



# Sessional Assignment

## Information System & Data Processing

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# Final Assignment

## Question 1:

**What are systems? Explain in detail. Take a daily life example of system (any organization or company) and explain its component one by one in detail.**

## Ans: System:

A system is a collection of elements or components that are organized for a common purpose. The word sometimes describes the organization or plan itself (and is similar in meaning to method, as in "I have my own little system") and sometimes describes the parts in the system (as in "computer system").

Components of a system are:

- **Input element:** Through input element the data is entered into the system. This data will be in raw form.
- **Processing system:** The input data is processed here for the desired result
- **Output element:** through this element we get our desired result which is produced by processing the raw data.
- **Control Mechanism:** if we input data to a system it is conformed that there will be some output after processing that data. But to check that if that output is correct and what we are expecting it is all according to that. This checking is done with the help of control mechanism.
- **Feedback system:** From this we get a report generated by the system after control mechanism do all work. After that this feedback system generate a report about all that.
- **Objectives:** We just mentioned that a control mechanism should compare actual output with expected/Ideal output. But before this is being done, there needs to be a list of specific objectives which define expected output.

## Types of System:

- **Open Loop System:**

The determinant factor is in an open loop system is that the information from the system not used for control purpose. This is done by using the output to generate feedback for control purposes.

- The output is not coupled to the input for measurement.
- Hence the components of open loop system do not include control and feedback mechanism due to non-existence of internally defined objectives. That is, input, process, output.

Example An information system that automatically generates report on regular basis and are not used to monitor input or activities.

- **Closed Loop System**

Is a system where part of the output is fed back to the system to initiate control to change either the activities of the system or input of the system Has the ability to control the output due to existence of.

### **Information System**

- Control Mechanism
- Feedback System
- Objectives

#### **Example**

Budgetary control system in a company by which

- The results are communicated through feedback system o Results are compared with the objectives/budget through controls mechanism

- **Open Systems**

A system that is connected to its environment by means of resource flows is called an open system. The environment exerts influence on the system and the system also influences the environment.

#### **Example**

- Business is a system where management decisions are influenced by or have an influence on suppliers, customers, society as a whole.
- Computerized system of a manufacturing entity, that takes influence from the society.

- **Closed Systems**

A system that is not connected with its environment. Neither environment exerts any influence on the system nor does system influence the environment.

#### **Examples**

- An information system designed to control data in a research laboratory is a closed system.
- An information system designed to record highly sensitive information is a closed system
- To accept no input for amendment  
To give no output for disclosure

### **Daily Life Example:**

**Library:** A library is a curated collection of sources of information and similar resources, selected by experts and made accessible to a defined community for reference or borrowing, often in a quiet environment conducive to study. It provides physical or digital access to material, and may be a physical location or a virtual space, or both. A library's collection can include books, periodicals, newspapers, manuscripts, films, maps, prints, documents, microform, CDs, cassettes, videotapes, DVDs, Blu-ray Discs, e-books, audiobooks, databases, table games, video games and other formats. Libraries range widely in size up to millions of item.

#### **Components of a Library:**

1. **Technical Services:** They make information sources discoverable through the catalog and databases.
2. **Reference Services:** They answer questions and help users find what they need to help users find the correct information.
3. **Outreach:** Not all libraries have this department and often this area is lumped into reference. This department spends its time creating programing and developing relationships with departments and/or the community to create programming that is

useful and beneficial to the users. Essentially, they are the ones that figure out what users want from their library and work to make those wants and needs happen.

4. **Circulation:** This department essentially tracks the information sources being lent and returned to users. They often return print items back to the shelves and keep track of the statistics of what resources library users are using the most. This helps determine what materials should be weeded out, what materials should be ordered, figures out if materials are missing or lost, along with many other responsibilities.
5. **Acquisitions:** This department typically is responsible for acquiring information sources. If a reference librarian wants a book ordered, the acquisitions department work to find the item at the lowest cost. Acquisitions is often working closely with the technical services department.



### **Question 2:**

**What is Management information system? Take an example of MIS of any organization and elaborate in your own words.**

**Ans:** A management information system (MIS) is a computer system consisting of hardware and software that serves as the backbone of an organization's operations. An MIS gathers data from multiple online systems, analyzes the information, and reports data to aid in management decision-making. The purpose of an MIS is improved decision-making, by providing up-to-date, accurate data on a variety of organizational assets, including:

- Financials
- Inventory
- Personnel
- Project timelines
- Manufacturing
- Real estate
- Marketing
- Raw materials
- R&D

The MIS collects the data, stores it, and makes it accessible to managers who want to analyze the data by running reports.

### **Why we need MIS in an organization:**

The following are some of the justifications for having an MIS system

- **Need of Information:** Decision makers need information to make effective decisions. Management Information Systems (MIS) make this possible.

- **Need of communication:** MIS systems facilitate communication within and outside the organization. Employees within the organization are able to easily access the required information for the day to day operations. Facilitates such as Short Message Service (SMS) & Email make it possible to communicate with customers and suppliers from within the MIS system that an organization is using.
- **Record keeping:** Management information systems record all business transactions of an organization and provide a reference point for the transactions.

### Components of MIS

The major components of a typical MIS long-form (Management Information System) are:

- **People** – people who use the information system
- **Data** – the data that the information system records
- **Business Procedures** – procedures put in place on how to record, store and analyze data
- **Hardware** – these include servers, workstations, networking equipment, printers, etc.
- **Software** – these are programs used to handle the data. These include programs such as spreadsheet programs, database software, etc.

### Management Information System of NADRA:

- In order to improve civil registration system, CRMS was introduced by NADRA at Union Council Level.
- Under this system event of Birth, Marriage, Divorce and Death are captured, which very vital in nature.
- The pilot projects were launched in 100 UCs of Lahore and till today more than 4,192 UCs are onboard.
- NADRA has provided software, certificate paper and also imparting training to UCs Secretaries.
- The project is up-and-running for last 3 years.
- Converting data into meaningful information for better and timely decision

480 computer touch screen kiosks have been installed all over Pakistan to facilitate the citizens providing them with following offerings

1. Utility bills payment
2. Cell phone scratch cards
3. CNIC verifications

It is probably the largest fully integrated database in the world that is having both an Automatic Finger

Identification System (AFIS) & a Facial Recognition System.

- National Data Warehouse
- Storage Capacity of 60 Terabytes
- Processing Speed of 18 Trillion Instructions/ Sec

- Multilingual Support of English/ Urdu/ Sindhi
- AFIS with a matching speed of 16 million/sec
- World largest Facial Library of 47 million images (ICAO)
- Network Infrastructure
- Highly redundant, scalable and mission critical
- Connected with more than 8000 computers
- Equipped Terrestrial, VSAT, and DVB RCS/2 WAN Links
- Electronic tickets are issued and data is written on the RFID chip directly using handheld.
- Points based ticketing system can be implemented using this technology.
- Payment of fines will be made through Kiosk.



**Question3:**

**Explain Marketing Information system and its types in detail.**

**Note: You should make your answer understandable by taking a proper example.**

**Ans: Marketing Information System:**

The **Marketing Information System** refers to the systematic collection, analysis, interpretation, storage and dissemination of the market information, from both the internal and external sources, to the marketers on a regular, continuous basis.

**Explanation:**

The marketing information system distributes the relevant information to the marketers who can make the efficient decisions related to the marketing operations viz. Pricing, packaging, new product development, distribution, media, promotion, etc. Every marketing operation works in unison with the conditions prevailing both inside and outside the organization, and, therefore, there are several sources ( viz. Internal, Marketing Intelligence, Marketing Research) through which the relevant information about the market can be obtained.

**Management Levels in MKIS**

MKIS should cater for information requirements at each level, for instance

Strategic Level

1. Formulation of new sales products, and identifying new sales opportunities.
2. Planning support for new products and services
3. Monitoring competitors

Knowledge Level

1. Market analysis based on demographics and customer behaviour

Management level

1. Sales performance analysis is required to monitor how to enhance sales and address related issues.

2. Sales staff analysis is important to see how much of the sales portion has been contributed by each of the employees.

Operational Level

1. Taking comments from customers for measuring satisfaction is a responsibility of the managerial level.

2. Tracking sales, processing orders and customer support

### **Types of Marketing Information System**

1. **Internal records :** The first component of MIS is 'Internal Record'. Marketing managers get lots of information from the internal-records of the company. These records provide current information about sales, costs, inventories, cash flows and account receivable and payable. Many companies maintain their computerized internal records. Inside records help marketing managers to gain faster access to reliable information.
2. **Marketing intelligence :**
  - a. The second component of MIS is 'Marketing Intelligence'. It collects information from external sources. It provides information about current marketing-environment and changing conditions in the market. This information can be easily gathered from external sources like; magazines, trade journals, commercial press, so on. This information cannot be collected from the Annual Reports of the Trade Association and Chambers of Commerce, Annual Report of Companies, etc. The salesmen's report also contains information about market trends.
  - b. The information which is collected from the external sources cannot be used directly. It must be first evaluated and arranged in a proper order. It can be then used by the marketing manager for taking decisions and making policies about marketing.
  - c. So, marketing intelligence is an important component of MIS.
3. **Marketing research:** The third important component of MIS is 'Marketing Research'. MR is conducted to solve specific marketing problems of the company. It collects data about the problem. This data is tabulated, analyzed and conclusions are drawn. Then the recommendations are given for solving the problem. Marketing research also provides information to the marketing managers. However, this information is specific information. It can be used only for a particular purpose. MIS and MR are not substitutes of each other. The scope of MIS is very wide. It includes 'MR'. However, the scope of MR is very narrow.
4. **Marketing decision support system :** The fourth component of MIS is 'Marketing Decision Support System'. These are the tools which help the marketing managers to analyze data and to take better marketing decisions. They include hardware, i.e. computer and software programs. Computer helps the marketing manager to analyze the marketing information. It also helps them to take better decisions. In fact, today marketing managers cannot work without computers. There are many software programs, which help the marketing manager to do market segmentation, price fixing, advertising budgets, etc.

**Example:**

Data-base marketing may be defined as a computerized technique that compiles, sorts, and stores relevant information about customers and potential customers; uses that information to highlight opportunities and prioritize market segments; and enables the firm to profitably tailor marketing efforts for specific customers or customer groups.

Data-base marketing works like this:

1. It creates a bank of information about individual customers.
2. It uses that information to analyze buying and inquiry patterns, thereby creating the ability to target goods and services more accurately.
3. It can be used to promote the benefits of brand loyalty to customers at risk from competition.
4. It can fuel sales growth by identifying customers most apt to buy new goods and services.
5. It can increase sales effectiveness.
6. It can support low-cost alternatives to traditional sales methods, which can be of strategic importance in markets where margins are being eroded.

Worldwide, millions of organizations now use some form of MIS. Progressive firms (and divisions within the same firm) are transmitting and sharing marketing information with each other-quickly and inexpensively. One-half of Fortune 1000 companies and one-half of large retailers are actively engaged in database marketing. These are among the firms with well-structured marketing information systems:

1. 3M, whose best-known products are Post-it Notes and Scotch tape, operate in more than 60 countries. It recently introduced a \$30 million online information system and all its senior executives get their information from the online database.
2. British-based retailer Marks & Spencer uses information generated from customer credit cards to better tailor its marketing efforts. It recently revamped its process for supplying products to stores after studying its customer database.
3. Louise's Trattoria, a 13-unit chain of Italian restaurants in Los Angeles, reviewed the information from computer-scanned customer receipts that were electronically stored in the firm's data warehouse. It learned that its customers were more interested in "California Italian" (as opposed to traditional Italian) foods, healthful menu items, and that its patronage was skewed more female. It then revised its strategy accordingly.





**Question 4:**

**Why Decision Making is an important factor to run an organization. Explain your answer with the help of a proper example.**

**Ans:** Decision making has a very big and crucial role in an organization there for, the organizations created a system for such decision taking purposes known as decision support system (DSS) where the system is used to support managerial decisions. Usually DSS involves the analysis of many units of data in a heuristic fashion. As a rule, DSS processing does not involve the update of data.

For any scenario all the related factors with their ranges of variability are entered into DSS, which helps guide managers for any new scenario that emerges. DSS can stimulate innovation in decision making by helping managers to existing decision-making procedures.

Example

An outfit store maintains readymade garments and stitched clothes for various classes of society. Due to fluctuating changes in fashion trends, pre-seasonal planning becomes critical.

- A Planning and forecasting software can be used by management to
- Measure customer reactions to re-pricing
- When to initiate clearance sales for old stock
- Deciding about discount percentages
- When to order new stock for the season

