

CHAPTER 5 MANAGEMENT INFORMATION SYSTEM

Introduction

- MIS is categorized as the use of computing and communications technology
- All organization have some sort of system, either simple or sophisticated for getting the information they need to make decisions
- An MIS can collect, analyze, organize information from both internal and external sources so that managers can use it to make decisions
- A good MIS gives managers information on past and present activities and make some projections about future activities
- Helps managers perform four functions of the Management- Planning, Organizing, Directing and Controlling
- MIS consists of three separate concepts, Management, Information and Systems
- Management
 - Management consists of the activities carried out by the managers
 - Carries out basic functions like Planning, Organizing, Directing and Controlling
 - Helps in accomplishing organizational goals
- Information
 - Central concept of an MIS
 - Consists of classified and interpreted data that are being used for decision making
 - Information is output obtained by processing data as input
- Systems
 - A set of element forming an activity or seeking a common goal by operating data in a timely reference to generate information
 - MIS is a group of people, a set of manuals, data processing equipments which select, store, process and retrieve data to reduce the uncertainty in decision making

Evolution of MIS

- Information system can be recorded as old as human history, moved fast towards the growth track in last few centuries
- As early as 1938, before the computer era, Chester Bernard indicated in his book *The Functions of the Executives*, that the rapidly increasing proliferation of data would require more emphasis on the quality of decision making
- With revolution in industrial world, business started growing and with that the complexity increased as well
- Accounting system, development of computing technology, organization size, have lead to the fast growth in information system
- MIS is the system of generating useful information by using data
- The evolution of MIS can be attributed to following factors
 - Growth of Management theory and techniques
 - Change in the production and distribution method and changes in Organizational structure
 - Development of Management science
 - Introduction of computer into business data processing and the developments in information technologies

Data and Information

- Data refers to unanalyzed facts about an organization operations
- Data becomes information only when used for some sort of analysis
- Information is anything that is relevant and useful for practicing managers
- An effective MIS helps, managers convert and process data into relevant information that helps them in decision making

Need for MIS/ Importance of MIS

- MIS is important in an Organization because in most cases, managers directly do not engage in the primary production phases or secondary support activities
- They do not actually assemble; take order or deals with customers and their needs. Instead they deal with the information shadow or sometimes called as data shadow

- Managers rely on information in their decision making, information that has been processed from data provided to them
- Production managers need information related with production costs, labor costs, backlog or there is a need of expansion of plant due to the increase in demands
- Marketing managers need information on sales trends, market analysis, new product development
- Personnel Managers need information on workforce turnover, skills and knowledge level, wage levels, incentives, or if there is a need in increasing labor force

Functions of MIS

- Data Processing
 - The collection, transmission, storage, processing and output of data
- Function of Prediction
 - Helps predict the future situation by applying modern mathematics, statistics
- Function of Plan
 - MIS arranges reasonably the plans of each functional department
 - The preparation of the plan in making decisions relative to those steps that must be taken to meet the objective and goals of the organization
- Function of Control
 - Control function contains two types of decisions, deciding whether a problem requiring an action exists and deciding what that action should be
- Function of Assistance
 - Provide way to assist managers in the decision making process
 - MIS is a technique that provides managers with timely, accurate and useful information to assist in the decision making

Organizational Structure and MIS / Hierarchy of Information needs

- Managers at different level in the organization needs different kinds of information, and they usually need it at different time intervals
- **Operational Management (Lower Level Management)**

- Deals with the actual production of services and goods
- They use MIS to determine what raw materials they need, to develop work schedules, and to make sure the materials and people are at right place at right time
- Because these activities are very detailed, operational management may need information on an hourly or daily basis
- The information most useful at this level centers on whether goods and services have been produced on schedule and whether it reaches the expectations of customers
- **Tactical Management (Middle Level Management)**
 - Middle managers put into operation the overall plan and strategies that top level management has developed
 - They use MIS to setup control procedures and to allocate resources towards organization objective
 - Need information on weekly or monthly basis
 - Most useful to indicate whether operational systems put into places can reach top manager's overall objectives
 - At tactical level of management, information concerns schedules, revenue measurements, profits, costs and other economical factors
- **Strategic Management (Upper/Top Level Management)**
 - Top level managers uses the MIS to set overall corporate policies and strategy to ensure organizational growth and survival
 - Information generally needed on a quarterly or yearly basis
 - Most useful information at strategic level deals with confirmation whether the goals and objectives of the organization are accomplished, the organization is profitable

Operational Management

Computer and MIS

- MIS today is a computer based system
- Computer provide accurate timely and relevant useful information to managers
- Computer converts raw data into meaningful information as required format quickly
- Before the advent of computers, MIS suffered from several problems:
 - Information arrived too late to be of much value for decision making
 - Information was not as complete as needed
 - Information cost more than it's worth
 - Information lacked a clear focus
 - Information was not relevant to particular decision
- Computer is a major factor in helping managers to obtain meaningful information or reliable data for appropriate decision. To understand these, there are two systems
- **Quick response systems** emphasize the timeliness of the information or reliable data for appropriate decision
 - Online Processing: Manager interact directly with computer or central processing unit
 - Real time Processing: Information system work simultaneously with an ongoing organizational activities
 - Time Sharing: Many information handled at short time

- **Broader system** emphasizes the integration of company's data and it can be used for complex problem solving or coordinate different section/department like marketing, manufacturing, finance, personnel etc

Database information system

- **Database**
 - Database is a collection of data and use it for different purpose
 - Collection of data organized to serve many applications effectively at the same time by storing and managing data so that they appear to be in one location
 - Personal database contains data collection processed and managed by an individual
 - Corporate database is a large complex structure and important for managers who want to use this data
- **Database Management System** is special software to create and maintain a database and enable individual business application to extract the data they need without having to create separate files or data definition in their computer programs
- **Database is a set of following components**
 - Description of data(data dictionary)
 - Set of relation and link parts of database (database architecture)
 - Set of objective or events that can be described by data
 - Set of rules determining how objects described by database can be manipulated

Networking Information System

- Different components of the telecommunications network can be communicate with each other
- Data are transmitted throughout a telecommunication network
- In order to play in the interconnect world, companies must integrate and develop the IS architecture
- Integrated data store

Classification of Information Systems

Information system for Planning Process

- Planning is concern with the future consequences of actions that are undertaken today
- Planning is
 - Where are we?
 - Where do we want to go?
 - How do we get there?
 - When will it be done?
 - Who will do it?
 - How much will it cost?
- Planning is long term perspective
- Forecasting future programme
- Fully utilizing resources
- Information system support to planner for long range influencing plan
- MIS should help managers to accurately forecast demand for timely production of their product

Information system for Decision Process

- MIS is a technique that provide managers with useful information to assist in the decision making process
- Decision making is choosing best alternative
- More information help to choose best alternate
- Strategic Level: decision are characterized
 - Future oriented
 - Long range plan
- Tactic Level: decision making relates to
 - Short term activities
 - Such as formulation of budget, funds flow analysis, personnel problem, product improvement
- Operational Level: decision making standards are fixed and the results of decision are deterministic
 - Specific commands to control specific operations like scheduling receiving
 - Acceptance or rejection of credits, process control, inventory control, allocating workers