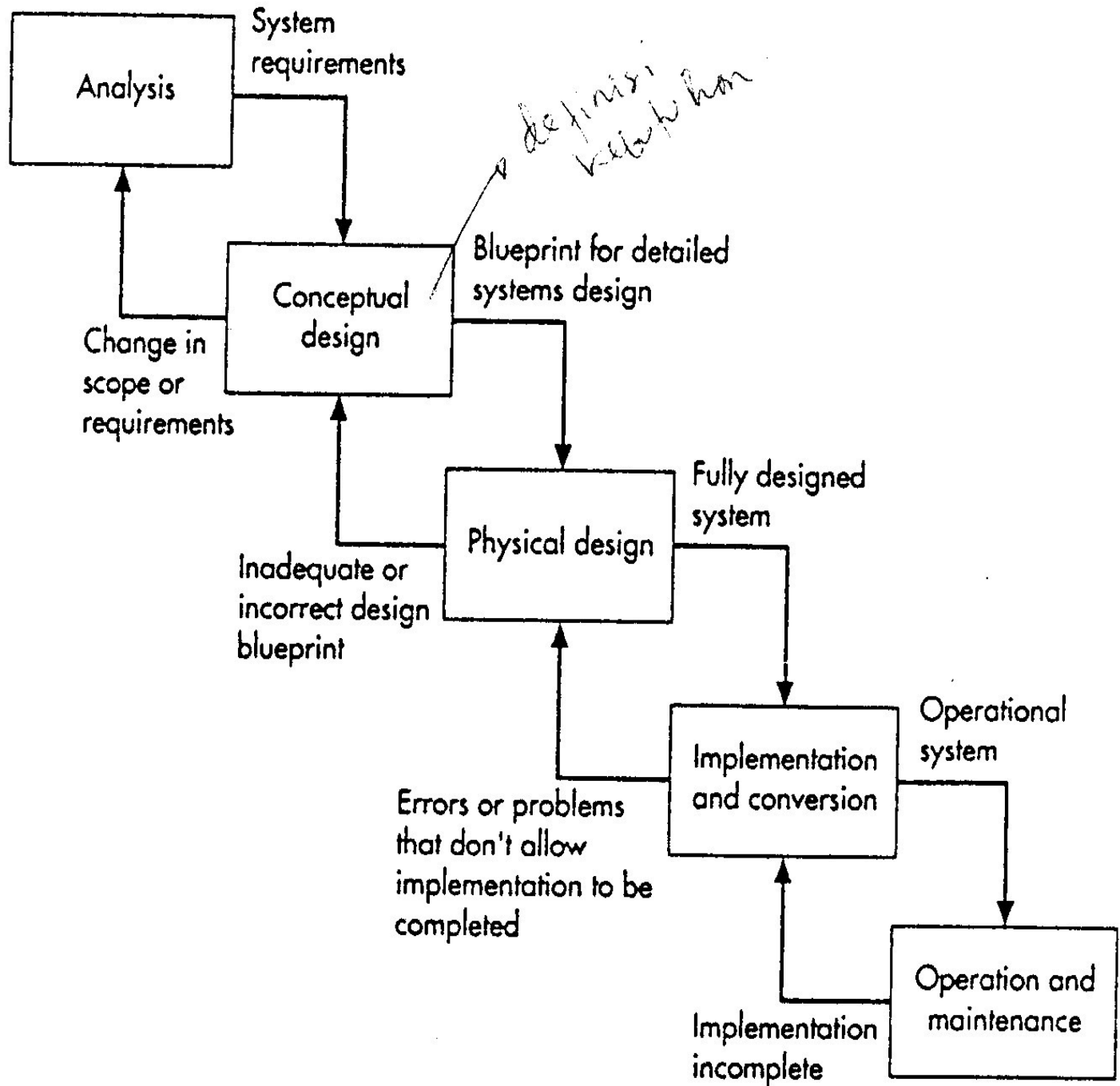
Planning must be done and behavioral aspects of change must be considered throughout the life cycle.

**Figure 10.1**

*The Systems Development Life Cycle*

**Figure 10.2**

*Reasons for Returning to a Prior Systems Development Life Cycle Phase*

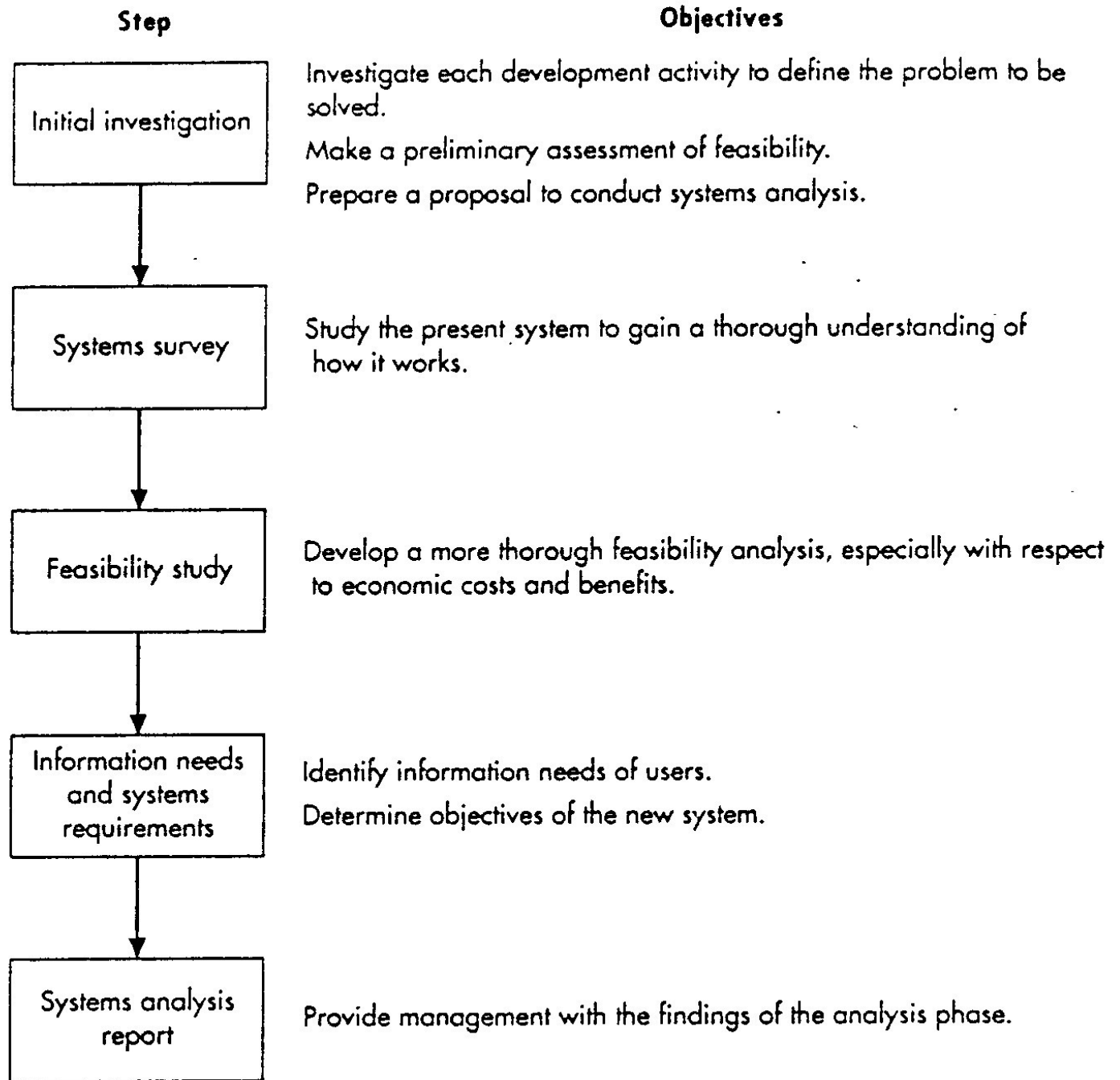


**Table 10.1** Components of Systems Master Plan at Shoppers Mart

Organizational goals and objectives	Status of systems being developed
Company mission statement and goals	Proposed systems priorities
IS strategic plan and goals	Approved systems development
Organizational constraints	Proposals under consideration
Organizational approach to AIS	Development timetables and schedules
Organizational and AIS priorities	Forecast of future developments
Inventory and assessments	Forecasts of information needs
Current systems	Technological forecasts
Approved systems	Environmental/regulatory forecasts
Current hardware	Audit and control requirements
Current software	External user needs
Current AIS staff	
Assessment of current strengths and weakness	

**Figure 10.3**

*Steps in Systems Analysis*





**Table 10.2 Advantages and Disadvantages of Data Gathering Methods**

	<b>Advantages</b>	<b>Disadvantages</b>
<i>Interviews</i>	Can answer “why” questions Interviewer can probe and follow up Questions can be clarified Builds positive relationships with interviewee Builds acceptance and support for new system	Time-consuming Expensive Personal biases or self-interest may produce inaccurate information
<i>Questionnaires</i>	Can be anonymous Not time-consuming Inexpensive Allows more time to think about responses	Doesn't allow in-depth questions or answers Can't probe or follow up on responses Questions can't be clarified Impersonal; doesn't build relationships Difficult to develop Often ignored or completed superficially
<i>Observation</i>	Can verify how system <i>actually</i> works, rather than how it <i>should</i> work Results in greater understanding of system	Time-consuming Expensive Difficult to interpret properly Observed people may alter behavior
<i>System Documentation</i>	<i>Describes how system should work</i> Written form facilitates review, analysis	<i>Time-consuming</i> May not be available or easy to find



## ***Table 10.3* Systems Analysis and Design Tools and Techniques**

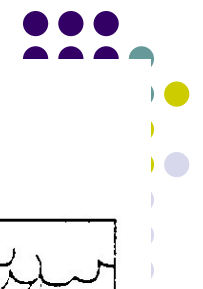
CASE (Chapter 11)	Organization charts (Chapter 2)
Coding (Chapter 2)	Program flowcharts (Chapter 3)
Data flow diagrams (Chapter 3)	Prototyping (Chapter 12)
Data modeling (Chapter 6)	Record layouts (Chapter 4)
Decision tables (Chapter 3)	Report layouts (Chapter 11)
Document flowcharts (Chapter 3)	System flowcharts (Chapter 3)
Forms design checklist (Chapter 2)	





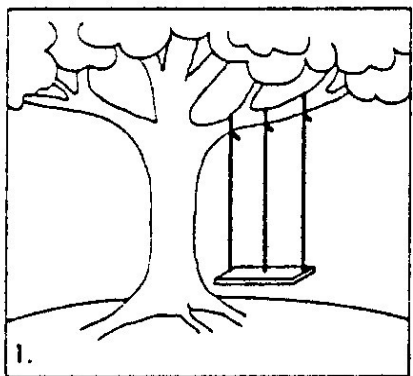
**Table 10.4 Initial Outlay and Operating Costs**

<b>Hardware</b>	<b>Maintenance/backup</b>
Central processing unit	Hardware/software maintenance
Peripherals	Backup and recovery operations
Communications hardware	Power supply protection
Special input/output devices	<b>Documentation</b>
Upgrade and expansion costs	Systems documentation
<b>Software</b>	Training program documentation
Application, system, general-purpose, utility, and communications software	Operating standards and procedures
Updated versions of software	<b>Site preparation</b>
Application software design, programming, modification, and testing	Air-conditioning, humidity, dust controls
<b>Staff</b>	Physical security (access)
Supervisors	Fire and water protection
Analysts and programmers	Cabling, wiring, and outlets
Computer operators	Furnishing and fixtures
Input (data conversion) personnel	<b>Installation</b>
Recruitment and staff training	Freight and delivery charges
Consultants	Set-up and connection fees
<b>Supplies and overhead</b>	<b>Conversion</b>
Preprinted forms	Systems testing
Data storage devices	File and data conversions
Supplies (paper, ribbons, toner)	Parallel operations
Utilities and power	<b>Financial</b>
	Finance charge
	Legal fees
	Insurance

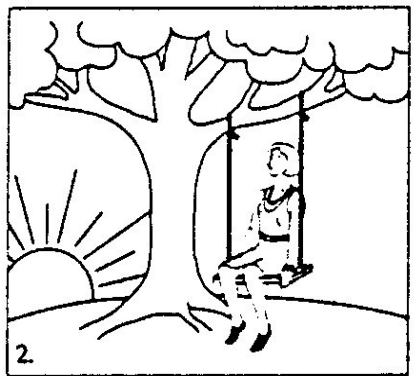


**Figure 10.4**

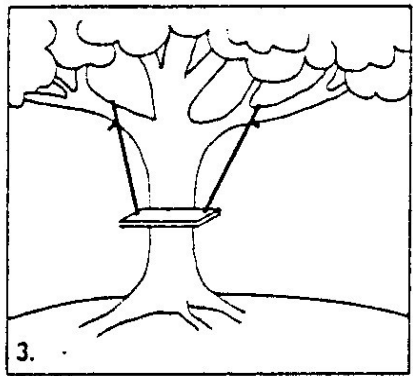
*Communications Problems in Systems Analysis and Design*



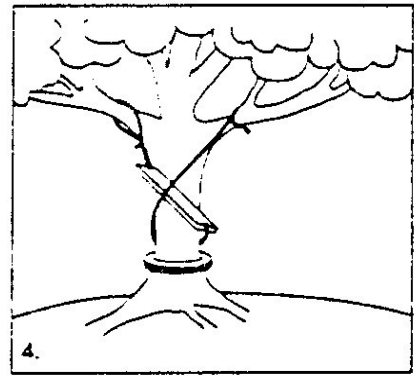
1. As proposed by user management



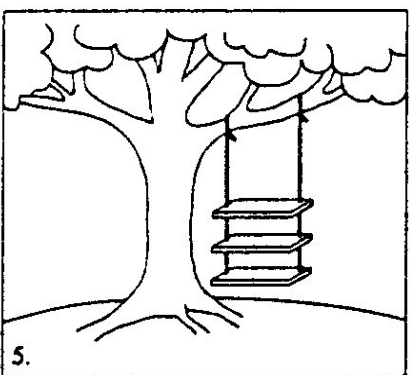
2. As sold to top management



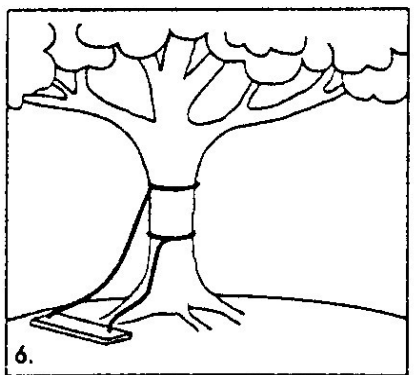
3. As planned by project development team



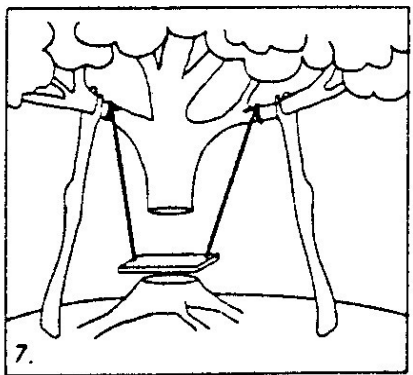
4. As approved by the steering committee



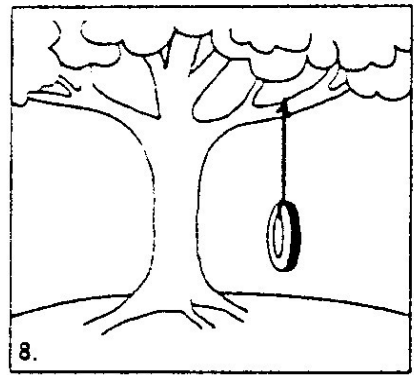
5. As designed by the senior analyst



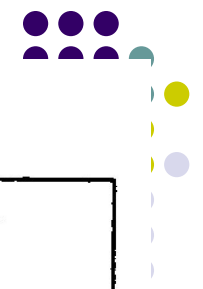
6. As written by the applications programmers



7. As installed at the user's site



8. What the users actually needed



**Table 10.5** AIS Objectives

Usefulness	Information produced by the system should help management and users in decision making.
Economy	The benefits of the system should exceed the cost.
Reliability	The system should process data accurately and completely.
Availability	Users should be able to access the system at their convenience.
Timeliness	Crucial information should be produced first and then less important items as time permits.
Customer service	Courteous and efficient customer service should be provided.
Capacity	System capacity should be sufficient to handle periods of peak operation and future growth.
Ease of use	The system should be user-friendly.
Flexibility	The system should accommodate reasonable operating or system requirements changes.
Tractability	The system should be easily understood by users and designers and facilitate problem solving and future systems development.
Auditability	Auditability should be built into the system from the beginning of systems development.
Security	Only authorized users should be granted access or allowed to change system data.

# STRATEGIES FOR DETERMINING REQUIREMENTS

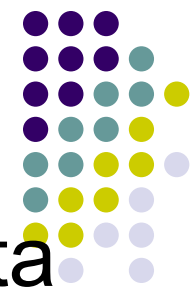


1. Ask users what they need
2. Analyze existing systems
3. Examine existing system utilization
4. Prototyping (the iterative process of looking at what is developed and then improving it continues until users agree on their needs.)



**Table 10.6 Possible Contents of Systems Requirements**

Processes	A description of all processes in the new system, including what is to be done and by whom
Data elements	A description of the data elements needed, including their name, size, format, source, and significance
Data structure	A preliminary data structure, showing how the data elements will be organized into logical records
Outputs	A copy of system outputs and a description of their purpose, frequency, and distribution
Inputs	A copy of system inputs and a description of their contents, source, and who is responsible for them
Documentation	A description of how the new system and each subsystem will operate
Constraints	A description of constraints such as deadlines, schedules, security requirements, staffing limitations, and statutory or regulatory requirements
Controls	Controls to ensure the accuracy and reliability of inputs, outputs, and processing
Reorganizations	Organizational reorganization needed to meet the users' information needs, such as increasing staff levels, adding new job functions, restructuring, or terminating existing positions or jobs



The main effect IT in a business is IT can provide radical changes in process data and save the data. BUSINESS PROCESS REENGINEERING (BPR) is the thorough analysis and complete redesign of business processes and information systems to achieve dramatic performance improvements.

BPR reduces a company to its essential business process and focuses on why they are done rather than on the detail of how they are done.



# THE PRINCIPLES OF BPR:



- ❖ Organize around outcomes, not tasks (output oriented rather than tasks oriented)
- ❖ Have output users perform the process (users is allowed more to process an activities by technologies adopted)
- ❖ Have those who produce information process it. (users process and produce their own information1)
- ❖ Centralize and disperse data.
- ❖ Integrate parallel activities.
- ❖ Empower workers, use built in controls, and flatten the organizational chart.
- ❖ Capture data once, at its source.

# OBSTACLES FACED WHEN BPR PROCESS :



- ❑ Tradition
- ❑ Resistance
- ❑ Time requirements
- ❑ Lack of management support
- ❑ Reengineering is risky
- ❑ Skepticism (allergic)
- ❑ Retraining



# BEHAVIORAL PROBLEMS IN A CHANGE (BPR):



- Personal characteristics and background
- Manner in which change is introduced
- Experience with prior changes
- Communication
- Biases and natural resistance to change
- Disruptive nature of the change process
- Fear

# HOW PEOPLE RESIST AIS CHANGES:



1. Aggression
2. Projection (blaming or errors)
3. Avoidance

# HOW TO PREVENT BEHAVIORAL PROBLEMS :



- **Meet the users needs**
- **Keep communication lines open**
- **Maintain a safe atmosphere**
- **Obtain management support**
- **Allay (assurance) fears**
- **Solicit user participation**
- **Provide honest feedback**
- **Make sure users understand the system**
- **Humanize the system**
- **Reexamine performance evaluation**
- **Test the system's integrity**
- **Avoid emotionalism**
- **Present the system in the proper context**
- **Control the users' expectations**
- **Keep the system simple**