Introduction to Systems Analysis and Design Concepts and Environment

[Chapter 1]

System Analysis and Design
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1.Physical or Abstract System

- – Physical system: tangible entities

- – static or dynamic in nature.

- – Example : system-computer centre

  - Desks and chairs are the static parts

  - Programs, data, and applications can change according to the user's needs.

- – Abstract systems are conceptual. These are not physical entities. They may be formulas, representation or model of a real system.

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2.Open Closed System- Majority of systems are open systems

- open system has many interfaces with its environment
- can also adapt to changing environmental conditions
- can receive inputs from, and delivers output to the outside of system

Closed systems: Systems that don't interact with their environment. Closed systems exist in concept only.

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3.Man made Information System

- Information system is the basis for <u>interaction between the user and the analyst.</u>

- **Main purpose**-manage data for a particular organization.

- Further Categorized as:

  - <u>Formal Information Systems:</u>

    - Responsible for flow of information from top management to lower management

    - But feedback can be given from lower authorities to top management.

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- <u>Informal Information Systems:</u>
  - Informal systems are employee based.
  - These are made to solve the day to day work related problems.

- <u>Computer-Based Information Systems:</u>
  - This class of systems depends on the use of computer for managing business applications

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1. Formal Information system
Management and information levels in an organization:

Fig 1.2
Relation of information systems to levels of organization

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2. Informal Information system

- "The system of relationships and lines of authority that develops spontaneously as employees meet; that is the human side of the organization.

Basic Characteristics:

– Involves two or more people

– Informal relationships, *groupings* & interactions

– Involves the human need to socialize

– Includes both friendly and hostile relationships and interactions

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3. **Computer based information systems**

a) Transaction Processing Systems or Data Processing Systems

- TPS processes business transaction of the organization.

- Transaction can be any activity of the organization.

- Transactions differ from organization to organization.

- For example, take a railway reservation system. Booking, canceling, etc are all transactions.

- Any query made to it is a transaction.

- Transaction processing systems provide speed and accuracy, and can be programmed to follow routines functions of the organization.

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3. **Computer based information systems**

b)Management Information Systems
- These systems assist lower management in problem solving and making decisions.
- They use the <u>results</u> of transaction processing and some other information also.
- An important element of MIS system is <u>database</u>.
- And the information is accessed through DBMS.

- But there are two drawbacks of database i.e. requirement of a specialized personnel and need to secure data from unauthorized access.

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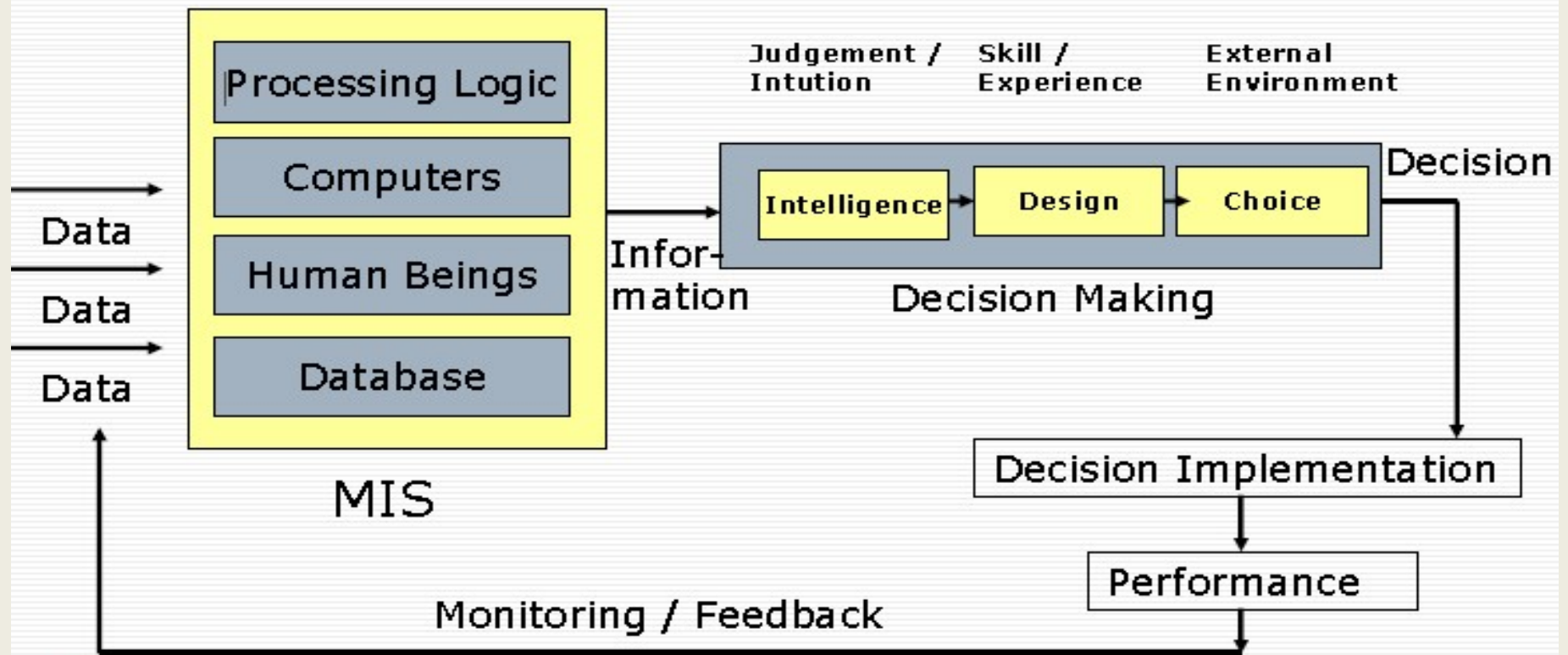Asst. Prof. of CSE, BUBT

The three sub-components:

- **System** emphasizing a fair degree of integration and a holistic view;

- **Information** stressing on processed data in the context in which it is used by end users;

- **Management** focusing on the ultimate use of such information systems for managerial decision making.

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The Concept of MIS

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c) Decision Support Systems

- These systems <u>assist higher management to make long term decisions.</u>

- These type of systems handle unstructured or semi structured decisions.

- A decision is considered <u>unstructured</u> if
  - there are no clear procedures for making the decision and
  - if not all the factors to be considered in the decision can be readily identified in advance.

- The user should be able to produce customized reports by giving particular data and format specific to particular situations.

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