INFO 307
MODELISATION DES SYSTEMES D'INFORMATION

OLLE OLLE

Département d'Informatique
Faculté des Sciences –Université de Yaoundé I

Notes Importantes

- **Description**

✓Recall on the fundamentals of IS

✓Typology and Specificities of Information System Engineering

✓Business Process Modeling and Notation (BPMN)

✓Object Oriented Modeling

✓Unified Modeling Language (UML)

✓System Design and Analysis

✓Case Study

Objectifs du Cours

A la fin des enseignements l'étudiant devra etre capable de:

- Classifier les différents types de SI
- Comparer les différents modèles de cycles de développement
- Expliquer le processus de développement de SI
- De dialoguer avec des équipes SI
- Appliquer les principes d'analyse et de conception de SI
- Distinguer les particularités des différentes approches de modélisation

Objectifs du cours (suite)

- Appliquer les méthodologies d'analyse et de développement des SI

- Utiliser des outils de modélisation dans un projet SI

- Évaluer les méthodologies d'analyse et de développement des SI

- Evaluer la pertinence des solutions

INTRODUCTION

Important definitions (in French)

- **Modèle:** est une représentation abstraite d'un phénomène en utilisant un formalisme spécial.

- **Méthode de modélisation:** c'est la façon de décrire comment modéliser et construire un modèle en utilisant des éléments de modélisation, une représentation graphique, du savoir-faire et des règles;

- **Cahier des charges:** c'est un document qui vise à définir les spécifications de base d'un produit ou d'un service à réaliser.

Module 1- RECALL ON DEFINITIONS AND FUNDAMENTALS OF INFORMATION SYSTEMS

What is an Information System?

An organized combination of people, hardware, software, communications networks, and data resources that collects data, transforms it, and disseminates information.

Example:

- Registration system
- Online order system
- Online banking system

Data Vs. Information

<u>Data</u>: Raw unorganized facts

<u>Information</u>:

   A collection of facts organized in such a way that they have additional value beyond the value of the facts themselves.

Data organized in a meaningful way for the user (in consideration of the environment)

Data → Information

Data → Transformation → Information

Information Concepts

<u>Process</u>:

A set of logically related tasks performed to achieve a defined outcome.

<u>Knowledge</u>:

An awareness and understanding of a set of information and ways that information can be made useful to support a specific task or reach a decision

The Value of Information

The value of Information is directly linked to how it helps decision makers achieve their organization's goals.

System

A **system** is a set of elements or components that interact to accomplish goals.
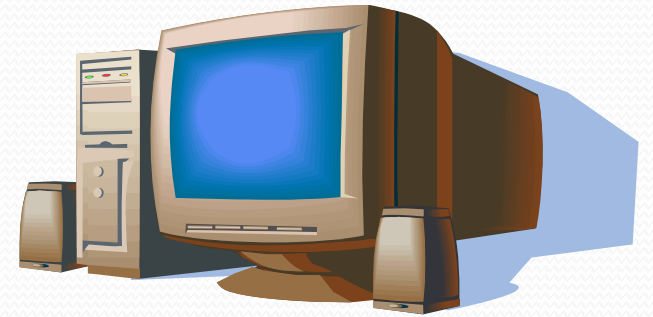
CBIS

Hardware:

Computer Equipment

Software:

Computer Programs

Databases:

An organized collections of facts

CBIS

Telecommunications:

Electronic transmission of signals   for communication

- **Networks**: Distant electronic communication
- **Internet**: Interconnected Networks
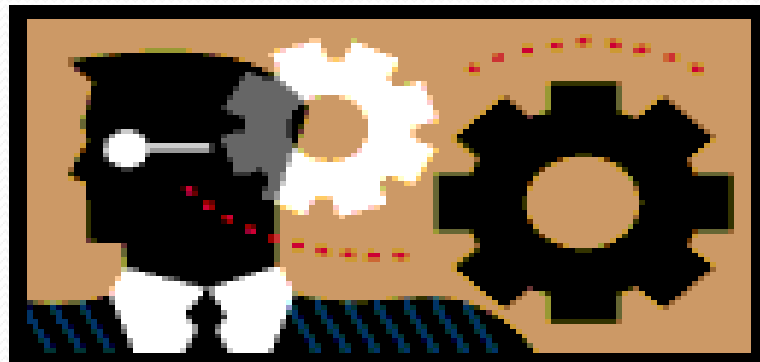- **Intranet**: Internal Corporate Network
- **Extranet**: Linked Intranets

CBIS

People

Procedures:

Strategies, policies, methods, and rules for using a CBIS.

II-Business Information Systems

Electronic and Mobile Commerce

<u>E-Commerce</u>:

Any business transaction executed electronically

<u>M-Commerce</u>:

Business transactions conducted anywhere, anytime, using mobile device

- Relies on wireless communications

TPS and ERP

- Transaction
  - business related exchange
  - Evidence of a business event
- Transaction Processing System (TPS)
  - A system which records completed business transactions
- Enterprise Resource Planning (ERP)
  - A set of integrated programs for managing the entire business operations

Business Information Systems

Management Information System:

   A system used to provide routine information to managers and decision makers

Decision Support System:

   A system used to support problem specific decision making

<u>Expert System</u>:

A system that gives a computer the ability to make suggestions and act like an expert in a particular field.

Knowledge Base: The collection of data, rules, procedures, and relationships that must be followed to achieve value or the proper outcome.

Specialized Business I.S.

Artificial Intelligence (AI):

A field in which the computer takes on the characteristics of human intelligence

Information System Activities

1. Input of Data Resources
2. Process Data into Information
3. Output of Information

Process Data into Information

- Calculate
- Compare
- Sort
- Classify
- Summarize

The quality of the data must be maintained by a continual process of correcting and updating activities

Input of Data Resources

- Data entry
- Editing
- Machine readable
- Source documents
  - Formal record of a transaction
- User interface
  - How users interact with information system
  - Optical scanning; menu; prompts; fill in blanks

Output of Information

- Transmit information to users
  - Display; paper; audio
- Storage of data
  - Data are retained in an organized manner
    - Fields; records; files; data bases
- Control of system performance
  - Feedback must be monitored and evaluated to determine if the information system is meeting established performance standards

Environment:

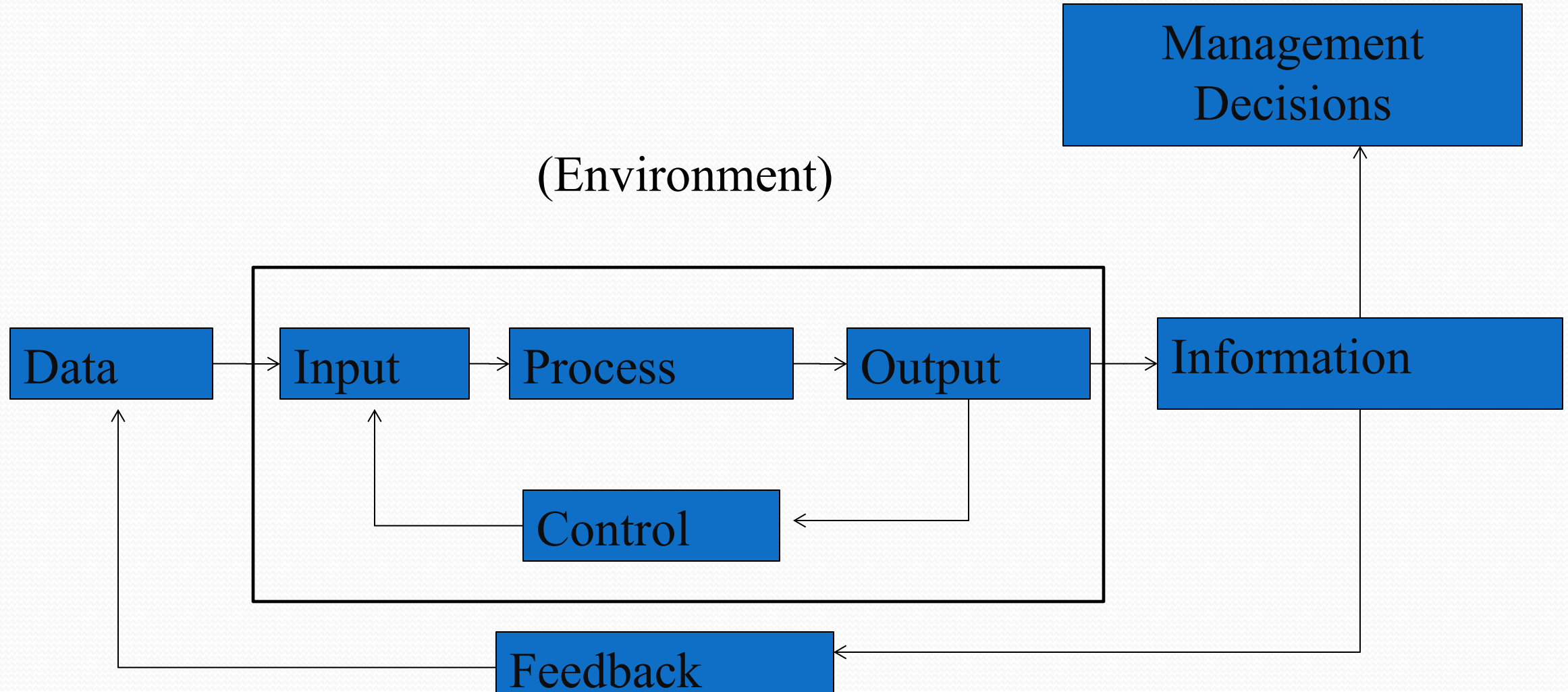- Business - other functional areas
- Computer – hardware, software, other IS

Sub System:

Component of a larger system

System Boundary:

Interaction with environment (user or other system) via an interface

General Information Systems Diagram

Systems Applications in the Organization
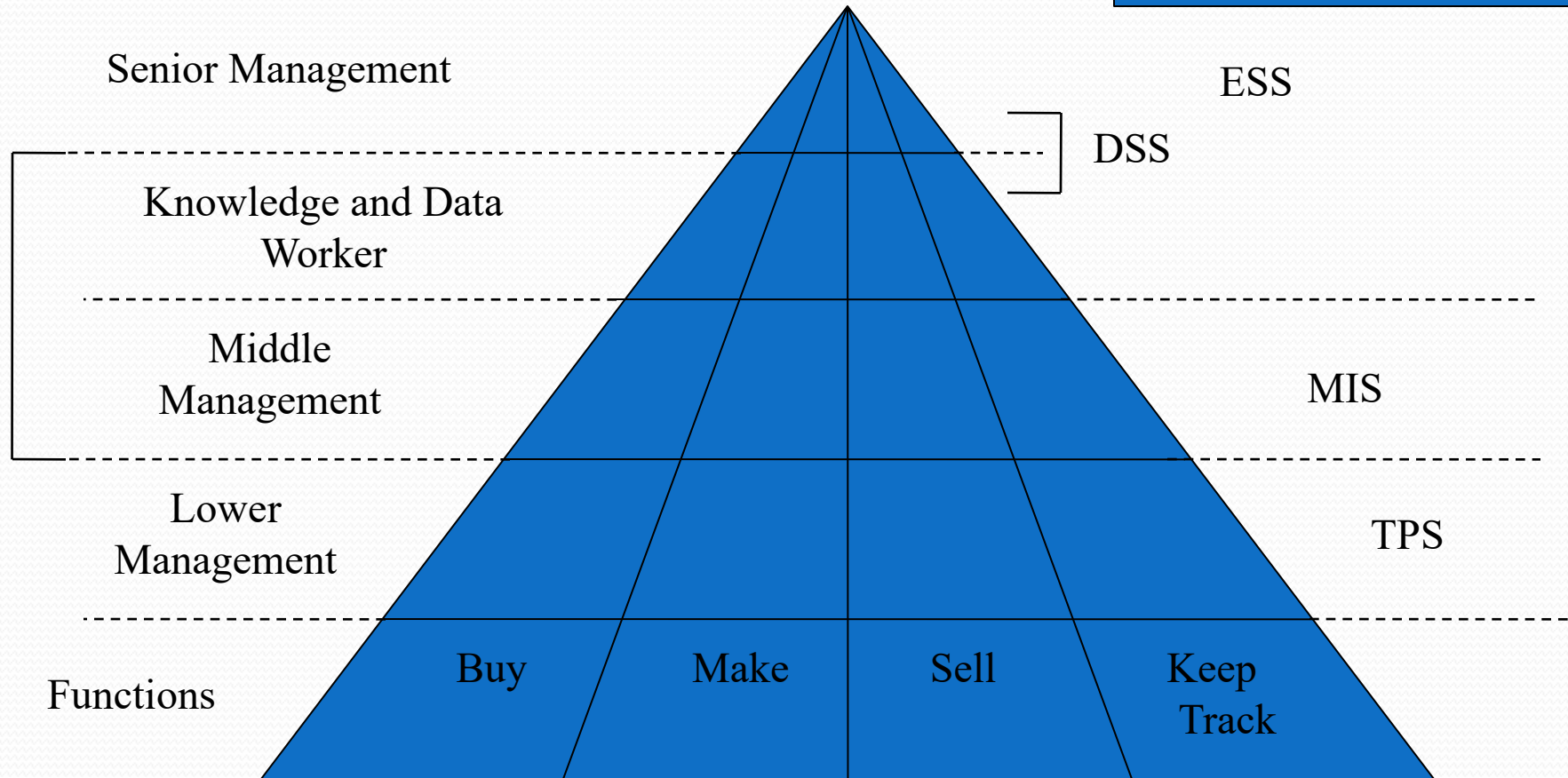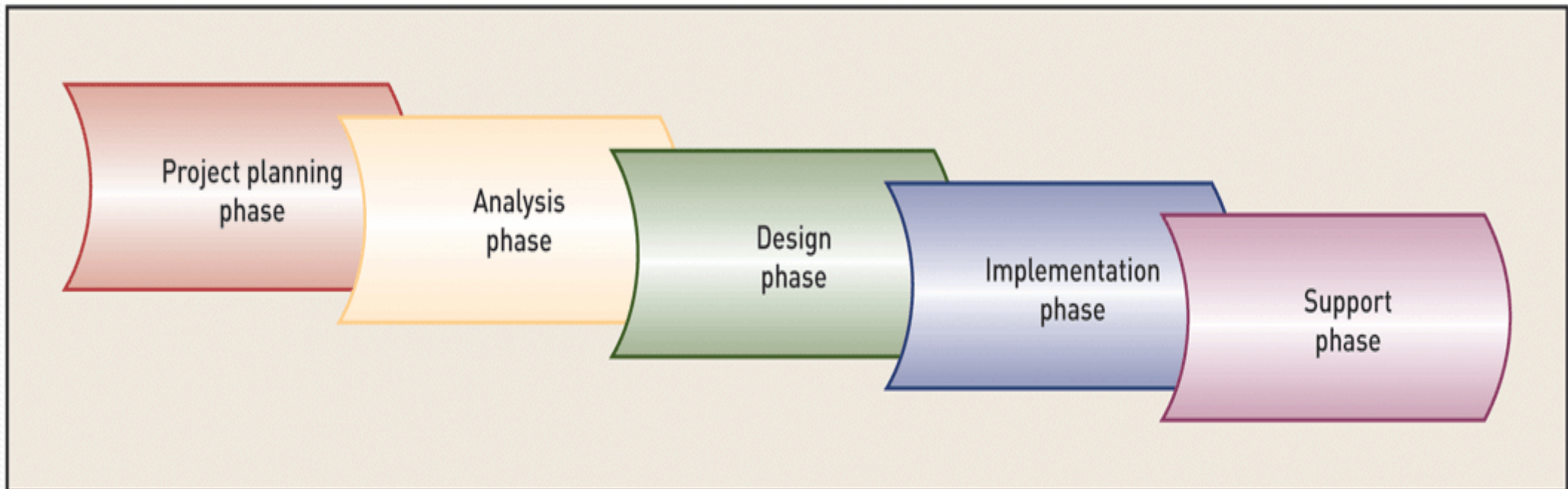
- Next…

Module 2- Systems Modeling and Development

Traditional System Development Life Cycle (SDLC)

Figure 2-2

Information system development phases

<u>System Modeling:</u>

The activity of representing a system in order to grasp its overall complexity for the design process.

<u>System Development:</u>

The activity of creating or modifying existing business information systems

Test Yoursel

1. In order to best support user's IT needs, IT professionals need to understand the company's business operations. What process might a system analyst use to accomplish this?

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   - Business process modeling is used to represent a company's operations and information needs

Test Yourself

2. What are the five key components of information systems?

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   Hardware

   Software

   Data

   Processes

   People

Test Yourself

3. How are business information systems identified?

Test Yourself

3. How are business information systems identified?

- Functions and features

Test Yourself

4. T/F: An enterprise computing system is highly specialized and targeted for a company's top executives.

Test Yourself

4. T/F: An enterprise computing system is highly specialized and targeted for a company's top executives.

    False. Enterprise computing systems support company-wide data management requirements

Test Yourself

5. **Top management is typically responsible for _____ planning, while middle management focuses on _____ planning.**

Test Yourself

5. **Top management is typically responsible for strategic planning, while middle management focuses on tactical planning.**

Test Yourself

6. CASE tools are:

   a) an object oriented methodology

   b) techniques or tools to help plan and design information systems

   c) team-based fact finding techniques

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Test Yourself

8. What are the phases of the systems development life cycle?

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- Systems planning
- Systems analysis
- Systems design
- Systems implementation
- Systems operation and support

Test Yourself

9. List at least three of the six functions of a typical IT department

Test Yourself

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    1. Application development
    2. Systems support
    3. User support
    4. Database administration
    5. Network administration
    6. Web support

Test Yourself

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False