MANAGEMENT INFORMATION SYSTEM (MIS) and E-COMMERCE

UNIT-I

NEED,PURPOSE AND OBJECTIVES OF MIS

What is MIS?

MIS is an organized integration of hardware and software technologies, data, processes, and human elements. It is a software system that focuses on the management of information technology to provide efficient and effective strategic decision making.

MIS Meaning

MIS Meaning: A management information system is an acronym of three words, viz., Management, information, system. In order to fully understand the term MIS, let us try to understand these three words.

1. **Management**: Management is the art of getting things done through and with the people in formally organised groups.

2. **Information**: Information is data that is processed and is presented in a form which assists decision-making. It may contain an element of surprise, reduce uncertainty or provoke a manager to initiate an action.

3. **System**: A system is an orderly grouping of interdependent components linked together according to a plan to achieve a specific goal. The term system is the most loosely held term in management literature because of its use in different contexts.

Need of Management Information System

An organisation must have a very clear version about requirements such as type of information required, type of data available , type of stakeholders etc, at different levels of Management. An Organisation established and MIS for the following reasons:

- Efficiently storing and managing data of all business functional areas.
- Fast and accurate delivery of information, as and when needed.
- Processing of gathered data and developing information from it.
- Information availability for production and inventory.
- Providing information about current economic status of company.
- Faster implementation of results available from reliable data sources.
- Smooth flow of data within various levels of organisation.
- Make availability of information required for planning organizing and monitoring business process.

Objectives of MIS

These MIS objective are discussed below in detail.

Data Capturing

MIS capture data from various internal and external sources of the organization. Data capturing may be manual or through computer terminals.

Processing of Data

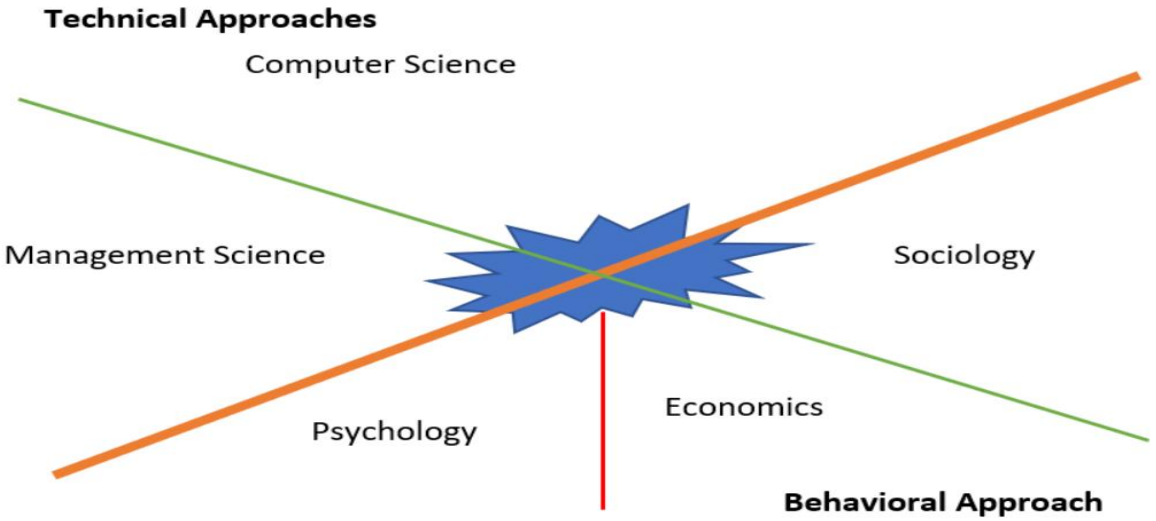
The captured data is processed to convert into the required information. Processing of data is done by such activities as calculating, sorting, classifying, and summarizing.

Storage of Information
MIS stores the processed or unprocessed data for future use. If any information is not immediately required, it is saved as an organization record, for later use.

Retrieval of Information
MIS retrieves information from its stores as and when required by various users.

Dissemination of Information
Information, which is a finished product of MIS, is disseminated to the users in the organization. It is periodic or online through a computer terminal.

Contemporary Approaches to MIS
When an information system is being developed, much importance should be given to the structure of the organization, culture of the organization, etc. But along with these, especial attention should also be given to the technical side of MIS. The
various contemporary approaches to MIS development can be summarized as:



The Socio Technical Approach
Information systems are socio-technical systems. Although they are Composed of machines, devices, and "hard" physical technology, they require substantial social, organizational, and intellectual investments to make them work properly. Since problems with information systems and their solutions are rarely all technical or
behavioral, a multidisciplinary approach is needed.
a) In the beginning, this approach was finding it hard to survive but now it is being accepted worldwide and is also being implemented at a very large scale.
b) Involves key involvement of both of the above explained approaches.
c) Improves the performance of the information system as a whole.

The Behavioral Approach
a) Based on the impact of the behavior and also on the response of the people in the

organization.
b) Motivational Feasibility forms a very important and demanding part of such an approach towards MIS development.

The Technical Approach

Computer science

- Theories of computabilityy
- Methods of computation
- Methods of efficient data storage and access

Management science

- Models for decision making
- Management practices

Operations research

- Mathematical techniques for optimizing selected parameters of organisations, such as transportation, inventory control, etc.

a) Based on the mathematical and the normative models.
b) Physical technology forms the back bone of such an approach.
c) Such an approach mainly finds much needed contributions from the disciplines like computer science, management science, operations research etc.

Porter Millar postulates

Porter and Millar were the ones, who explained the affect of the information technology on the competition. According to them information technology is affecting competition in the following ways:
a) Causes changes in the structure of the industry and as a result of this, rule of competitions is altered.
b) Spawning of the whole new business takes place, and in much of the cases - it is caused from within the company's existing operations.
c) Competitive advantage is created usually because of the new ways; the companies get to outperform their rivals

Business processes and Information Systems

A **process** is a series of tasks that are completed in order to accomplish a goal. A **business process**, therefore, is a process that is focused on achieving a goal for a business. Processes are something that businesses go through every day in order to accomplish their mission. The better the processes, the more effective the business. Some businesses see their processes as a strategy for achieving competitive advantage.
A process that achieves its goal in a unique way can set a company apart. A process that eliminates costs can allow a company to lower its prices (or retain more profit). If you have worked in a business setting, you have participated in a business process. Anything from making a sandwich to building a space shuttle utilizes one or more business processes. In the context of information systems, a business process is a set of business activities performed by human actors and/or the information system to accomplish a specific outcome.

Documenting a Process

Every day each of us will perform many processes without even thinking about them such as getting ready for work, using an ATM, texting a friend, etc. As processes grow more complex, documenting them becomes necessary. It is essential for businesses to do this because it allows them to ensure

control over how activities are undertaken in their organization. It also allows for standardization. For example, Tim Hortons has the same process for making coffee in all of its restaurants.

The simplest way to document a process is to just create a list. The list shows each step in the process. Each step can be checked off upon completion. A simple process such as how to create an account on Gmail might look like this:

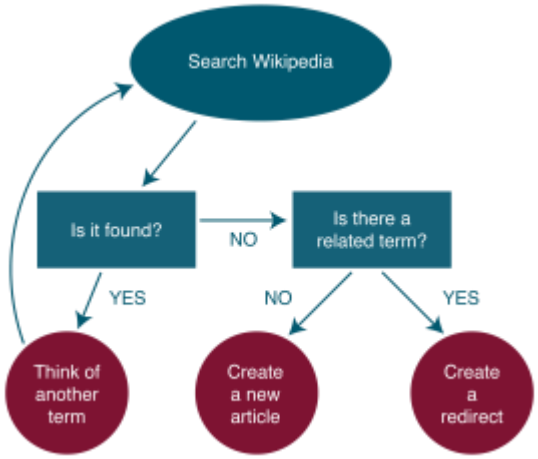
1. Go to gmail.com.
2. Click "Create account." For myself.
3. Enter your contact information in the "Create your Google Account" form.
4. Choose your username and password.
5. Agree to User Agreement and Privacy Policy by clicking on "Submit."

For processes that are not so straightforward, documenting all of the steps as a checklist may not be sufficient. For example, here is the process for determining if an article for a term needs to be added to Wikipedia:

1. Search Wikipedia to determine if the term already exists.
2. If the term is found, then an article is already written, so you must think of another term. Go to step 1.
3. If the term is not found, then look to see if there is a related term.
4. If there is a related term, then create a redirect.
5. If there is not a related term, then create a new article.

This procedure is relatively simple. In fact it has the same number of steps as the previous example, but because it has some decision points, it is more difficult to track as a simple list. In these cases it may make more sense to use a diagram to document the process.

Managing Business Process Documentation



Business Process Example adapted from D. Bourgeois CC-BY-NC

As organizations begin to document their processes, it becomes an administrative responsibility to keep track of them. As processes change and improve, it is important to know which processes are the most recent. It is also important to manage the process so that it can be easily updated. The requirement to manage process documentation has been one of the driving forces behind the creation of the document management system. A **document management system** stores and tracks documents and supports the following functions.

- **Versions and timestamps**. The document management system will keep multiple versions of documents. The most recent version of a document is easy to identify and will be considered the default.
- **Approvals and workflows.** When a process needs to be changed, the system will manage both access to the documents for editing and the routing of the document for approval.

- **Communication**. When a process changes, those who implement the process need to be made aware of the changes. The document management system will notify the appropriate people when a change to a document has been approved.
  Of course, document management systems are not only used for managing business process documentation. Many other types of documents are managed in these systems, such as legal documents or design documents.
  Tools for Documentation
  A **diagramming tool** for documentation of business processes is a formalized visual language that provides systems analysts with the ability to describe the business processes unambiguously, to visualize the business processes for systematic understanding, and to communicate the business process for business process management. Natural languages (e.g., English) are incapable of explaining complex business processes. Diagrams have been used as tools for business process modeling in the information systems field. There have been many types of business process diagramming tools, and each of them has its own style and syntax to serve its particular purpose. The most commonly used business process diagramming tools are Business Process Modeling Notation (BPMN), Data Flow Diagram (DFD), and the Unified Modeling Language (UML).

BPMN	is an extension of the traditional flowchart method by adding more diagramming elements for descriptions of business processes. The objective of BPMN is to support business process documentation by providing intuitive notations for business rules. The flowchart style diagrams in BPMN can provide detailed specifications of business processes from start to end. However, BPMN is short of the ability of system decomposition for large information systems.
DFD	has served as a foundation of many other tools of documentation of business processes. The central concept of DFD is a top-down approach to understanding a system. The top-down approach is consistent with the system concept that views a system in a holistic manner and concerns an understanding of a system by examining the components and their interactions within the system. More importantly, while describing a business process by using DFD, the data stored is used in the process and generates data flows in the process are also defined. See an example of a DFD illustrating the integration of data and business tasks in documenting a business process below.
The Unified Modeling Language (UML)	is a general-purpose modeling tool in the field of software engineering for constructing all types of computerized systems. UML includes a set of various types of diagrams with different subjects of modeling and diversified graphics styles. The diversified diagrams in UML can provide detailed specifications for software engineering in many perspectives for construction of information systems, but could be too complicated for documenting business processes from the perspective of business process management.

Information systems function in Business

1. Store and Analyse Information

Most information systems function as delivery vehicles for data stored in databases. Databases support the operations and management aspects of a business. With a database, the collected data is

stored and organised. Examples of databases include employee records and product catalogues. When it comes to analysing collections of stored data, data warehouses are built by information systems from a number of data sources to analyse the data. These archival data are mined for relevant information to develop and launch new products, reach out to potential customers as well as to serve the existing customers with accuracy and efficiency.

2. Simplify Business Processes

The integration of information systems in a business enables easier management of certain business processes so as to save on time and labour. For instance, buyers can have a seamless shopping experience at an online retailer as they can select a particular product display based on best-selling items, price range and customer ratings. With the help of information systems, these products are neatly organised which enhances the shopping experience. Besides that, business managers can utilise information systems for inventory management. That way, they can determine the inventory needed, reorder with their suppliers in addition to track and receive shipments in a timely and systematic manner.

3. Facilitate Decision-Making

In terms of decision-making, information systems such as group decision support systems (GDSS), video conferencing and Internet-based networks assist in connecting business owners and stakeholders regardless of location. As a sub-category of information systems, management information systems (MIS) also aid in the decision-making process by providing relevant, accurate and complete information. Basically, MIS is created to present an overview of the situation or to highlight a missing piece of information. MIS features such as self-checking and cross-checking can reduce errors. Enterprises that use management information systems ensure that all decision-makers can work from the same set of data together and make their decisions based on identical information. For business owners who want to track performance to see if it is aligned with present business goals, it is good to explore all the features of management information systems to know where the business stands among competitors in the same marketplace.

4. Access to Full Data Control

Companies can easily access a pool of data collected and control with full autonomy for business purposes. As information systems store a large amount of private data and facilitate thousands of business transactions on these data every day, a business must have a robust security system that secures the information systems against external threats. If not careful, company and customer data will be misused by unauthorised third-parties. Hence, companies and organisations should consider hiring graduates of information system course programmes, especially those who possess a masters in information systems or other postgraduate levels.

Use of Information systems for competitive advantage

- Information systems can be utilized to achieve competitive advantage. In recent times, funds have been allocated to IT in order to increase efficiency. Information systems aid companies in competing with other competitors by maintaining low costs, differentiating products or services, focusing on market niche, strengthening ties with customers and suppliers, and increasing market entry high competition.

- These competitions are on a global scale and are not just within the industry. There are also strategies in competing in the global business such as the DOMESTIC EXPORTER strategy and the MULTINATIONAL strategy. These strategies integrate product quality and design in order to differentiate from other products. This allow firms to create profit by attracting customers.

Technology is not enough to be competitive and organizations need to be redesigned by a process called BUSINESS PROCESS RE-ENGINEERING.

- Using Information Systems to achieve competitive advantage can be described by Porter's competitive forces model. This model "provides a general view of the firm, its competitors, and the firm's environment". In this model five competitive forces decide about the firm's future. Traditional Competitors are companies which produce similar products and services within the market. Firms compete to attract consumers and make sure that they have the strategy and resources to keep their customers satisfied.

- New Market Entrants are companies that are entering the business industry. However, every firm have a different way of entering the market. The way a computer firm enters a market is different from how a pizza business introduces itself into a market. They can have high or low barriers of entry depending on how high are the capital costs. In just about every industry there will be Substitute Products that can be bought. Firms make sure that they can make quality products with minimum cost of resources. A company also has to put great emphasis on their relationship with suppliers and customers because this is what their business revolves around. A firm makes sure that they have different choices of suppliers so as to regulate and receive raw materials on time in order to meet customers needs. This is also a strategy which is used to attract and keep customers.

- Businesses attains it's competitive advantage with the great help of informations systems. The competitive forces, which assist in competitive advantage, include traditional competitors, new market entrant, subsitute products, customers, and suppliers. Also, the methods that businesses utilize in order to fight against these competitive forces are vital and important. The internet also influences competitive advantage greatly. With this help and the help of informations systems, businesses compete on a global scale, with different business models. Furthermore, a business can compete on quality, design and business process.

- Having information systems in today's society helps businesses stay more connected with the world, and most importantly its customers. Information systems help connect businesses with its customers by relaying information quickly back and forth. This fast transmission, for example, helps suppliers know more rapidly what to supply and the demand for their supply. Knowing the demand for the supply not only creates efficiency in the business, but also make customers happy. This efficiency created by information systems helps suppliers with its overall success by having high revenues.

- This model explains how the competitiveness of a firm is affected by new market entrants, substitute products and services, customers, and suppliers. The value chain model helps firms decide what information systems adds are of value to the firm. These decisions are applied to two activities called primary activities and support activities. A value web is another model that is made up of information systems to help a firm become more efficient with business partners. In addition, this chapter explains how a business gains an advantage by using information systems to smoothly run synergies, network-based strategies, and core competences. It mentions how the introduction of the internet helped companies improve quality and compete on a global scale. In this chapter, the reader understands why a firm may use BPR (business process re-engineering) to make processes more efficient.

MIS as an instrument for the organizational change

- MIS can deliver facts, data and trends to businesses with lightning speed. Having this information allows companies to react quickly to market changes, regardless of the type (positive or negative) of volatility
- MIS acts' as an agent or a catalyst to bring about organisational change that is needed to cope up with the changing business environment and the effect of external forces. MIS has shifted from back office to front office. Information
  system professionals are conversant with constant change and rapid rate of technological obsolescence, offers a "Cockpit view" to managers.
- The role of the MIS in an organization can be Compared to the role of heart in the body. The information is the blood and MIS is the heart. In the body, the heart plays the role of supplying pure blood to all the elements of the body including the brain.
- The heart works faster and supplies more blood when needed. It regulates and controls the incoming impure blood, processes it and sends it to the destination in the quantity needed. It fulfills the needs of blood supply to human body in normal course and also in crisis.
- The MIS plays exactly the same role in the organization. The system ensures that an appropriate data is collected from the various sources, processed, and sent further to all the needy destinations. The system is expected to fulfill the information needs of an individual, a group of individuals, the management functionaries: the managers and the top management.
- The MIS satisfies the diverse needs through a variety of systems such as Query Systems, Analysis Systems, Modelling Systems and Decision Support Systems. The MIS helps in Strategic Planning, Management Control, Operational Control and Transaction Processing.
- The MIS helps the clerical personnel in the transaction processing and answers their queries on the data pertaining to the transaction, the status of a particular record and references on a variety of documents. The MIS helps the junior management personnel by providing the operational data for planning, scheduling and Controlling and helps them further in decision making at the operations level to correct an out of control situation. The MIS helps the middle managenment in short-term planning, target setting and controlling the business functions. It is supported by the use of the management tools of planning and control. The MIS helps the top management in goal setting, strategic planning and evolving the
  business plans and their implementation.
- The MIS plays the role of information generation, communication, problem identification and helps in the process of decision making. The MIS, therefore, plays a vital role in the management, administration and operations of an
  organization.

External Change

1. MIS has made world smaller
2.Worldwide reorganization environment and attempt to control the calamity.
3. Health conscious among the group leading less sufferings
3.Change in the work lifestyle for better result
4. Creating Knowledge is an asset

Internal Change

1. MIS will change the Business Process
2. MIS will change the old standards and set new standards
3. MIS key for Continuous improvement Process
4. MIS will reduce the hierarchy and hence less operation cost.

5. MIS focus on "Shared information".
6. MIS will accelerate restructure work flow for both line and staff functions.

Types of Business Information System

1. Knowledge Work System

There are different knowledge management systems that an organization implements to ensure a continuous flow of new and updated knowledge into the company and its processes. A knowledge work system (KWS) is one of the knowledge management systems that ease the integration of new information or knowledge into the business process.

Furthermore, KWS also offers support and resources to various knowledge creation techniques, artificial intelligence applications, and group collaboration systems for knowledge sharing, among others. It also uses graphics, visuals, etc., to disseminate new information. Below are some of the applications that work on the core fundamentals of KWS.

- Designers often use computer-aided design systems (CAD) to automate their design process.
- Financial workstations are used to analyze huge amounts of financial data with the help of new technologies.
- Virtual reality systems are found in the scientific, education, and business fields for using graphics and different systems to present data.

2. Management Information System

The management information system provides aid to managers by automating different processes that were initially done manually. Business activities like business performance tracking and analysis, making business decisions, making a business plan, and defining workflow. It also provides feedback to the managers by analyzing the roles and responsibilities.

A management information system is considered a significant application that helps managers immensely. Here are some of the advantages of the information system:

- It enhances the efficiency and productivity of the company
- It provides a clear picture of the organization’s performance
- It adds value to the existing products, introduces innovation and improves product development
- It assists in communication and planning for business processes
- It helps the organization provide a competitive advantage

3. Decision Support System

A decision support system is an information system that analyses business data and other information related to the enterprise to offer automation in decision-making or problem-solving. A manager uses it in times of adversities arising during the operation of the business. Generally, the decision support system is used to collect information regarding revenue, sales figures or inventory. It is used across different industries, and the decision support system is a popular information system.

4. Office Automation System

An office automation system is an information system that automates different administrative processes like documenting, recording data, and office transactions, among others. The office automation system is divided into managerial and clerical activities. Here are some of the business activities that are done under this type of information system:

- Email
- Voice mail
- Word processing

5. Transaction Processing System

The transaction processing system automates the transaction collection, modification, and retrieval

process. The peculiar characteristic of this type of information system is that it increases the performance, reliability and consistency of business transactions. It helps businesses perform daily operations smoothly without hassle.

Once you are well-versed with different types of information systems, understanding the application of these systems becomes easy to comprehend. Therefore, in the last part of the article, we will look into applying information systems.

6. Executive Support System

An Executive Support System or ESS helps top-level executives to plan and control workflow and make business decisions. It is very similar to Management Information System or MIS.

Here are some of the unique characteristics of ESS:

- It provides great telecommunication, better computing capabilities, and effective display options to executives.
- It enables them with information through static reports, graphs, and textual information on demand.
- It helps monitor performances, track competitors' strategies, and forecast future trends, among others.