
UNIT 5: MIS AND CONTROL SYSTEMS

Structure

- 5.1 Management Information Systems – An Introduction
- 5.2 Objectives
- 5.3 System View and Status of MIS in Organizations
- 5.4 Framework for Understanding MIS and its Role at Various Management Levels
- 5.5 Organization and Information System-Two way relationship
- 5.6 MIS as Decision Assisting Tool
- 5.7 System Vulnerability, Abuse, and Auditing
- 5.8 Summary
- 5.9 Unit End Exercises
- 5.10 References and Suggested Further Readings

5.1 MANAGEMENT INFORMATION SYSTEM – AN INTRODUCTION

The subject of Management Information System (MIS) has different meaning for different people. MIS, initially, were built to process transactional data of an organization and to produce regular reports. With little more advancement the system generated a report in a suitable format that created an impact on its user and provoked an action, a decision or an investigation. Today, an information system has evolved to the stage where they handle databases and secondary data available on the web to facilitate decision-making. Accordingly, definition of MIS has also evolved. There are many closely related definitions in use. The terms MIS is synonymously used with terms the Information System (IS), the Information and Decision System and the Computer based Information System.

The MIS is defined as an integrated system of man and machine for providing the information to support the operations, the management, and the decision-making function in the organization.

The above definition emphasizes an association between MIS and decision-making. An application software that processes data, which is not used for decision-making, cannot be called an MIS. For instance, a computer-aided design system is not an MIS.

An MIS deals with information that is systematically and routinely collected in accordance with a well-defined set of rules. In other words, data collection is a planned activity for which resources are allocated and rules are defined.

The information provided by an MIS assists managers in planning, organizing, staffing, coordinating, directing and controlling the operations of an organization. The management experts have viewed these steps as

Management Control system. Figure 5.1 shows the relationship between operations, planning and control.

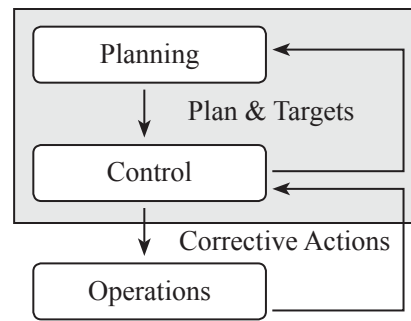


Figure 5.1: Management Control System

In any organization that has planned activities leading to the achievement of the stated goals, there is always a control process in place that measures progress towards these goals and enables the manager to deduct the deviations from the original plan in time. It is the responsibility of the management to take corrective actions before it is too late. The deviations may be due to environmental changes or due to the mistakes made by people. An MIS is concerned with planning and control. An MIS has large amount of data as its integral part that is stored and managed by a data base management system.

The exponential growth of information all around makes it necessary that information is probably collected, stored and retrieved in various fields so that it could be usefully exploited whether and when needed. The concern is “What information does the manager need to manage effectively”? We are interested in a system for providing the necessary management information. MIS is a system that aids management in making, and implementing decision. An MIS must have the following features:

1. It must be capable of handling voluminous data. The data as well as transactions must be validated.
2. It must be able to perform operations on the data irrespective of the complexity of the operations. Often time multi-dimensional analysis is required.
3. An MIS should facilitate quick search and retrieval of information. An MIS must support mass storage of data and information.
4. The information must be communicated to the recipient in time. Moreover, the communicated information must be relevant.
5. The information system must always have internet link to dig out related information and data from the web for better analysis helping the management in taking decision.

5.2 OBJECTIVES

After reading this unit, you should be able to:

- Identify the main features of a Management Information System (MIS);

- Explain the Anthony and Simon framework for understanding the MIS and decision-making process;
- Explain the basic overview of the systems concept;
- Describe the management functions at various levels in the context of relationships between management and informational needs;
- Use MIS as a technique for making programmed decision;
- Explain the vulnerability of an information system; and
- Discuss the control and audit structure required for an information system.

5.3 SYSTEM VIEW AND STATUS OF MIS IN ORGANIZATIONS

Today besides professional managers, all administrators, politicians, academicians have become aware of the need for adopting an integrated holistic perspective by using the systems approach to problem-conceptualization and decision-implementation. Today we find everyone talking of systems - the transport system, educational system, healthcare delivery system, defence system, economic system, communication system, management information system, transaction processing system, decision support system, computer systems, etc. But what exactly do we mean by a system? Let us elaborate to know about.

What is a system?

It is an entity; conceptual or physical, which consists of interdependent parts or components. It is this interdependency which is characteristic of the parts of the system. A system is a complex of elements or components directly or indirectly related in a casual network. This brings in the notion of some type of feedback and control to see whether or not the system is a position to achieve the goals/purpose/objectives of the system. Any system must have an objective or a set of objectives or a hierarchical set of objectives. In a large context, a system is an assembly of procedures, processes, methods, routines techniques etc. united by some form of regulated interaction to form an organized whole. In fact no system, unless it be a totally closed system, can exist in isolation.

A system is made up of sub-systems, which may be composed of further sub-systems. We could carry on this refinement till we arrive at the so-called 'black box' level, which is some perceptible manageable level. Just as system is made up of sub or sub-sub-system, it itself is part of a super or supra system. This could be termed as the environment in which the system operates.

We can graphically depict the above narrative description in the form of Figure 5.2 below. Let us give an illustration in the context of Figure 5.2. One could think of an industrial system or a factory system. A factory system has various sub-systems like the production sub-system, the shipping sub-system, the financial sub-system, the marketing sub-system and the

personnel sub-system. Now a production sub-system could consist of sub-sub-systems of production control, materials control, quality control etc. the materials sub-sub-system can be further broken down into ‘black boxes’ say purchasing, stores, transportation etc. In turn, the factory system is part of the larger economic system of the country which would be the so-called superior or supra system.

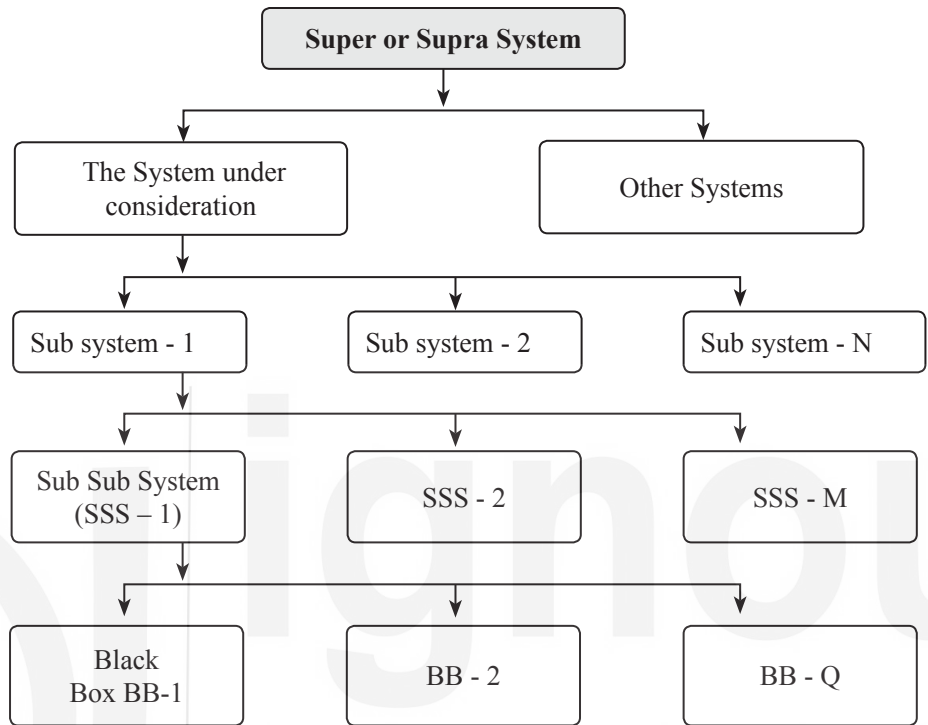


Figure 5.2: Hierarchy of Systems

Activity A

Think of at least three examples in the context of the Figure 5.2

.....

.....

.....

.....

.....

Let us have another example in the context of Figure 5.3 below. Data could be a set of input into a data processing, which would process/transform/convert the data into output or information. One could think of raw material entering as input into production system, which is converted/transformed or processed into an output i.e. some final product.

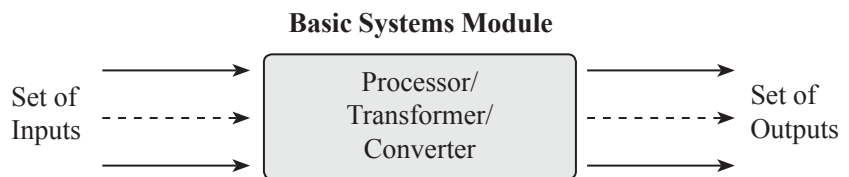


Figure 5.3 (a)

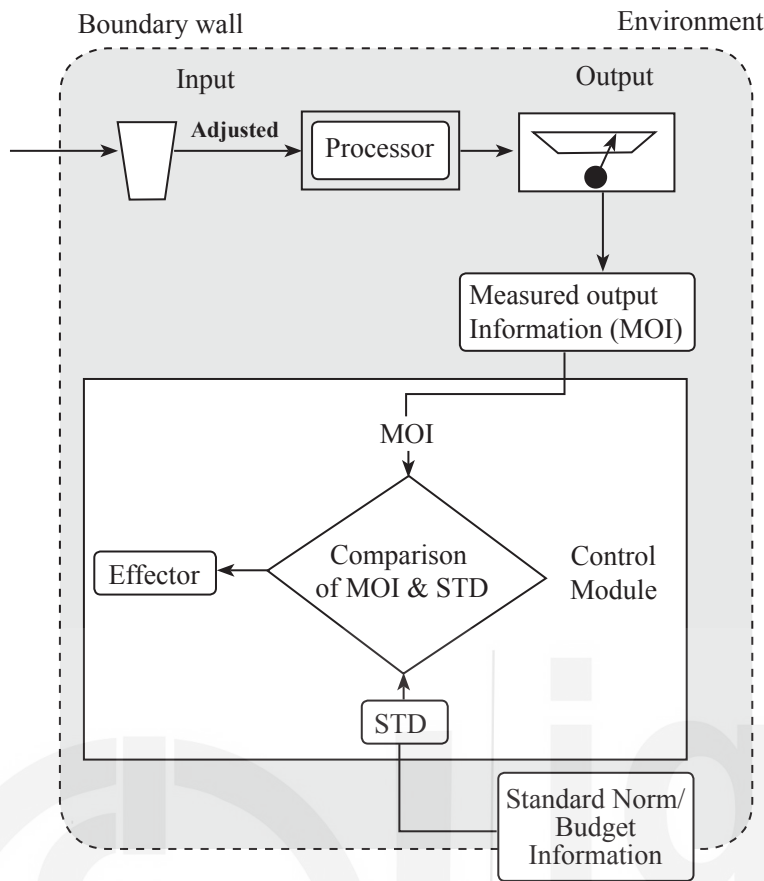


Figure 5.3 (b)

Activity B

In the context of Figure 5.3, give at least three examples mentioning the inputs, the processor, and the set outputs.

Input	Processor	Output

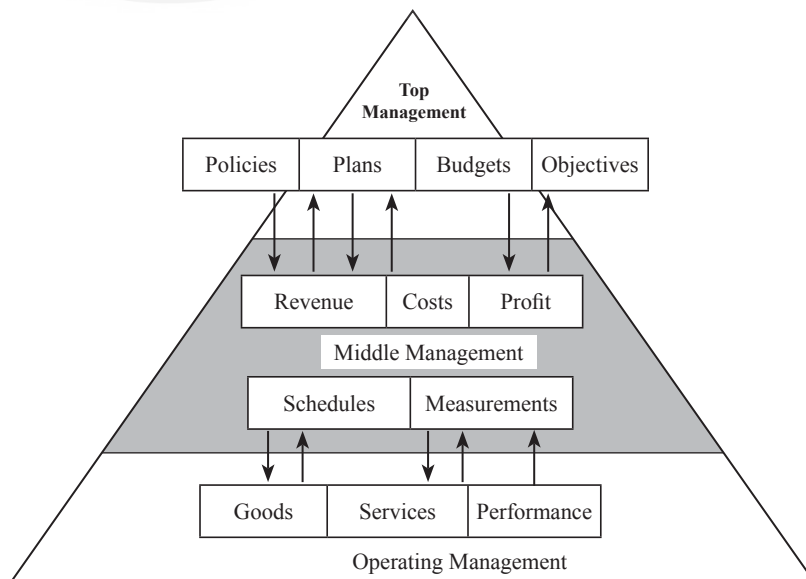


Figure 5.4: Interaction of Management Levels

Continuing the example further in the context of Figure 5.4 this time, the quality of the finished product could be measured by comparing it with the standard specifications of the finished product. Depending on the deviations or variances the manager can then adjust the quality and quantity of the raw materials. The environment of the factory system under consideration could be other factories, competitors, customers, markets, sociopolitical and cultural factors, government etc.

Information systems are used in all functional areas and operating divisions of business. In finance and accounting, information systems are used to forecast revenue and business activity, determine the best sources and uses of funds. Information systems have been used for managing cash and other financial resources, and analyzing investment. Financial health of an organization is also checked using IS. In sales and marketing, information systems are used to develop new goods and services (product analysis), determining the best location for production and distribution facilities (site analysis), determine the best advertising and sales approaches (promotion analysis) and set product prices to get the highest total revenues (price analysis).

In manufacturing, information systems are used to process customer orders, develop production schedules; control inventory levels and monitor product quality. Service industries such as airline industry and railways use information systems to serve their customers better. Banks and other investment firms' use IS to make good investments and sanction sound loans. Publishing houses, healthcare organizations, and retail companies all make use of information systems to serve their customers better and maximize their profit.

Activity C

Detail some functional MIS systems in your organization or any organization of your choice. What are their distinguishing characteristics? Why are they failures or successes?

.....

.....

.....

**5.4 FRAMEWORK FOR UNDERSTANDING
MIS AND ITS ROLE AT VARIOUS
MANAGEMENT LEVELS**

There is too much data and information in an organization. In order to design a MIS successfully, we need a framework to structure the information so that the data and information relevant for decision-making can be separated from rest of the data. Before we talk about the design of MIS, let us understand the strategic management of a business. An organization must respond to market forces, competition, to environment and to technological changes. The scope of business is wide, touching many fronts. A business, among other activities, must do a long-term strategic planning. There are many methodologies for strategic planning. According to model presented

by **Robert Anthony**, the strategic planning is one of the major activities in business planning and control. The other two are the management control and operational control. This framework is illustrated in Figure 5.5.

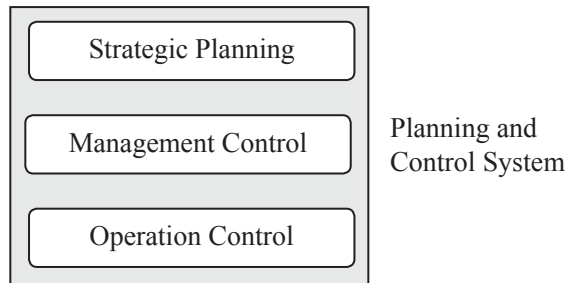


Figure 5.5: Framework of business planning and control

1. Strategic Planning is the process of deciding objectives of the organization, determining the possible shift in objectives, deciding on the resources used to attain their objectives and the policies that govern the acquisition, use and disposition of their resources.
2. Management Control is the process by which managers assure that the resources are obtained and used effectively and efficiently to attain the objectives of the organization.
3. Operational Control is the process of assuming that specific tasks are carried out effectively and efficiently.

It is useful to classify the above definitions with some examples. The table below gives instances of planning and control activities in different functional areas.

Table 5.1: Planning and Control Activities in Different Functional Areas

Functional Areas	← ACTIVITIES →		
	Strategic Planning	Management Control	Operational Control
Production	Location of a new factory	Determine the product mix for a monthly production program	Scheduling specific jobs on specific machines in a shift
Marketing	Entering the export market	Media planning for advertising expenditure	Planning sales contacts to be made by a salesman in the next week
Finance	Raising capital by issuing new shares	Determining maximum levels of credit for customers	Determining what action to take against nonpayment by a specific customer
Personnel/HR	Deciding on changes to be made in the organization structure	Determining who will be promoted to fill a vacated post at middle and lower levels, in the organization.	Determining which workers will be on each shift.

Anthony’s framework enables us to understand the characteristics of information needed to support the three types of planning and control process. The table 5.2 below depicts these characteristics and highlights

the substantial differences in information required for strategic planning, management control, and operational control.

Table 5.2: Differences in Information required for three types of Planning and Control Processes

S. No.	Information Characteristic	Strategic Planning	Management Control	Operational Control
1	Volume	Low	Intermediate	High
2	Level of Aggregation	High	Intermediate	Low
3	Frequency of use of a particular type of data	Low	Intermediate	High
4	Currency requirement	Low	Intermediate	High
5	Accuracy	Low	Intermediate	High
6	Scope	Wide	Intermediate	High
7	Source	Significant amount from external sources	Mostly Internal	Entirely Internal
8	Predictability with user	Low	Fairly High	Very High
9	Variability with user	High	Intermediate	Low
10	Distance of user (in Organizational terms) from sources within organization	Fair	Fairly close	Close

Let us now look at **Simon’s framework** that has broken down the process of decision making into three stages:

1. *Intelligence*: This is the stage in which the decision maker recognizes that there is a problem or opportunity that requires him to make a decision.
2. *Design*: The decision maker determines the alternatives that are available to him to resolve the problem or exploit the opportunity.
3. *Choice*: In this stage, an alternative generated in stage-2 is singled out to be pursued. The selection process may involve feasibility analysis or cost-benefit analysis.

With this framework, we can distinguish between three major classes of decisions.

- a) Programmed Decisions are there in which all stages are handled by following a preset well-defined procedure. The decisions are repetitive and routine which arise often and are capable of being modeled mathematically in their entirety. The classic example would be inventory-ordering decisions.
- b) Non-programmed decisions are difficult to structure in logical-mathematical terms. These decisions cannot be handled in well-defined and pre-specified procedures. These opportunities are not repetitive in nature and they require fresh intelligence, design and choice phases to be executed. An example would be the decision to set up a new factory or launch a new line of product.
- c) Semi-programmed decisions are those in which at least one and no more than two of the above stages can be handled by well-defined preset procedures. An example where the intelligence phase is

well structured would be the diverse kinds of variance analysis. A comparison with a budget or standard is undertaken in a well-defined way to signal the need for a decision. Subsequent stages of design and choice, however, are not handled by a set procedure.

Recall that an MIS supports problem-specific decision-making. Depending on the framework used by the organization for decision-making and goal set for MIS, the designer should determine the information needs.

An MIS should not automate the existing procedures. MIS should act as a catalyst of change in the processes of an organization. For instance, a private bank sanctions loans by using a sequential process. An applicant applies for a loan, the details provided by him are verified, and his application details are entered into the bank application format along with his credit limit. The computer application is then passed on to the loan sanctioning authority. The process takes two weeks time even though the staff spends about thirty minutes on the application. A workflow system should not automate the existing process. It should aim to reduce the application processing time to less than a week. The present workflow systems let everyone look at the application simultaneously and each concerned person adds his feedback. The sequential process has been changed to a parallel process. The total time has come down to less than a week.

According to **Zani**, the important determinants of MIS design are:

1. Opportunities and risks
2. Company strategy
3. Company structure
4. Management and decision-making process
5. Available technology
6. Available information sources.

An MIS should be designed, viewing the organization. A company's structure sub-divides essential tasks to be performed, assigns them to individuals, and spells out the interrelationships of their tasks. The organizational structure and the tasks determine the information needs of the company.

The MIS designer must plan to deliver reports in line with the organization structure. This means that the main decision makers and the power centers must be recognized in the MIS. If the decision-making responsibilities are clearly defined and allocated in the organization, MIS must capture them. If the organization culture provides sufficient incentives for efficiency and results, the MIS support this culture by providing such information, which will aid the promotion of efficiency.

The organization system is an open system and MIS should be so designed that it highlights the changes to the concerned level in the organization so that the action can be taken to correct the situation.

The designer of the MIS should take care of the data problems. The input data to the MIS may contain bias and error. The inputs to the MIS must be controlled to ensure impartiality, reliability and consistency.

If the organization culture provides sufficient incentives for efficiency and results, the MIS should provide information that will aid the promotion of efficiency.

If the organization is an open system then MIS should be designed to highlight critical changes in the system or in its environment.

In designing an MIS there are two types of situations one may come across. If the organization has no experience of computing applications, which will create the maximum impact on the organization, it can be identified by using Zani's framework. Key success variables are however seldom obtained through a questionnaire survey of managers. Data on environment, past company performance must be analyzed and discussed to identify key success variable. It is sometimes useful to pen down a quantitative measure of such variable. For example the performance of a textile unit can be summed up through two indicators: contribution per loom shift and fixed cost per loom shift. Similarly the performance of a shipping company may be measured as gross operating profit per day per voyage. Precise definitions of performance indicators enable the analyst to understand and quantify the likely impact of improvement in different task of planning and monitoring.

An analysis of the company's key success variables can be done only after a thorough understanding of the company's operations. Consultants and vendors who do not spend adequate time in understanding the operations are unlikely to throw up application areas, which will create the maximum impact. They are likely to suggest "off-the-shelf" applications. One should use standard software, which is available for such applications.

For a company getting into automation using information system, a list of applications would have to be generated, keeping in view the future perspective, a least for five years, on the basis of which a suitable configuration would be decided. However the development and implementation of the applications would have to be done in a phased manner. The first few applications must be those, which can create an impact on the performance of the organization, are quick to implement with the least amount of changes in the existing procedures and systems.

By and large an effort is made to create useful databases, which capture data during the execution of routine data processing systems. Such data are then analyzed to produce periodic planning report for monitoring.

Examples of such systems are the sales analysis based on invoice processing; inventory control based on stock accounting; costing and profitability analysis on the basis of financial accounting system. Marginal additions to data fields, new coding structure, and revised procedures are introduced to make the data base and reporting more useful.

Factors Facilitating Implementation of MIS

A few factors, which will increase the chances of a successful implementation of MIS, are:

- 1) Involvement of top management in the computerization effort, in defining the purpose and goals of computers within the organization.
- 2) Selection of an IT Manager who is well versed with IT tools and also has the skills to involve managers in choosing application areas, identifying information needs and designing reports.

- 3) A computer staff, which has interdisciplinary skills in computers, management, and operations research.
- 4) A balanced expenditure on hardware and software.

Now let us look into the role of MIS at various management levels. We come across saying that management can be understood by observing what managers do. Management can also be understood by the type of functions a manager performs. A manager usually performs the following functions: planning, organizing, Staffing, Directing, Coordination, Feedback, Reporting and Budgeting. In fact management is a process of achieving an organization’s goal and objectives by judiciously making use of resources of men, material, machines, money, methods, messages and moments (the last two in the context of information being vital resources to the manager/ decision-maker).

Management can also be seen as structured into three hierarchical levels namely, top level, middle level and bottom level or strategic, tactical and operational levels, respectively. Although lines of demarcation are not absolute and clear-cut, one can usually distinguish certain layers within the organization, which are characterized by, the classical pyramidal type of structures as shown in Figure 5.4. Top management establishes the policies, plans and objectives of the company as well as a budget framework under which the various departments will operate. These factors are promulgated and passed down to middle management. They are translated into cost or profit centre concept. These are reviewed, analyzed and modified in accordance with the overall plans and policies until agreement is reached. Middle management then issues the specific schedules and measurement yardsticks to the operational management. The operational levels has the responsibility of producing goods and services to meet the revenue, profit and other goals, which in turn will enable the organization achieves its overall and objectives.

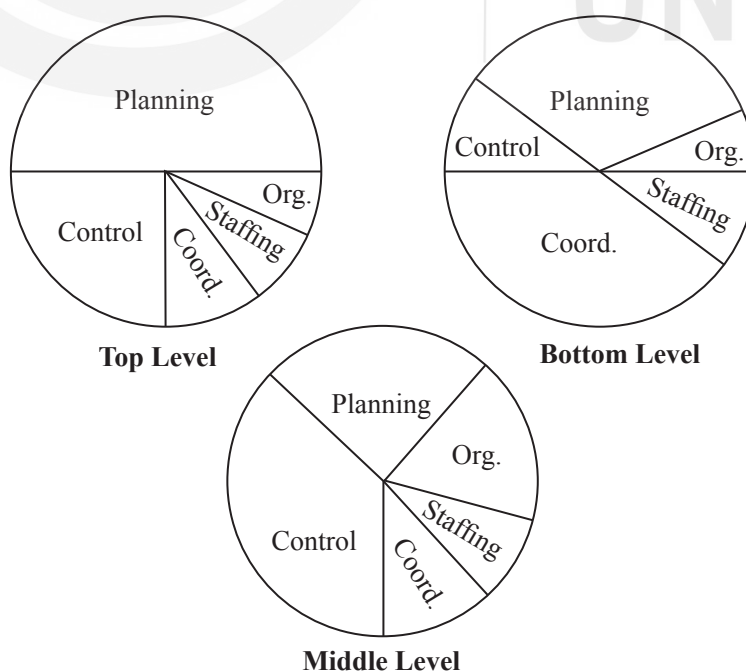


Figure 5.6: The Allocation of Managers’ Time

The hierarchical view of management is important for two reasons: information needs tend to be different at different levels of management and the amount of time devoted to any given function varies considerably with the level as can be seen in Figure 5.6. The job content at various management levels is further elaborated in Table 5.3.

In the context of MIS, management can perhaps be best defined as a process of (i) selection of objectives (ii) judicious allocation of resources (iii) determining operational plans and schedules (iv) keeping control of progress and (v) evaluation through feedback. Each of these areas requires certain decisions to be made.

Thus we take strategic decisions at the top level, tactical decisions at the middle and operational decisions at the junior level. As can be seen from Table 5.3, the type of problems and decisions at the junior level are quite deterministic and structured, so we can have programmed decisions.

Table 5.3: Job Content of Management Levels

S. No.	Character	Top Management	Middle Management	Operating Management
1	<i>Focus on Planning</i>	Heavy	Moderate	Minimum
2	<i>Focus on Control</i>	Moderate	Heavy	Heavy
3	<i>Time Frame</i>	1-5 years	Up to 1 year	Day to Day
4	<i>Scope of Activity</i>	Broad	Entire functional area	Single sub-function
5	<i>Nature of Activity</i>	Relatively	Moderately	Highly
6	<i>Level of Complexity</i>	Very Complex, many variables	Less complex, better defined variables	Straightforward
7	<i>Job Measurement</i>	Difficult	Less Difficult	Relatively Easy
8	<i>Result of activity</i>	Plan, policies & strategies	Implementation, schedules, performance yardsticks	End-product
9	<i>Type of Information utilized</i>	External	Internal, reasonable accuracy	Internal, historical level of accuracy
10	<i>Mental Attributes</i>	Creative innovative	Responsible, persuasive, administrative	Efficient, effective
11	<i>Number of People Involved</i>	Few	Moderate number	Many
12	<i>Department/ Divisional interaction</i>	Intra-division	Intra-division, Inter dependent	Intra-department

Source: J.Kanters-"Management Information Systems", Prentice Hall: Englewood Cliffs

Through the classic pyramidal structure is generally acceptable; unfortunately in the modern complex organization this neat, militaristic,

configuration seldom (!) fits the reality. The modern manager must be capable of managing his/her information systems for strategic planning, management control, and operational control.

Activity D

Can you visualize MIS without computers? Justify your answer.

.....

.....

.....

.....

.....

5.5 ORGANIZATION AND INFORMATION SYSTEM – TWO-WAY RELATIONSHIP

A system is an assembly of elements arranged in a logical order to active certain objectives. An organization is also a system. H. J. Leavitt advocates that an organization should be viewed as a socio-technical system consisting of people, tasks, technology, culture and structure. The modified Leavitt’s model is shown in the Figure 5.7 below:

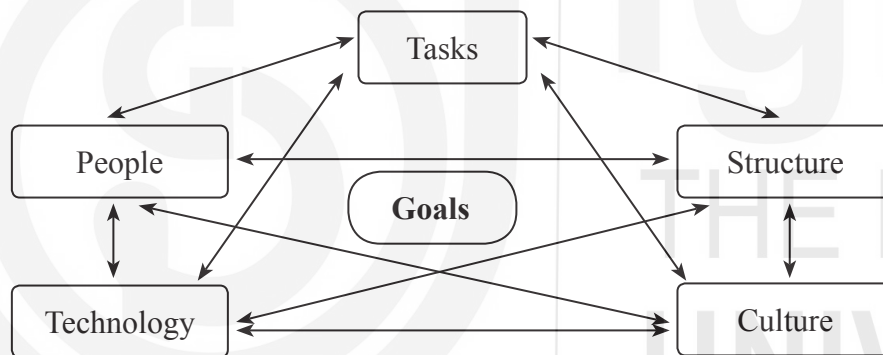


Figure 5.7: An organization as a socio-technical system

An organization is an open system that has the capacity to adjust itself to the changing environment. The goals of an organization change in response to the changes in organization or in its environment. The organization must change as system to stay in tune with the goals.

MIS should be designed viewing the organization as a system. MIS design should give due weightage to the human side of the organization and its culture. MIS should be designed to give reports to main decision maker. In other words, the designer must study the organization structure and identify the power centers.

In a tall hierarchy with a high degree of centralization, the MIS should give control information to the higher management.

If the organization is structured on a functional basis, then the MIS should have a functional design.

If the organization works on a standardized system where rules, policies, systems and procedures have been laid down, then there become part of the MIS.

5.6 MIS AS DECISION ASSISTING TOOL

We have studied above that Simon's Model divides decision-making into three phases - Intelligence, Design and Choice. In the intelligence phase, potential problems and opportunities are identified. In the design phase, alternative solution to the problem is developed. In the choice stage, a course of action is reflected.

In certain cases, the decision can be made using a rule, procedure or quantitative method. Such problems are known as structured problem. For example, an organization may decide to place a purchase order for every purchase requisition without worrying about merging them. Such decision can be easily programmed. The organization may have a fixed re-order point and fixed re-order quantity irrespective of demand. Automated system such as transaction processing systems and MIS are often used to handle programmed decisions. Such systems generate reports for concerned people so that they can take action. The decision taken is known as 'Programmed Decision'.

If the problem is unstructured, the solution cannot be arrived at using a set of rules or procedures. The rules and procedures, at best, can help in identifying alternatives. An information system that assists decision maker in making a non-programmed decision is referred to as Decision Support System (DSS). A decision support system usually has large amount of data that is managed by a Database Management System. The DSS presents various views of data to the decision maker to facilitate decision-making.

The views and reports may present details according to the needs of the user. A user may prefer graph whereas another user may like to see data in tabular form. A DSS is designed to provide presentation flexibility to its users. Details can be rolled up or drilled down depending on the requirement. For instance, sales manager of area A would be interested in knowing total sales, details of each sub-area within the main area. The manager would also like to know sales in area B, area C etc. to measure the relative performance. The manager would not be interested in details of sub-areas of area B as C; and will look down area A to get complete details.

DSS should provide facility to its user to perform statistical analysis of data. The sales data, for instance, can be analyzed for identifying seasonal fluctuations from regular demand change. It should also have provision to dig out secondary data from web. There are whole lots of software packages that can do amazingly good analysis of the data. Let us say, a company is considering an investment in an IT Project. It can do a what-if-analysis to analyze worst and best scenario. The expected cost and benefit can be changed within limits to estimate pay back period.

These are situations when a closed form solution is not available. In such situation a simulation model is constructed to gain insight. The model is tested on large number of inputs. Sometimes, simulation is done to study the behavior of system over a period of months in few days. A simulation system assists manager decision-making.

A decision support system may help a manager in perform goal-seeking analysis. In goal seeking analysis, you work backward starting with goal

to arrive at conditions required to achieve that goal. For instance, you may allocate budget for inventory and then backward to figure out the stock level, re-order point, delivery time etc.

Ideally, one would like to have a DSS to help in decision making in every situation. So far, no DSS has come close to being so general, perfect, and useful at the same time. A DSS, in practice, is developed for assisting in decision-making process for specific problems.

5.7 SYSTEM VULNERABILITY, ABUSE, AND AUDITING

Due to the potential of information systems, they are under constant attack from intruders and hackers. Unauthorized access to data and programs may cost an organization a fortune. For instance, an individual may disclose the stock levels of an organization to a potential buyer who may decide to go to the competitor if he feels that you may not be able to fulfill the order in time. In the world of e-Commerce, and internet easily accessible, one mistake could cost a client enough to justify a lawsuit. To avoid, abuse of information system, proper controls must be set. There are many threats to information systems such as hardware failure, software failure, user errors, software changes, theft of data, services, equipment, and telecommunications problems.

Systems become vulnerable because of system complexity. Any disaster has an extensive effect. System vulnerabilities differ from person to person.

- User: Identification, Authentication, and Subtle Software Modification
- Programmer: Disables Protective Features; Reveals Protective Measures
- Maintenance Staff: Disables Hardware Devices; Uses Stand-alone Utilities
- System Operator: Doesn't Notify Supervisor, Reveals Protective Measures, disables or changes the network setup etc.

It is better to think of all possible misuse and fraud from within the organization and establish system control to prevent them. Such controls are reformed to as deterrence controls. We next discuss some of these controls.

Entry of people who use the system should be monitored through biometrics systems such as finger print identifier, retina scanner, voice entry. Smart card identifiers and sanitization system also may be used.

The standard procedure such as well chosen passwords and different levels of access are always put in place.

Any output generated should leave an audit trail to identify any misuse of the reports. All transactions through the information system should have proper audit trail.

The database management system provides mechanism to give different level of access to different users to protect data. With proper configuration and use of encryption, the network misuse can be prevented.

An information system is like any other system in the organization. It must be audited and reviewed to make sure that it is operating and being used

as intended. The initial requirements and objective document serves as a reference. The system is audited for its performance, use, cost, benefit and other design criteria such as planned activity for which resources are allocated and time frame is set. A planned review is time-driven that may be done every 6 months or every year. The review must have a clear objective and reviewers must produce a written report. The report must comment on the following factors:

Objective: Is in tune with the organizational goal?

Hardware/Software/Network/DBMS: Are they being used as intended? Will they be able to meet requirement for next few years? Is there any bottleneck?

Staff: Is staff sufficient and sufficiently trained? Are People controllable using the system? In case of any skill gap because of version changes in systems, proper training must be provisioned to bring the staff at the current level of the updated system.

Safety: Are enough controls present to ensure safety? Are the controls working effectively?

Cost Benefit: This is one of the key reasons for taking up review activity. This is also the most difficult part of the review process. The reviews should try to be as objective as possible.

5.8 SUMMARY

This unit has given you a fair understanding of the main feature of a Management Information System in Organizational Context, describing its various functions, importance and relationship with planning, control and operations in an organization i.e. what an MIS is and what it is not.

Further, the unit systematically leads you to the prevailing status of MIS in organizations, discussing the ever growing need of information and its proper handling (processing), which in turn led to the development of MIS and advent of computers therein to cope with the hazards faced in coordinating and managing the organizational challenges. We have also discussed different viewpoints about the MIS given by some management scientists.

In this unit, we have learnt the basic structure of an information system. We also learnt the MIS as an organizational unit within an organization. MIS and its role at various levels of management were also discussed. MIS is used for making programmed decision as well as in assisting the decision making process. The information system is vulnerable and it can easily be abused. An information system requires a control structure and it needs regular audits.

5.9 UNIT END EXERCISES

1. Define MIS. What are the main features of an MIS?
2. What are the functions that MIS supports in an organization?
3. What is Simon's framework for decision-making? How does it help in MIS design?
4. What are the determinants of MIS design according to Zani?

5. Explain the following statement, “there is a two way relationship between organization and Information Systems”.
6. Discuss fully the purpose of an information system.
7. “In the end, the information system is recognized only as a foundation for human judgment, insight and inventiveness”. Discuss.
8. What impact does the implementation of programmed decision-making have on the management system of an organization?
9. Compare and contrast programmed decision making information system and decision assisting information system.
10. What are different types of controls and audits required for an information system?

5.10 REFERENCES AND SUGGESTED FURTHER READINGS

Davis, G.B., *MIS Conceptual Foundations, Structure and Development*, McGraw Hill: New York.

Jawadkar, W.S., *Management Information System*, Tata McGraw Hill Publishing Company Ltd.

Kanter, J., *Management Oriented MIS*, Prentice Hall Inc: Englewood-Cliffs.

Zani, W.S., “A Blue Print for MIS”, *Harvard Business Review*.

ignou
THE PEOPLE'S
UNIVERSITY