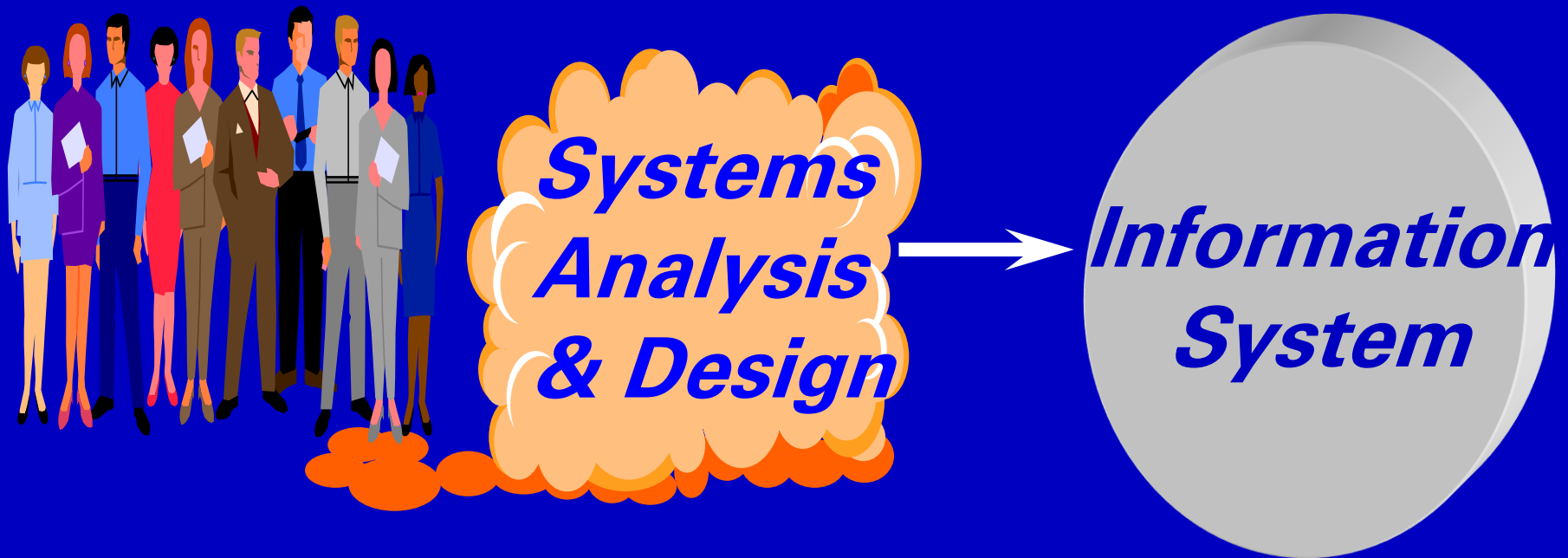# SYSTEMS ANALYSIS

AND

DESIGN

INTRODUCTION

□ *Systems Analysis and Design is the process people use to create (automated) information systems*

Systems Analysis & Design → *Information System*

Systems Analyst

A title given to a person who studies the problems and needs of an organization looking for improvement opportunities.
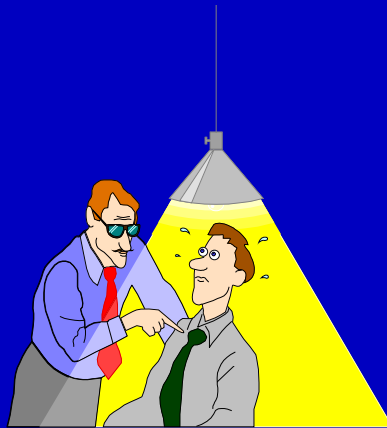
Other names:

- *Software Engineer*
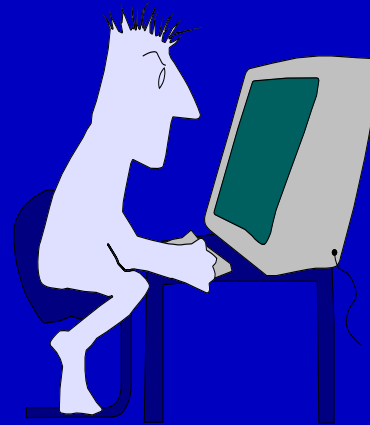- *Systems Engineer*
- *Software Developer*
- *Programmer/Analyst*

SYSTEMS ANALYSIS AND DESIGN: A Condensed (Informal) Perspective
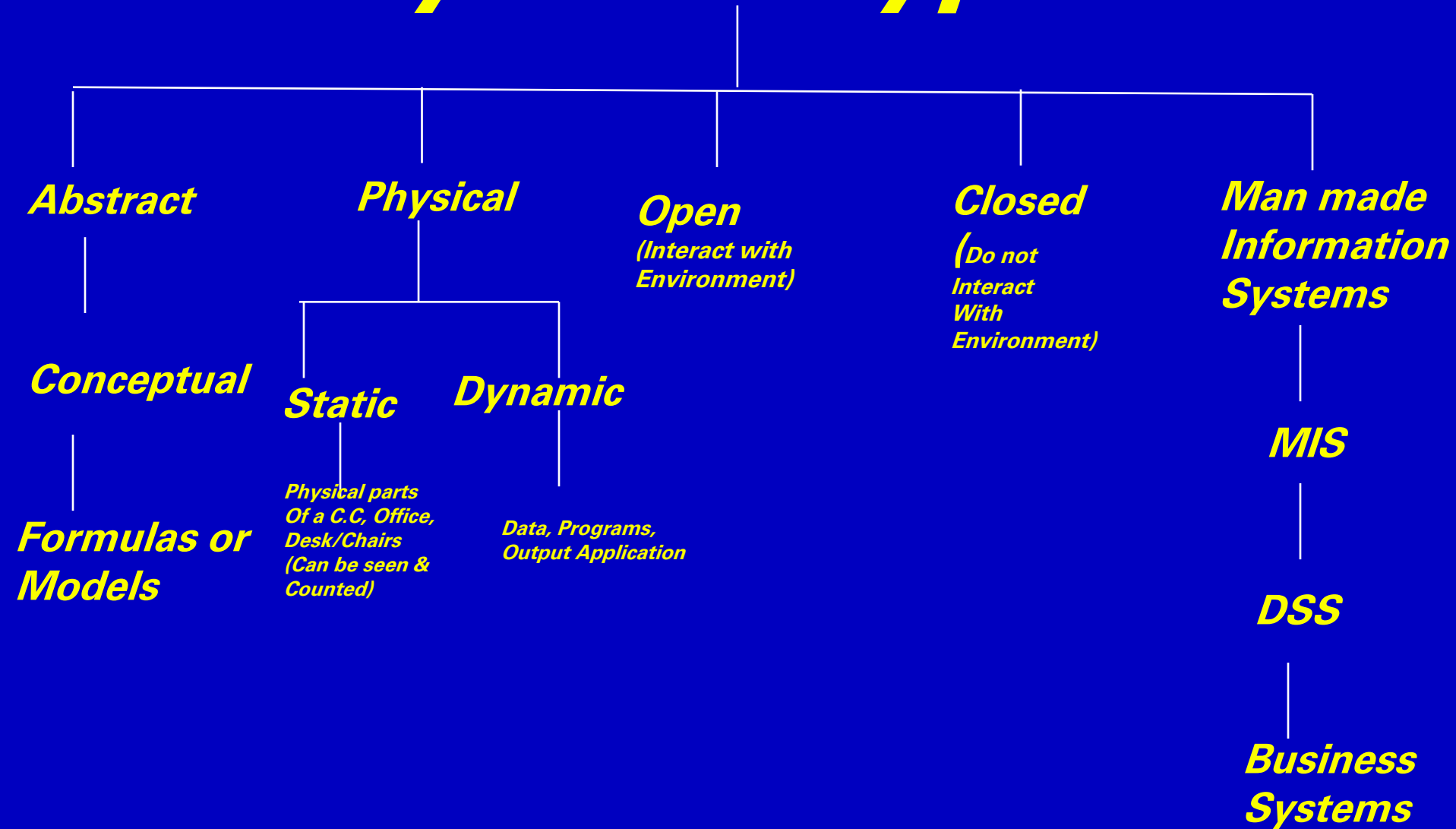

An idea

Analysis

Design and Implementation

Completed Information System

Time

System Types

Abstract

Physical

Open
(Interact with Environment)

Closed
(Do not Interact With Environment)

Man made Information Systems

Conceptual

Static

Dynamic

Physical parts Of a C.C, Office, Desk/Chairs (Can be seen & Counted)

Data, Programs, Output Application

MIS

Formulas or Models

DSS

Business Systems

Business "problems" come in all sizes and shapes!

Examples:

- Name & Address Book
- CD Collection
- Course Registration
- Reservations
- Student Grades
- Payroll
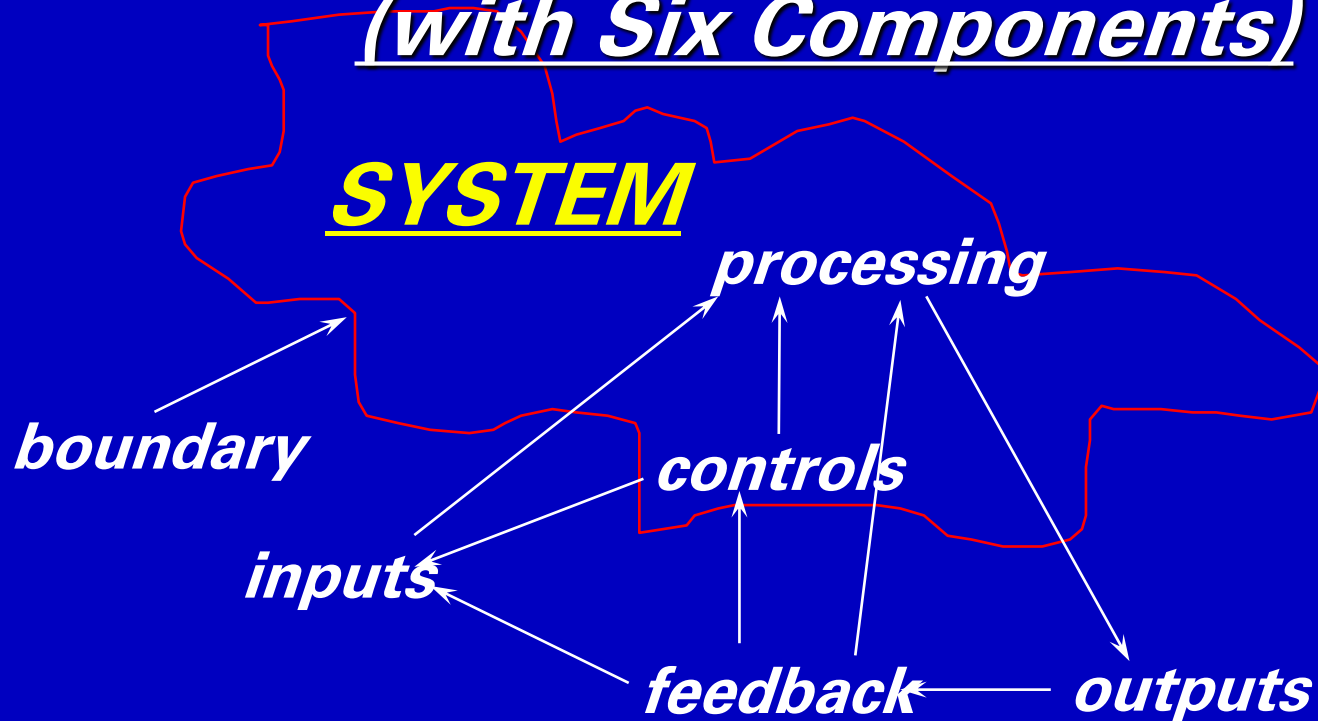- ATM machine & Banking in General
- Check-Out Counters at Retail Stores
- Order Fulfillment - Mail or Web Ordering
- Manufacturing
- Securities Portfolio Management
- Space Shuttle Flight
- Election Results
- Video Games (Arcade and Home)

System

□ **A SYSTEM is a set of:**

□ **interrelated components**

□ **working together**
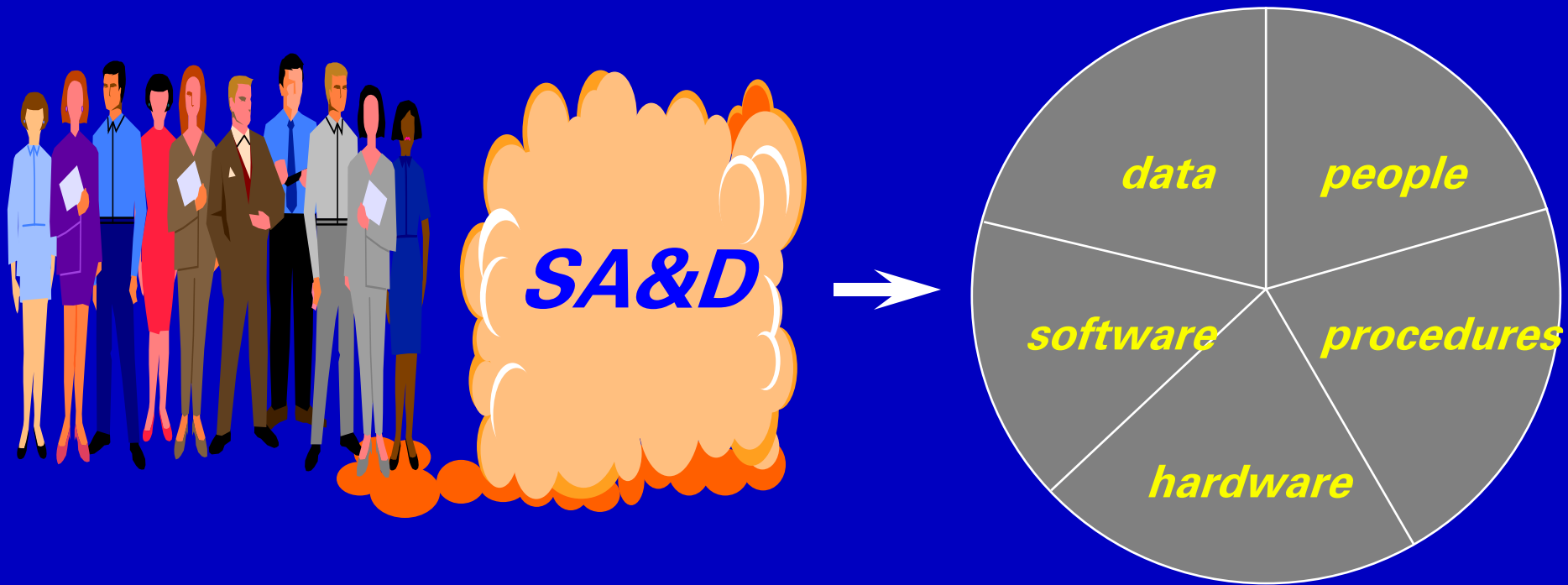
□ **for a common purpose**

A Generic System Model
(with Six Components)

SYSTEM

processing

boundary

controls

inputs

feedback

outputs

Examples:
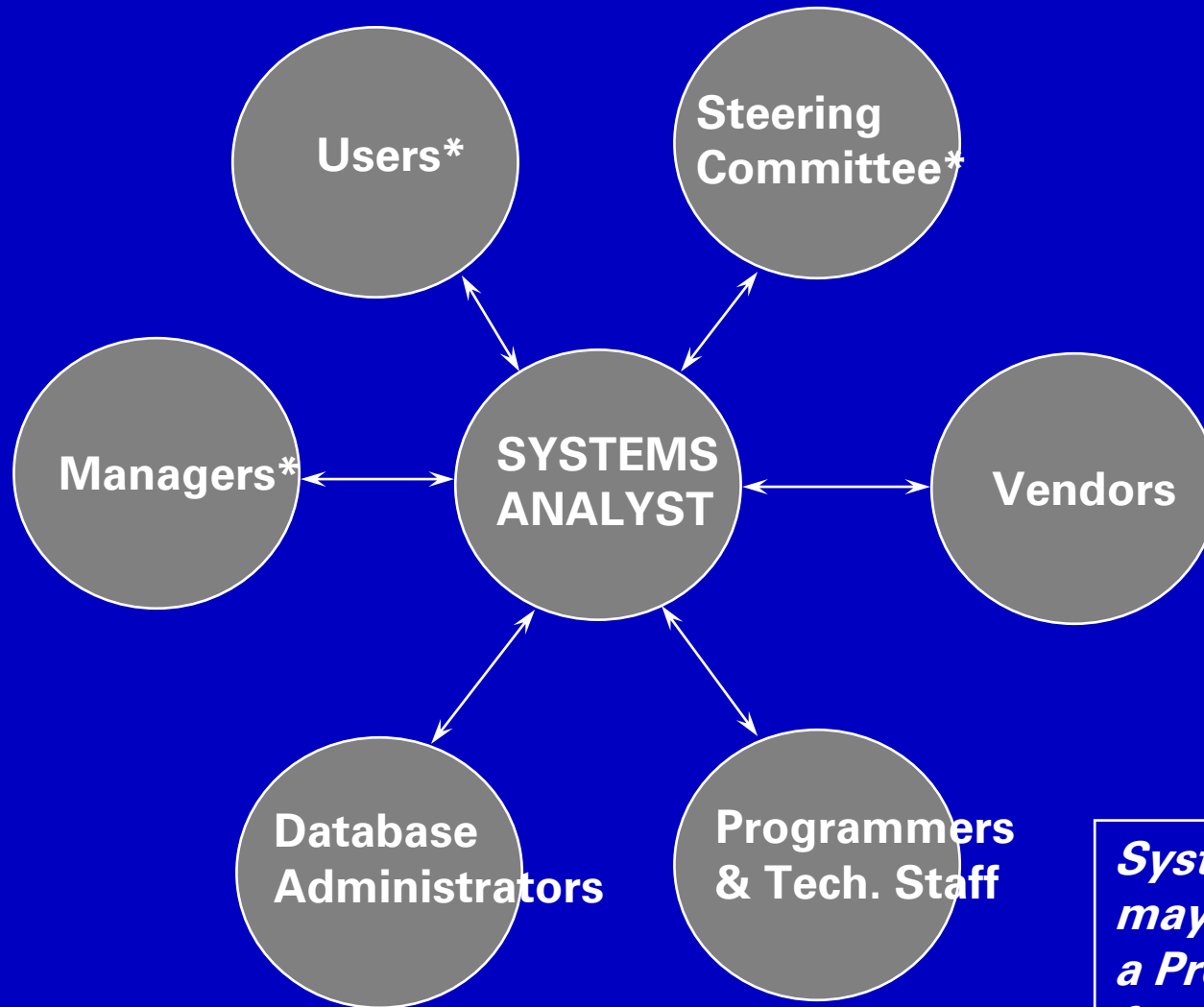- **Automobile**
- **Student Registration System**
- **Others...**

☐ *Systems Analysis and Design is the process people use to create (automated) information systems*

SA&D →

data | people
software | procedures
hardware

- *The people who do SYSTEMS ANALYSIS and DESIGN produce information systems that are:*

  - *used internally within the organization*

  - *sold commercially via mail/web order or retail store*

  - *imbedded in products*

Users*

Steering Committee*

Managers*

SYSTEMS ANALYST

Vendors

Database Administrators

Programmers & Tech. Staff

Systems Analyst may be acting as a Project Manager for some of these interactions.

* = Stakeholders

What does a Systems Analyst do?

Studies the problems and needs of an

organization looking for improvement

opportunities for:

- *increasing revenue/profit*

- *decreasing costs*

- *improving quality of service*

What is a Systems Analyst responsible for?

Effective and efficient:

- **CAPTURE of input data**

- **PROCESSING & STORAGE of data**

- **DELIVERY of timely and accurate**

  information

Sequential or Traditional SDLC

"Begin"
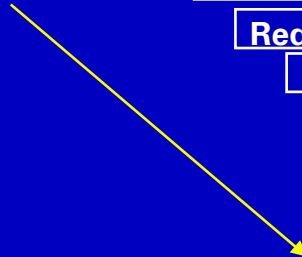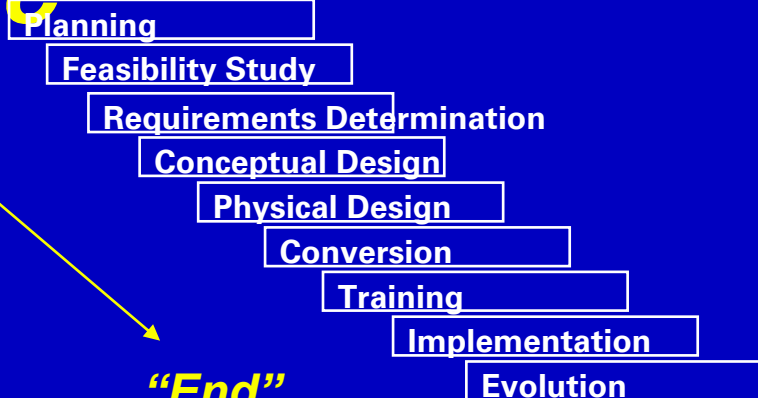
1. Planning for an information system
2. Feasibility Study (optional)
3. Requirements Determination (gathering)
4. Conceptual design
5. Physical design and/or purchase and/or prototyping
6. Conversion from current system to new/changed system
7. Training
8. Implementation

"End"

9. Evolution for enhancements and maintenance

Waterfall or Staircase SDLC

"Begin"

Planning

Feasibility Study

Requirements Determination

Conceptual Design

Physical Design

Conversion
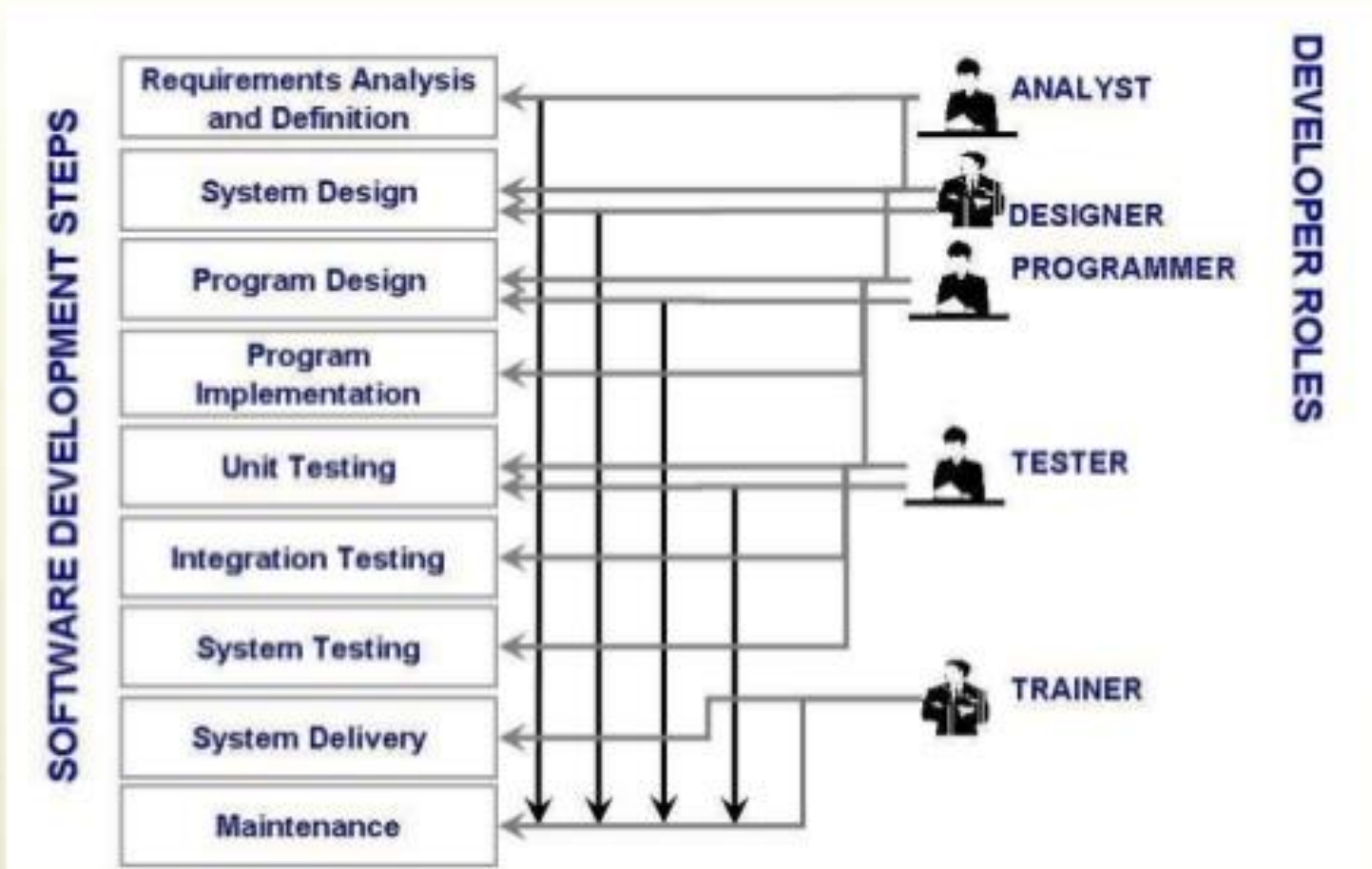
Training

Implementation

"End"

Evolution

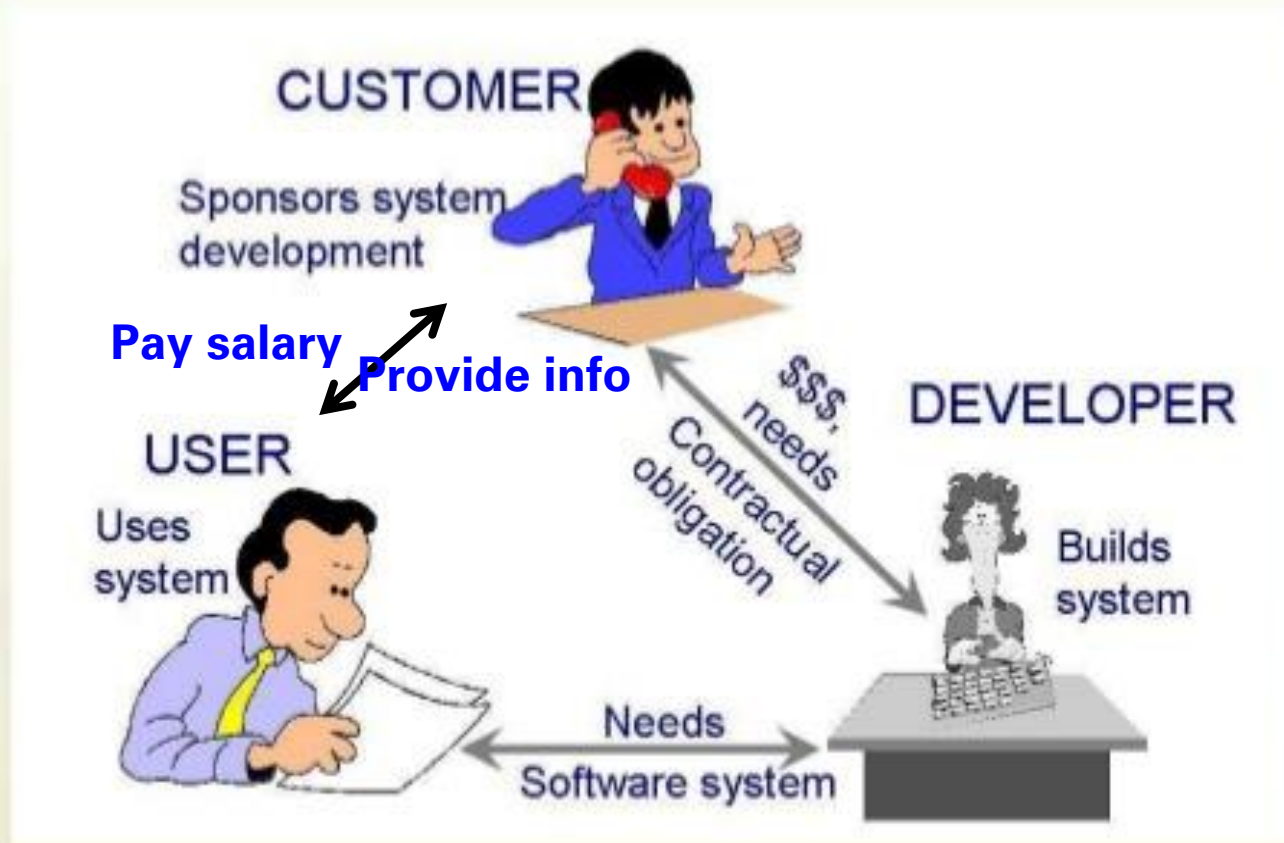# Members of the Development Team
(continued)

Typical roles played by the members of a development team

Who Does Software Engineering? (continued)

Participants (stakeholders) in a software development project

CUSTOMER
Sponsors system development

Pay salary
Provide info

USER
Uses system

DEVELOPER
Builds system

$$$, needs
Contractual obligation

Needs
Software system

Information Technology Unit

Director

Secretary

Head of Support

Head of Networking

Head of Development

Support 1

Support 2

Network Administrator

System Administrator

System Administrator

DBA

Senior System Analyst

System Developer 1

System Developer 2

Web Developer

Web Designer