# UNIT 6 MANAGEMENT INFORMATION AND ITS EFFECTIVENESS IN PROMOTING ENTREPRENEURSHIP

**Structure**

## 6.1 INTRODUCTION

The Unit deals with the current trends in the world of business and describes the major business environment trends in detail. The Unit also deals with the need for information in the current business environment. It introduces the issues of competition, globalization, outsourcing and other major issues that concern business. The Unit gives the context in which MIS are required for entrepreneurs.

Business and business environment of entrepreneurs have changed dramatically in the last few decades. The transformation has been nothing short of being radical. Concepts and issues that were centre stage a decade back are now irrelevant and have been replaced by new ones. A liberalized, globalized and open environment for business and commerce exists today in this new era. New products and services have replaced older ones and competition has become more intense and the churning in the market place has resulted in the creation of new market leaders. Customers have more awareness and the governments have brought in progressive legislation and the pace of international business integration has increased.

Managers who run the business are always tuned with the market realities so that they can react with minimum time and effort in case any problem presents itself. The changes sweeping through the business and economic environment have forced business to look at newer ideas to bank on and thrive. One of the ideas reinvented in the modern business era is the management of information, not just for reactive decision making but for pro active decision making to embrace the changes in the market place and turn threats into opportunities. The major trends in modern business environment have forced the management thinkers to take a new look at the management of information. Information is the key to success of entrepreneurial activity. Information and the understanding of its value lie at the core of management information system.

MIS plays an important role in small businesses helping the entrepreneurs to improve their efficiency and customer services. Networked information systems enable companies to share knowledge and data throughout the organization giving managers, executives, project teams and key employees' access to information they need to make decisions or manage operations.

The concept of MIS has evolved over a period of time comprising many different facets of entrepreneurship. The initial concept of MIS was to provide data from the organization and present it at regular intervals. This concept was further modified when a distinction was made between data and information. Information is a product of an analysis of data. The concept is similar to raw material and the finished good.

What is management Information Sysem?

MIS is a concept which consists of three words.

Management: It means to manage information in an organized manner to make information useful.

Information: It refers to collected, organized and meaningful data.

System: A system means co-related components which works together for the same goal.

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## 6.2 OBJECTIVES

After studying this Unit, you would be able to

- appreciate the latest trends in the world of entrepreneurship;

- form an opinion about the trends;

- build awareness on key issues of entrepreneurship;

- examine the linkage between the trends in entrepreneurship and MIS;

- explain the need for better information in the modern business context;

- explain the basic concept of information;

- appreciate the difference between data and information;

- examine the importance of information in decision making;

- define the Concept of Management Information System;

- discuss nature and features of Management Information System;

- explain various types of MIS; and

- examine the role of MIS for effective promotion of entrepreneurship.

## 6.3 INCREASING COMPETITION

The most important trend in the modern business environment is the increase in competition. Competition has forced businesses to become more and effective and efficient. More and more corporate entities are obsesses with the efficient use of its resources to beat competition.

Economies of scale have become important along with the productivity of capital and labour. The main reasons for the increase in competition are due to the following:

- Globalization and Liberalization;
- Market dynamics favouring the efficient;
- The fast pace of recent technological change and innovation; and
- Increased information exchange which has resulted in a free flow of information about markets, competitors, strategies and alternatives making competition all the more difficult.

## 6.4 INCREASING UNCERTAINTY IN THE MARKET PLACE

The fast pace of technological change and innovation has resulted in uncertainty. Entrepreneurs are alert to changes in the market place. Disruptive technologies get developed faster and the life cycle of a product/ service gets shorter every year. Gone are the days when a company had a blockbuster product/service that it could sell for years together. Today substitutes are made in short time and from the most unknown technologies and products create a sense of uncertainty among businesses. The manner in which the business is being conducted is also adding to the uncertainty. Market meltdowns like the recent global financial market meltdown and slowdowns strike markets without any warning which creates a general feeling of uncertainty. This uncertainty has to be met with greater capacity to absorb external shock in the organization and by reducing the reaction time to changes in the market place. Information management becomes a crucial weapon in such environs where uncertainty is a certainty. The value that an organization gets from investments on information management in such situations is immense as the difference between success and failure may be just a small piece of crucial information provided by an efficient information management system.

## 6.5 INCREASING GLOBALIZATION

Globalization has made geographical boundaries meaningless; internet revolution has changed the way of life and commerce. Today a North American business house can source its raw material / components from sub-Saharan Africa, manufacture in China and sell it in Japan. The barriers have fallen. Capital flows freely in different forms from one country to another and the primary considerations are lower costs and increased efficiency. The idea is to find lucrative markets in different corners of the planet, create products or services at any location where cost of creating the product or service is lowest and then connect the market with the manufacturing / servicing hub by a global supply chain

## 6.6 INCREASING TENDENCY OF OUTSOURCING

More and more businesses are trying to beat competition by staying focused on their functions and competencies and outsourcing the rest of the non-key functions to specialized firms. Outsourcing is a natural corollary of the process of globalization as more and more businesses try to become globally competitive they will search for ways to reduce costs and improve services

## 6.7 REDUCING HIERARCHY AND IMPROVED TRANSPARENCY

The structure of business organizations become flatter reducing unnecessary hierarchy. The popular corporate entrepreneurs both in the west and china has changed dramatically to a more informal efficiency focused and work driven culture and in developing countries like India. The open culture has resulted in greater efficiency and a culture of open communication and fast action and decisions based mostly on data driven reports.

## 6.8 INCREASING CLOUT OF CIVIL SOCIETY AND MEDIA

Civil Society and media all over the globe have become more aware with greater clout and power. From environmental issues to consumer protection issues they are increasingly asserting their power to make consumers aware of different burning issues thereby creating challenge for the business. Environmental pollution, global warming consumer protection, safety etc have become the centre stage of business attention. No entrepreneur can afford to ignore these interest groups in the changed order.

Civil Society bodies and media have made it impossible for the entrepreneurs to hide behind curtains of opacity. Public awareness coupled with an active media has forced the entrepreneurs to increase compliance on regulatory and ethical fronts. The entrepreneurs know that the cost of non compliance is much higher now, in terms of not only cost but also in terms of loss of goodwill and public image. More and more entrepreneurs have started to comply with public welfare issues and the civil society and media have even started to rate companies on their performance in this front.

## 6.9 INCREASING CUSTOMER FOCUS

Business has become customer focus. Cultural changes and social empowerment have brought positive changes in organizations. Corporate governance initiatives and media focus have made business more accountable and open. The WTO has reduced the trade barriers.

Entrepreneurs cannot thrive in isolation in this environment. They have to embrace the changes. The increasing uncertainty of market forces have to be neutralized by visionary decision making. Entrepreneurs have to be proactive. Decisions have to be based on proactive approach such as using predictive analysis rather than age-old reactive approach. Efficiency will ultimately decide who wins and who losses. The need there is for faster access to the right kind of information and insight to improve the quality of management decision-making. This is the reason why large corporation houses are investing millions of dollars to ensure a proper information technology infrastructure for better information management. Investments in Enterprise Resource Planning (ERP), Customer Relationship Management (CRM), Data mining and Data warehousing systems have now become the norm rather than exception in corporate houses.

The business environment changes have necessitated a new view on organization and the role played by information management in it. The challenge is to integrate and enable organizational structure, culture and form with information management so that management so that management decision making is faster, accurate, timely and reliable.

## 6.10 INCREASING FOCUS ON KNOWLEDGE IN BUSINESS

Entrepreneurs are focusing more and more on knowledge as key ingredients for success along with capital and labour. Focus is more on using knowledge to increase output and get greater value for the resources applied. More and more companies are investing there investing in research and development to come up with new and better products and services. This knowledge focus has led to very fast obsolescence of products and services and hence has indirectly led to increased competition.

## 6.11 INCREASED AWARENESS OF THE VALUE FROM MANAGING INFORMATION

The entrepreneurs have increasingly become aware of the value of information and invest heavily to acquire the valuable information. Google, Big flicks and other such firms have made information their competitive advantage. This trend of information driven competition has created a new breed of companies and managers who focus on analyzing data to derive predictive kind of information so that decisions can be based on what the future has in store. This type of pro active decision making is very effective and much better than the reactive type of decision making that is done in traditional companies. This makes the analytics based

competitors more agile to changes in the market place and hence their reaction time is much less.

## 6.12 INCREASING INVESTMENT ON INFORMATION TECHNOLOGY

The more business companies are heavily investing in information technology as they are getting greater value from this kind of investments. This trend has resulted in the commoditization of information technology today due to competitive pressures most successful companies have MIS or even better versions of MIS in the form of ERP or CRM but this is not able to give them the edge in competition as all its competitors have similar systems. Thus a competition has started in the installation of IT solutions for management problems. However a very few companies make use of the information for decision making which is the original objective of these systems. Those who do dig deeper into their own data to find insights for decision making. These companies succeed as their decisions are pro active

## 6.13 DATA VS INFORMATION

Information is quite from data even though the two concepts are interrelated. Data is a set of raw facts and figures which is unprocessed. It does not have meaning in itself. It can be in any form i.e symbols, numerals, pictures etc. Data is objective measurement of the attributes of entities such as people, place, things and events. Data commonly have a variety of forms including numeric data, text voice and images

Information is processed data which helps in decision making and facilitate communication within an organization. More often information provides answers to 'who', 'what', 'where' and 'when' questions.

**Example**

**Sales data of ABC Company**

| The sales figures per week   (lakh) | | | |
|---|---|---|---|
| 1st | 2nd | 3rd | 4th |
| 500 | 569 | 598 | 615 |

These figures do not provide any meaningful information. However when the data is processed, the result will be an information expressed as "sales show an upward trend every week"

**Difference between data and information**

| Data | information |
|------|-------------|
| Data is raw fact | Information is processed data |
| Data is input | Information is output |
| Data is unorganized | Information is organized |
| Data cannot add anything to knowledge | Information can enhance knowledge |
| Data is the base of starting an activity | Information is the end product of an activity |
| Data is un-interpreted | Information is related and can be interpreted |
| Data cannot lead to an action | Information leads to an action |

## 6.14 QUALITY OF INFORMATION / BUSINESS VALUE OF INFORMATION

The attributes of quality of information are as follows:

- Timeliness: It refers to the speed at which the information is received  Normally faster the information better the quality

- Appropriateness: Appropriateness refers to the suitability and matching of the receiver and the information

- Reliability: The reliability of information is the key attribute of quality. Only when the information is reliable it will be of any use. The understanding of reliability comes from past experience, reliability of source, the methodology adopted to acquire and process the information and the channel of delivery

- Accuracy: It refers to the correctness of the information. Normally higher the accuracy of information, better is its quality

- Completeness: Completeness is the measure of comprehensiveness. It is required to ensure that the information provided gives the complete picture of reality and a part of the picture

These attributes define the quality of information

## 6.15 DIMENSIONS OF INFORMATION

Information can have different dimensions broadly categorized under business dimension, technical dimensions, economic dimension and behavioral dimension

**Business dimension**

In a business organization there are different levels of management. Each level of management requires different types of information. The information needs of an entrepreneur are altogether different from an operation manager.

### Economic dimension

Economic dimension of information refers to cost and related benefits of information.. Transformation of economic dimension leads to optimum use of resources like time and money. At the same time benefit analysis helps in determining the type of information required. The cost of information is associated with collection, processing and storage of data. It may also be related to the response time required to generate and communicate the information as well as the speed of generation and accuracy of the information

### Technical dimension

It relates to the technical aspects like data base, capacity of data base, security, validity etc. as well as whether information is computerized or manual, format of its representation etc.

### Behavioural dimension

Behavioural dimension refers to impact of information on individual, group or organization.

## 6.16 TYPE OF INFORMATION

Type of information depends on source of information and type of decision

| Type of information | |
|---|---|
| Source of information | External (competitive, environment), internal |
| Type of decision | Operational, strategic, tactical |

The data generated from outside business organization is known as external information for e.g the data regarding industry sales and trends may be collected through chamber of Commerce. External information is further divided into two parts – environment information and competitive information

Environment information includes the following

- Government policies – information about government policies with regard dto tax benefits, concession, quota etc

- Factors of production – information regarding various factors of production like labour, capital, material, cost and availability
- Economic trends information relating to economic issues like consumer disposable income, capital investment, monetary policy, Exim policy etc
- technological information – information regarding the present and future technology available, its impact on firm and cost of acquiring it
- Sociological information – information regarding tastes, preferences and norms of the customers
- Political information – information regarding the political scene of the country, what is the political manifesto of the ruling party etc.

**Competitive information**

This category includes information regarding the competitor's product and their demand, their strength and weaknesses, different policies regarding pricing, promotion etc

**Internal information**

Internal information is generated within the company e.g sales information is retrieved through invoice data. Internal information also includes the information of the company like its strength and weaknesses, its plan about finance, production etc., its policy to meet competition, pricing policy, promotion policy, personnel policy etc.

## 6.17 TYPES OF DECISIONS

**Operational information**

Operational decisions are taken by the lower level of management and it relates to the day-to-day operations like daily and weekly sales, day-to-day cash position etc. This information is repetitive in nature. .The manager requires low prediction to obtain this information as it is retrieved internally from the previous and current performance

**Tactical information**

This information relates to the middle level of the managers. They require information for allocating resources and establishing control to implement the top level plans.

**Strategic information**

Strategic information is used to make a choice among business options. Strategic information helps in evaluating these options so that manager can find alternative strength than his competitors. Strategic information is related to the top managers. It is predictive in nature and

has long term perspective. It is retrieved not only from external source but to some extent internal sources are also explored.

**Information Management, Information system and Information Technology**

Information management is a business and process driven concept in which the focus on leveraging g information for using it to take decision on the quality of such information that is provided and the integrity of the information. It is the scientific organization of the data by capturing, storing analyzing retrieving and disseminating and information for use within an organization

Information system is a system based concept that focuses on transactions, events and data. It is the systematic process involving information gathering, storing, processing, retrieving and disseminating which ensures repeatability of good quality information supply within an organization

Information technology is a term used to describe a set of technologies that includes technologies from the domain of computer science and engineering, networking, engineering, and telecommunication. It ensures that processing of data is faster and accurate so that the right information can be supplied to the right person at the right time with better efficiency

**Role of information in decision making**

Information plays a vital role in decision making. Decision making is basically a process that includes the following stages

**Role of information in decision making**

| Stage of decision making | Role of information |
|---|---|
| Identification and structuring of problem/opportunity<br><br>Putting the problem/opportunity in | One needs information to identify a problem and put it in a structured manner. Without information about a problem or opportunity the decision making process does not even start |

| context | Without information about the context in which the problem has occurred one cannot take any decision on it. In a way the information about the context defines the problem |
|---|---|
| Generation of alternatives | Information is a key ingredient in the generation of alternatives for decision making. One has to have information about possible solutions to generate alternatives |
| Choice of best alternatives | Based on the information about the suitability of the alternatives a choice is made to select the best alternative. |

Decision making is the most important task of the entrepreneurs /managers in an organization. Therefore to enable the entrepreneurs to take quality decisions it is important to provide them the right kind of information. System based information works best under a computerized environment and such computer based information management is called as Management Information System.

It provides the service of information supply to the managers enabling them to take informed decisions.

## 6.18 DEFINITION OF MIS

There are a number of definitions of MIS given by various authors. Generally MIS is defined as a system that collects and processes data and provides it to managers at all levels who use it for decision making, planning, program implementation and control. An information system comprises of all components that collect, manipulate and disseminate data or information. It usually includes hardware, software, people, communication system such as telephone lines and the data itself.

According to Laudon and Laudo (2003) MIS refers to set of procedures that collect retrieve, process, and store and disseminates information to support decision making and control.

According to Jerome "Management Information System is a system that aids management in making, carrying out and controlling decisions"

According to G.B.Davis MIS is "an integrated man/machine system for providing information to support the operations, management and decision making functions in an organization" Here the system utilizes hardware and software, manual procedures, management decision model and data base.

MIS is also defined as a computer based information system

In simple terms, MIS is an information system that provides information to support managerial decision making

A more comprehensive definition is that MIS consists of people, equipment and procedures to gather, sort, analyze, evaluate and distribute timely and accurate information to the decision maker.

Though there are a number of definitions, all of them converge on one single point i.e the MIS is a system to support the decision making function in the organization. The scope and quantum of information is individual dependent and it is difficult to conceive the information as a well – defined product for the entire organization. Since the people are instrumental in any entrepreneurial activity, a human error is possible in conducting the same. Since a human error is difficult to control, the difficulty arises in ensuring a hundred percent quality assurance of information in terms of completeness, accuracy, validity, timeliness and meeting the decision making needs. Hence the need for MIS.

In order to get a better grip on the activity of information processing, it is necessary to have a formal system which should take care of the following points:

- Handling of a voluminous data;
- Confirmation of the validity of data and transaction;
- Complex processing of data and multi-dimensional analysis;
- Quick search and retrieval;
- Mass storage;
- Communication of the information system to the user on time; and
- Fulfilling the changing needs of the information.

The management information system uses computers and communication technology to deal with these points of supreme importance

## 6.19 WHY DO THE ENTREPRENEURS NEED MIS?

Few decades back there was no computer and computer literate people during which everybody depended on man to get information from different fields. Man power takes more time to collect correct information; sometimes the information lost its importance, value and usability due to late delivery of information. But in modern information era, there is need to use information in organized way.

Entrepreneurs are the key persons in an organization who ultimately determine the destiny of the organization. They set the agenda and goals of the organization, plan for achieving the

goal, implement the plans and monitor the situation regularly to ensure that deviations from the laid down plan is controlled. The set of activities ensure the smooth functioning of the organization and help to attain its objectives. . The decisions range from routine decisions taken regularly to strategic decisions which are taken once in the life time of an organization. . The decisions differ in the following degrees.

- Complexity
- Information requirement for taking the decision
- relevance
- Effect on the organization
- Degree of structured behaviour of the decision making process

Different type of decisions requires different types of information. Information systems which supply the relevant information to entrepreneurs and managers to enable them to take decisions are collectively termed as MIS. MIS may consist of a set of information systems working towards the common goal of achieving greater efficiency in management decision making for each level of management. Typically MIS deals with information that is generated internally. The in-house data is processed to create reports which help the management at different levels in taking decisions. Today's MIS has data repository at the core which is mostly in the form of a relational data base management system. All in-house data (mostly transaction related) are saved in this database which is designed on the basis of set of rules. Management Information System broadly refers to a computer based system that provides managers with the tools for organizing, evaluating and efficiently running their departments. In order to provide the past, present and prediction information, MIS includes software that helps decision making, data resources such as data base, the hard ware resources of a system, decision support system, people management and project management applications and computerized process to enable the department to run efficiently.

## 6.20 DIFFERENCE BETWEEN MANAGEMENT INFORMATION SYSTEM AND COMPUTER INFORMATION SYSTEM

The basic difference between MIS and CIS is the source of information. MIS handles information from all sources whether they are internal to an organization or external or from any kind of source like human being or from computer. Computer Information Systems is a bit more technical and strictly related to computers and how the current organization uses the internal computer system.

*MIS and CIS*

In spite of the difference both MIS and CIS are related to each other and CIS is a part of MIS and helps in various kind of work related to MIS.

## 6.21 FEATURES OF MANAGEMENT INFORMATION SYSTEM

Basically Management Information System is a combination of several sub systems based on the data base in the organization. These sub systems are for storing, organizing, processing and so on

### Characteristics of MIS

MIS being a specialized information system confirms to certain characteristics. These characteristics are generic in nature. These characteristics remain more or less the same even when the technology around such management information system changes.

### Management oriented

One important feature of MIS is that MIS is designed top-down. This means that the system is designed around the need felt by the management at different levels for information. The focus of the system is to satisfy the information needs of management

### Management directed

Since MIS is 'for the management' it is imperative that it also should have a very strong management initiative. Management is involved in the designing process of MIS and also in the continuous review and up-gradation to develop a good qualitative system. The system is structured as per directions factored by management. This helps in minimizing the gap between expectation of management from the system and the actual system

### Integrated

MIS is an integrated system. It is integrated with all operational and functional activities of management. This is an important characteristic and requirement for a system to qualify as MIS. The reason for having an integrated system is that information in the management context for decision making may be required from different areas from within the organization. If MIS remains a collection of isolated systems and each satisfying a small objective, then the integrated information need of managers will not be fulfilled. In order to provide a complete picture of the scenario, complete information is needed which only an integrated system can provide.

Common data flows:

### Strategic planning

MIS cannot be designed overnight. It requires very high degree of planning which goes into creating an effective organization. The reason for this kind of planning is to ensure that the

MIS being built not only satisfies the information need of the entrepreneurs today but can also serve the organization for the next 5 to10 years with modifications. Sometimes when the planning part is done away with, systems tend to perform well in the present but they tend to become obsolete with time. Strategic Planning helps to avoid this problem.

## 6.22 BIAS TOWARDS CENTRALIZATION

MIS is required to give 'one version of the truth' i.e it must supply the correct version o the latest information. There is a requirement for the data repository to be centralized. Centralized data management helps MIS to exercise version control as well as provide an integrated common view of data to the managers. In a non centralized system, data will get entered, updated and deleted from the system from different locations. In such a case it becomes difficult to provide correct information to managers. For example in a decentralized system if a person superannuates from an organization and his superannuating is only recorded in the human resource system but not communicated to the finance department system, then is quite likely that his salary may be generated by the finance system for the next month. A centralized system where data is entered updated and deleted from only one location does not suffer from such problems. In a centralized system, The extreme pressure of competition requires information to be timely and accurate for effective decision making both of which can be ensured if information is managed using information technology. Hence any modern MIS has a very high dose of technology intervention in it. In fact, all MIS run on some ICT platform to enable smooth functioning of the system and to ensure timely and accurate results.

### MIS functions

The broad functions are given below:

- **To improve decision making of the entrepreneurs**: MIS helps entrepreneurs by providing background information on a variety of issues and helps to improve the decision making quality of management. The first and accurate information supplied by MIS is leveraged by the managers to take quicker and better decisions thereby improving the decision making quality and adding to the bottom line of the company.

- **To improve efficiency**: MIS helps to conduct their tasks with greater ease and with better efficiency. This reflects in better productivity for the company.

- **To provide connectivity:** MIS provides managers with better connectivity with the rest of the organization.

**Check Your Progress Exercise 1**

**Note:** i) Use this space given below to answer the question.

ii) Compare your answer with the one given at the end of this Unit.

1. Write short note on the features of MIS.

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## 6.23 BENEFITS OF MANAGEMENT INFORMATION SYSTEM

- It provides timely , accurate, scientific, reliable and permanent information

- It avoids duplication of efforts

- Coordinates the whole organization

- It provides the information in form and formats as required by the information seeker

- It helps in making better and scientific decisions by the management

- Speed of processing and fast retrieval of data is possible

- The scope for the use of information system has expanded

*MIS increases productivity of entrepreneurs*

- MIS reduces time, errors and costs associated with processing information

- To increase productivity, MIS follows on-line Transaction Processing (OLTP). OLTP is the gathering of data  as input, processing that input data and updating the data  to create valuable information from this processed data

- Another area in which modern MIS improves productivity is by allowing customers to process their transaction  through the use of a Customer-Integrated System (CIS)

*MIS enhances the quality of decision making*

- MIS helps entrepreneurs to do business in a better way , find solutions to problems, find opportunities or help them in decision making by providing the  relevant information

- MIS support for decision making falls in two categories – When MIS helps to analyze the situation by providing all the relevant information about the situation and then expecting  to make the decision. Secondly, when MIS actually makes some sort of recommendation or giving some insight into what decision to take.

*MIS improves communication and helps develop team work*

- MIS helps to manage information and facilitate communication between diverse teams

- A collaborative management information system is a specific system to improve team work

- One aspect of EDI is Electronic Fund Transfer (EFT) which allows for payments without physically sending money.

*MIS can facilitate organizational transformation*

- MIS helps organizations to remain competitive or enter new markets and transform the way business is done.

## 6.24 ROLE OF MANAGEMENT INFORMATION SYSTEM

The role of MIS for an entrepreneur 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 the 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.

MIS plays exactly the same role for an entrepreneur, the system ensures that an appropriate data is collected from the various sources, processed and sent further to the entire needy destination. The system is expected to fulfill the information needs of an entrepreneur, the management functionaries – the managers and the top management.

The impact of MIS on the functions is in its management. With a good support of MIS the management of finance, production and personnel become more efficient. The tracking and monitoring of functional targets becomes easy. The entrepreneur is informed about the progress, achievement and shortfalls in the probable trends in the various aspects of business. This helps in forecasting and long term perspective planning. The entrepreneur's attention is brought to a situation which is exceptional in nature, inducing him to take an action or decision in the matter.

Managers manage the organization by using reports. Several types of reports are used by the managers like scheduled reports, on-demand reports, exception reports, predictive repots, summary reports and statutory reports. The reports help the managers to perform planning, organizing, directing, and controlling better by presenting the relevant information to the managers.

**Decision in management**

| Planning | A selection from various alternatives – strategies, resources, methods etc. |
|---|---|
| Organizing | A selection of a combination out of several combinations of the goals, people, resources, and methods |
| Staffing | Providing a proper manpower |
| Directing | Choosing a method from the various methods of directing the efforts in the organization |
| Coordinating | Choice of the tools and techniques for coordinating the efforts for optimum results |
| Controlling | A selection of the exceptional conditions and the decision guidelines |

## 6.25 TYPES OF MANAGEMENT INFORMATION SYSTEM

A Management Information System is a computer based system that provides the information necessary to manage an organization effectively. An MIS should be designed to enhance communication among employees, provide an objective system for recording information and support the organization's strategic goals and direction. There are four types of MIS

- Office automation system
- Transaction Processing System
- Operation Information System
- Decision Support System
- Executive support system

Management information System

Transaction processing system

Office automation system

Decision support system

Executive support system
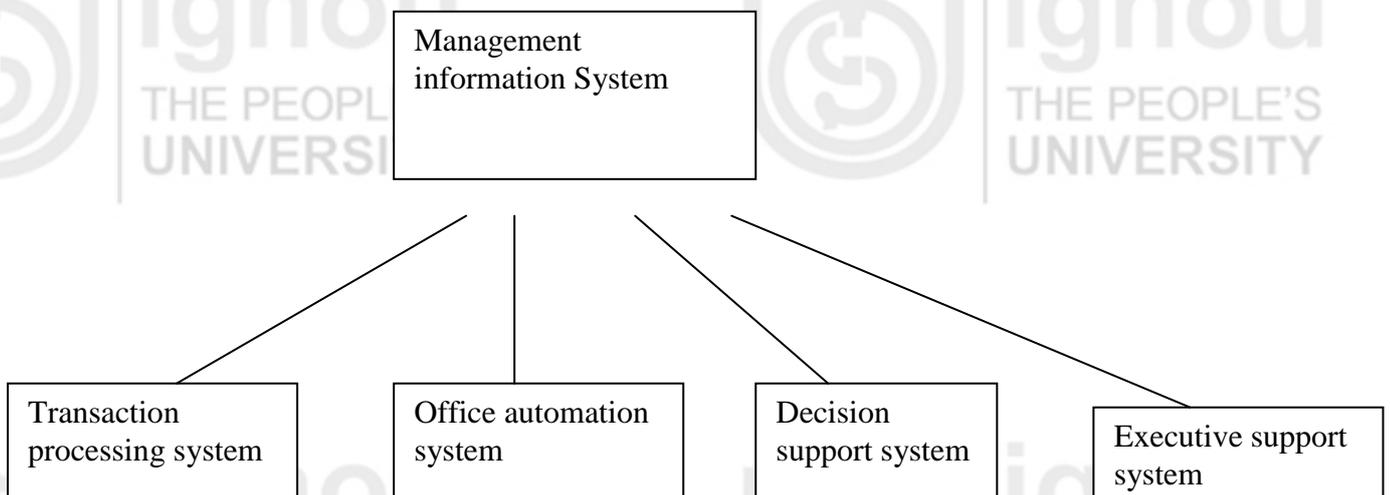
### Office Automation System

This system is characterized by repetitive, short term, input-output oriented system used directly by a large number of end users like clerks, typists and accountants. A large number of accounting systems like pay roll, invoicing, billing, inquiry belong to this category. This system is more tuned to generation of information rather than use of information. Office automation system form the back bone of all other information systems and the information generated by them becomes the corporate data base.

### Transaction Processing System

These systems are designed to handle a large volume of routine, recurring transactions. They were first introduced in the 1960s with the advent of mini-frame computers. Transaction processing systems are widely used today. Transaction processing refers to the traditional commercial application of computers such as order entry, dispatch, delivery, store accounting and so on. In all these applications, any single transaction like raising an invoice, accepting an order, shipping an item, receipt of an item, payment of a bill etc requires updating of multiple data stores (data bases like accounts receivable, order status and pending list). A transaction is said to be complete if, and only if all the associated data bases that are affected by this transaction are updated. Banks use them to record deposits and payment into account. Supermarkets use them to record sales and track inventory. Most managers use these systems to deal with tasks such as pay roll, customer billing and payments to suppliers.

Transaction processing systems provide decision makers with up-to-date information on different types of transaction. Order processing systems for example enable sales administrators to input details of customer orders to a central data base and transmit order details to manufacturing, accounting and customer service departments.

### Decision Support System

A DSS is an interactive computer system that can be used by entrepreneurs and managers without help from computer specialists. A DSS provides managers with the necessary information to make intelligent decisions. A DSS has three fundamental components:

- Database management system (DBMS) stores large amount of data relevant to problems the DSS has been designed to tackle

- Model based management system (MBMS) transforms data from the DBMS into information that is useful in decision making
- Dialog generation and management system (DGMS) provides a user friendly interface between the system and the managers who do not have extensive computer training

Decision support systems provide entrepreneurs with access to financial, marketing and operational data that helps them to make better and faster decision. A decision support system brings together information – such as financial records, sales data, manufacturing data, inventory information and marketing research – traditionally held in separate departmental data bases. Managers can select data, analyze it and prepare reports on various formats. They can also see the system's simulation capabilities to assess the potential impact of a change such as a price increase.

*Executive support System*

This system is meant to be used directly by the senior managers to provide support to non programmed decisions in the strategic management category. The information needed will be largely external and unstructured. The requirement is largely for intelligent information - market intelligence, investment intelligence, investment intelligence and technology intelligence. These must be collected and presented to the decision maker in a pro active manner. Often the information is likely to be spread throughout the organization as well as in the outside environment. Access  to external data base , technology information like patent records, technical reports by consultants and consulting organizations, market report reports by market intelligence agencies, confidential information regarding competitors, speculative information about markets, sources of financial information, government policies etc belong to this category of information that must support executive decision. Tools  of Artificial Intelligence and Expert System are often used to cope with some of the complexity of executive decision making.

*Customer Management*

Customer relationship management systems provide information on customer's preferences and purchasing patterns. Such systems hold data on sales records, inquiries, responses to marketing campaigns, service requests, and complaints. Sales, marketing and customer service teams use the data to analyze the types of products customers choose, their purchasing frequency and the effectiveness of different types of marketing campaigns. They

can use the data to create personalized offers for individual customers or respond quickly to customer inquiries

*Operation Information System*

An operation information system gathers comprehensive data, organizes it and summarizes it in a form that is useful for entrepreneurs. Most of these systems access data from a transaction processing system organize it into a form usable by the managers. Entrepreneurs use operation information system to obtain sales, inventory, accounting and other performance related information

## 6.26 SUPPLY CHAIN MANAGEMENT

Supply chain management systems enable entrepreneurs to share information via secure networks with suppliers and business partners, improving efficiency and controlling costs throughout a supply chain. Companies provide supply chain managers with information on sales and production requirements that enable partners to plan their own operations efficiently. They also update members on changes in market conditions so that they can adjust production in line with new demand levels.

## 6. 27 ACCOUNTING INFORMATION SYSTEM FOR AN ENTREPRENEUR

Accounting information system consists of data inputs and outputs. When data is entered into the system the data is sorted informational outputs that an entrepreneur can use to record and analyze a variety of business activities. Sales, purchases, employees and inventory are all examples of items an accounting information system can track and produce reports. While the size of an accounting information system depends on the specific needs of the business, there are several types of standard outputs from the system that all companies use.

**Financial statements**

Financial statements for entrepreneur's activities consist of the following-

- Profit and loss
- Cash flow and income statements
- Balance sheets

Internally an entrepreneur and business manager use financial statements to get an overview of operational activity. External users such as lenders and investors use financial statements to gauge the net worth and creditworthiness of the company. Profit and Loss statements show revenue and expenses and the net profit or loss that remains after expenses have been subtracted from revenue. Profit and loss statements show revenue that has not yet been

collected and expenses that have not yet been paid. Because of this, a cash flow statement is used to show physical income and expenses that have been collected and paid out. Balance sheets show a company's assets and liabilities and an income statement details the amounts and sources of the company's revenue. Accounting information systems can output any one of the financial statements for various periods, including real time, daily, weekly, monthly, quarterly or annually. Customized reports for specific date ranges can also be created.

MIS basically provides entrepreneurs with different types of information –

- descriptive,
- diagnostic,
- predictive and
- prescriptive.

**Descriptive information**

It provided by MIS gives an entrepreneur 'what is 'the state of business. Examples of 'what is' information includes sales reports, financial reports, production reports, shipping and receiving reports and customer service reports.

**Diagnostic information**

The diagnostic information finds out what is wrong with business or industry. The diagnostic information compares the 'what is wrong' information to standardized correct information. Entrepreneurs use diagnostic information coupled with other information types to make decisions regarding corrective actions. For example, a shipment report indicates how many units of product 'x' shipped (descriptive information) but the key performance indicator report indicates that shipments have fallen below target levels (diagnostic information)

**Predictive Information**

As indicated by its name, predictive information provides entrepreneurs with 'what if' scenario analysis. Predictive information generated by MIS does not always answer "what if' but it does provide entrepreneurs with information to determine future scenarios based on current information. Example of predictive include: "what will be the sales next quarter Will prices stabilize next year?

**Prescriptive information** answers the question "what should be done" After the predictive information provides the entrepreneurs with the 'what if' scenario and the diagnostic

information provides the 'what is wrong' information the prescriptive information leads the business people in the direction to make an informed decision

A management process is executed through a variety of decisions taken at each step of planning, organizing, staffing, coordinating and control. MIS aids in decision making. The objectives of MIS are to provide information for a decision support in the process of management. It should help in such a way that the business goals are achieved in the most efficient manner. Since the decision making is not restricted to a particular level, the MIS is expected to support all the levels of the management in conducting the business operations.

An effective MIS presents an entrepreneur with up-to-date information on project work allowing the entrepreneur to make decisions that keep the project on schedule and within budget. Without timely information an entrepreneur may not be able to make appropriate decisions and completion of the project may generate extra cost. The MIS improves project management and results in a competitive advantage compared to companies not using such a system.

## 6.28 MIS FOR PROJECT MANAGEMENT - ADVANTAGES

**Keep schedule and costs on track**

Because the MIS keeps track of current costs and work progress, the entrepreneur is aware of deviations and discrepancies as soon as they occurred. The entrepreneur can reassign the resources, adjust the schedule and implement new procedures to reduce costs. The MIS tracks the results of the corrective action and lets the entrepreneur know whether the changes have been effective. The rapid notification and the tracking of the results of actions gives companies using MIS a competitive advantage in bringing projects in closer to the schedule and with budget.

**Manage documentation more effectively**

A key part of project management is controlling, sharing and updating documentation. A MIS tracks documents by references and revision numbers and ensures that the people on the distribution list have an up-to-date copy. Minutes of meetings, drawings and specifications take time to distribute and track manually and manual control is subject to errors. The MIS reduces costs by automating this process and making it more reliable. This part of an overall cost reduction for the use of a MIS contributes to the competitive advantage

**Reduces costs for bids and contracts**

A MIS saves money by reducing the time spent on selecting sub contractors and managing their work. Once the contract is awarded, the MIS retains a paper trial on contractual documents, reducing the scope for disputes. The cost of the purchased materials may be lower if the entrepreneur can evaluate more bidders due to the reduced work load. The reduced cost from this and from improved contractual document handling contributes to the competitive advantage provided by lower project management costs.

**Better information leads to better decisions**

The purpose of MIS is to provide quality information to entrepreneurs. Through MIS detailed records of project processes such as permitting work hours and the results of testing are given. With such high quality information at the disposal, the entrepreneur has a more complete overview of how the project is developing and can make decisions that are more likely to give the results that is needed. Such a competitive advantage results in projects that more effectively fulfill the required functionality and improves over all business performance.

**Role of MIS in decision making in projects**

MIS combines software, hardware in an integrated solution that provides management with data in a format suitable for analysis, monitoring, decision making and reporting. The system collects data, stores it in a data base and makes it available to users over a secure network.

**Information access**

Entrepreneurs need rapid access to information to make decisions about strategic, financial marketing and operational issues. Companies collect vast amounts of information including customer records, sales data, markets research, financial records, manufacturing and inventory data and human resource records. However much of the information is held in separate departmental database making it difficult for decision makers to access data quickly. A Management Information System simplifies and speeds up information retrieval by sorting data in a central location that is accessible via a network. The result is decisions that are quicker and more accurate.

**Data collection**

Management Information System brings together data from inside and outside the organization. By setting up a network that links a central database to retail outlets,

distributors and members of a supply chain companies can collect sales and production data daily or more frequently and make decisions based on the latest information
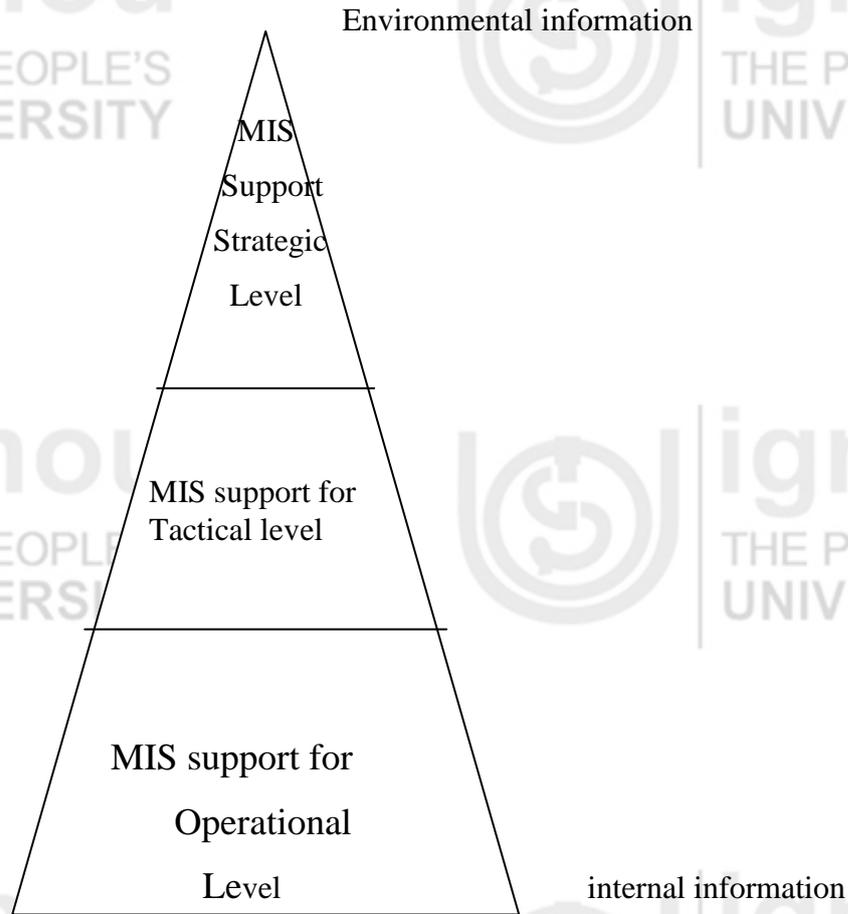
**Collaboration**

In situations where decision making involves groups as well as individuals management information systems make it easy for teams to make collaborative decisions. In a project team for example, MIS enables all members to access the same essential data even if they are working in different locations.

**Presentation**

The reporting tools within the management information systems enable the decision makers to tailor reports to the information needs of other parties. If a decision requires approval by senior executive, the decision maker can create a brief executive summary for review. If managers want to share the detailed findings of a report with colleagues they can create full reports and provide different levels of supplementary data.

**Anthony's framework of MIS**

The role of MIS in an organization is to provide the right information to the right people at the right time. Anthony's framework of MIS is important in this context. MIS is responsible for providing the different levels of management with different types of information. At the top level, MIS provides information to help in strategic decision-making, at the middle level MIS provides information for tactical decision making and at the bottom level MIS provides information for taking operational decisions.

Environmental information

MIS
Support
Strategic
Level

MIS support for
Tactical level

MIS support for
Operational
Level                    internal information

**Organizational pyramid vs. information**

As can be observed in the figure, the quantity of information decreases as one goes up the pyramid. However the value of information and the demand on the quality of information increases as we go up the pyramid. This is called information filter. The top management had neither the time nor the inclination to go through lots of operational data. Hence the need for filtering.

The MIS that support operational, tactical and strategic management in each of the representative functional areas are given below:

| Area | Production | finance | Personnel | marketing |
|------|-----------|---------|-----------|-----------|
| Strategic | New plant location | Alternative financing | Welfare policy | Competitor survey |
| Tactical | Production | Variance | Performance | advertising |

| | bottleneck | analysis | appraisal | |
|---|---|---|---|---|
| operational | Daily scheduling | Pay roll | Leave records | Sales analysis |

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## 6.29 OPERATIONAL DECISIONS

**Daily schedule**

Daily schedules refer to the detailed assignment of jobs to machines in a production environment. Such schedules must be detailed, unambiguous reports produced in large numbers at relatively low cost. Most of the information contained in such reports is internal to the organization

**Pay roll**

Pay roll represents a typical operational system for the financial management. Since such systems must execute accurately, data pertaining to a large number of staff in a timely manner, month after month, cost based efficiency and speed would be major considerations in the design of such a system.

**Leave records**

Leave records constitute a major statutory record that must be maintained for very employee throughout the service period.. The MIS built for such an application has the primary aim of minimizing the chore involved in such large scale mundane record keeping. Once again speed and accuracy are the major performance measures of such system.

**Sales analysis**

Detailed sales analysis is essential for any sales and marketing function. It might involve a detailed data collection and processing pertaining to every salesman, every product over a long time span – en entire year or a quarter - with details of the region, market segment etc. It is therefore a complex data collection and processing function. Accuracy and timeliness of this effort would decide the quality of tactical and strategic decisions that may be based on summary information generated from this data. Accuracy and disaggregation would be the watchwords for such detailed data collection effectively

**Tactical decisions**

At tactical level one could visualize a production bottleneck analysis in a manufacturing environment. Such analysis would call for senior management involvement, by people with

years of experience. Comparative analysis – shift wise, plant wise, machine wise, operation wise etc may be necessary. The watchwords would be insight and analysis and not mere reporting of data.

**Variance analysis**

Variance analysis for the finance function calls for systems that point out deficiencies, cost over runs, budget expenses etc by carefully matching goal or target information with summary information generated by operational data. Once again, accuracy is important but what is more important is the clear recognition and highlighting of pattern that can help the entrepreneur to initiate action and bring systems under control

A tactical system under the personnel function is the performance appraisal which would take into account among others the individual employee's leave records.

**Advertising information system**

It is another example of tactical information system for marketing function of management. Needless to say, planning for advertisement would use much of the information generated by detailed sales analysis (an operational MIS system) . But to be able to decide on the levels of advertisement , mix of advertisement, budget for advertisement etc calls for certain policy parameters as well as environment (outside organization) information. This point must be clearly borne in mind in designing MIS for tactical decision situations.

**Strategic decisions**

A strategic decision by the production function of the management is for example deciding about the location of a new plant. Such a decision requires much of the internal information generated by the tactical system designed to analyze the production bottleneck which is internal to the organization. But a long term decision like location of a new plant is likely to be influenced far more by environmental information such as changing market, changing technology, changing fiscal and government policy e.g deregulation and tax incentives for backward area. Obviously strategic information systems should have a mechanism for scanning and assimilating environmental information which are likely to influence strategic decisions in a systematic way.

For the finance discipline, alternate financing is a strategic decision. It uses a summary status information about internal finances of the company, including pay roll, budget, overruns and variance analysis but will be primarily governed by long term policy, business environment

etc. which are strategically important to the survival and growth of the organization. Information support for such strategic decision would call for substantial external information supplemented with internal financial health indicators.

Decision concerning the welfare policy of an organization is a strategic decision that must be made by the personnel management. The decision will be influenced by the internal information about the size and quality of staff, compensation packages etc., but the strategic decision will be governed by the vision for the future of the organization as seen by the top management as well by the labour conditions of the environment. Being a long term decision with impact on the corporate health of the organization, the strategic decision must be supported by the balanced blend of the external and internal information

A strategic decision for the marketing function is a survey of competition and the resulting strategy of gaining a major market share. A detailed analysis of in –company sales and advertising is a necessary pre requisite much will depend upon the present and future strategies of the competitors who are external to the organization. This brings to the focus the importance of external information to the strategic decision.

**Check Your Progress Exercise 2**

**Note:** i) Use this space given below to answer the question.

ii) Compare your answer with the one given at the end of this Unit.

1. What is supply chain management?

_____

_____

_____

_____

_____

## 6.30 SUMMING UP

The environment of entrepreneurs is changing at a rapid pace. Increased competition from all quarters is bringing greater efficiency in companies. The forces of globalization and outsourcing are changing the manner in which business are managed. The rules of the game of doing business are being rewritten. Increased uncertainty in the market and increased customer focus are making businessmen more and more tuned to the market for information. Reduced hierarchy and increased transparency along with the emergence of civil society and media has made business organizations vigilant.. In short the changes sweeping through the

business environment are nothing short of a revolution. In order to stay afloat as a business entity, entrepreneurs have to rely on management information system to remain proactive and step ahead of market competition. Management information has emerged  as the differentiator  that provides competitive advantage in such an environment.

MIS in an organization is implemented to perform specific role. The role of MIS in an organization is to provide the right information to the right people at the right time. Anthony's framework of MIS is important in this context. MIS is responsible for providing the different levels of management with different types of information. At the top level, MIS provides information to help in strategic decision-making, at the middle level MIS provides information for tactical decision making and at the bottom   level MIS provides information for taking operational decisions.

 Information system providing information to entrepreneurs that help them in decision making is called Management Information System. The MIS provides different types of information to different levels of management. The information flow within an organization is analyzed and MIS is designed on the basis of the flow. Managers manage the organization by using reports. Several types of reports are used by the managers like scheduled reports, on-demand reports, exception reports, predictive repots, summary reports and statutory reports. The reports help the managers to perform planning, organizing, directing, and controlling better by presenting the relevant information to the managers. MIS benefits the entrepreneurs in many ways. It increases productivity, enhances quality of decision making, improves communication and teamwork and helps in organizational transformation. MIS uses information technology to help deliver greater value to the organization by leveraging the power of IT for faster and accurate information processing and delivery.

The job of MIS is to deliver information after having gathered, stored and analyzed it. MIS is used by entrepreneurs to improve efficiency and reduce costs. The MIS is of different types like OAS, DSS, and TPS. Each such information system has got a specific use.  MIS has several sub systems. MIS is a collection of sub systems to deliver information to those who require information for the purpose of decision making. MIS deals with managerial decision making. Such systems run on ICT platforms. The introduction of information technology in developing good MIS is to enhance the timeliness and quality characteristics of the

information. However the subject of MIS does not necessarily mean a study of information technology but then MIS of today's corporation has an overwhelming component of IT in it.

## 6.31 GLOSSARY

**Office automation:** Office automation refers to the varied computer machinery and software used to digitally create, collect, store, manipulate, and relay office information needed for accomplishing basic tasks. Raw data storage, electronic transfer, and the management of electronic business information comprise the basic activities of an office automation system. Office automation helps in optimizing or automating existing office procedures. The backbone of office automation is a LAN, which allows users to transmit data, mail and even voice across the network. All office functions, including dictation, typing, filing, copying, fax, Telex, microfilm and records management, telephone and telephone switchboard operations, fall into this category. As office methods evolved to take full advantage of new technologies, there was a corresponding increase in innovations tailor-made to optimize office processes. Office automation was a popular term in the 1970s and 1980s as the desktop computer exploded onto the scene.

**Data Based Management System:** A database management system (DBMS) is a collection of programmes that enables you to store, modify, and extract information from a database. There are many different types of DBMSs, ranging from small systems that run on personal computers to huge systems that run on mainframes. The following are examples of database applications:
- computerized library systems
- automated teller machines
- flight reservation systems
- computerized parts inventory systems

From a technical standpoint, DBMSs can differ widely. The terms *relational*, *network*, *flat,* and *hierarchical* all refer to the way a DBMS organizes information internally. The internal organization can affect how quickly and flexibly you can extract information.

## 6.32 ANSWERS TO CHECK YOUR PROGRESS EXERCISE

### Check Your Progress Exercise 1

1. Basically Management Information System is a combination of several sub systems based on the data base in the organization. These sub systems are for storing, organizing, processing and so on.

   #### *Characteristics of MIS*

   MIS being a specialized information system confirms to certain characteristics. These characteristics are generic in nature. These characteristics remain more or less the

same even when the technology around such management information system changes.

## Management oriented

One important feature of MIS is that MIS is designed top-down. This means that the system is designed around the need felt by the management at different levels for information. The focus of the system is to satisfy the information needs of management.

## Management directed

Since MIS is 'for the management' it is imperative that it also should have a very strong management initiative. Management is involved in the designing process of MIS and also in the continuous review and up-gradation to develop a good qualitative system. The system is structured as per directions factored by management. This helps in minimizing the gap between expectation of management from the system and the actual system

## Integrated

MIS is an integrated system. It is integrated with all operational and functional activities of management. This is an important characteristic and requirement for a system to qualify as MIS. The reason for having an integrated system is that information in the management context for decision making may be required from different areas from within the organization. If MIS remains a collection of isolated systems and each satisfying a small objective, then the integrated information need of managers will not be fulfilled. In order to provide a complete picture of the scenario, complete information is needed which only an integrated system can provide.

Common data flows:

## Strategic planning

MIS cannot be designed overnight. It requires very high degree of planning which goes into creating an effective organization. The reason for this kind of planning is to ensure that the MIS being built not only satisfies the information need of the entrepreneurs today but can also serve the organization for the next 5 to10 years with modifications. Sometimes when the planning part is done away with, systems tend to perform well in the present but they tend to become obsolete with time. Strategic Planning helps to avoid this problem.

**Check Your Progress Exercise 2**

1. Supply chain management systems enable entrepreneurs to share information via secure networks with suppliers and business partners, improving efficiency and controlling costs throughout a supply chain. Companies provide supply chain managers with information on sales and production requirements that enable partners to plan their own operations efficiently. They also update members on changes in market conditions so that they can adjust production in line with new demand levels.

## 6.33 REFERENCE

Curry,A.Flett Phollingsworth(2006). "Managing information and system" The Business Perspective Oxon. Rouiledge.

Obrien,J.A.,Jr. (1990) Management Information System". Chicago:Irwin

Laudon,K and J.P.Laudon. (1995), Management Information Systems" Newyork: Macmillan.

Nirmalya Bagchi ( 2010 ). Management Information Systems". Vikas Publishing House pvt Limited, New Delhi.

Davis, g.b and M.Olson, (1985) Management Information Systems". Newyork: Macmillan

Sadagopan,S.(1997)  Management Information System". PHI Learning Private Limited, New Delhi.

Ahituv N and S.Neumann. (1990) "Principles of Information System for management" Dubuque: Wm.c brown Publishers.

Curry A., P.Flett and  F.Hollingsworth.(2006). "Managing information and systems: The business perspective". Oxon: Routledge

Haag,S., M.Cummings and D.J.McCubbrey. (2004). "Management Information Systems for the  Infodrmation age., New Delhi: Tata McGraw-Hill

Marschak,J.(1971) "Economics of Information Systems", Journal of the American Statistical Association, Vol.66,192-219

Ahituv, N and S.Neumann (1990) "Principles of Information system for management": Dubuque: Wm.C Brown publishers

Curry,A.Flett Phollingsworth(2006). "Managing information and system" The Business Perspective Oxon. Rouiledge.

Marchand Donald A (2000). "Competing with Information" West Sussex: John Wiley and sons

## 6.34 QUESTIONS FOR REFELCTION AND PRACTICE

1. Give three major applications of MIS for entrepreneurial activity
2. What is the contribution of MIS in entrepreneurial activities?

3. Can you visualize MIS without computers? Justify your answer.
4. Give examples for strategic, tactical and operational MIS.
5. Define ERP
6. What is CRM?
7. What is BI?
8. Define DSS.
9. What is globalization?
10. What is out sourcing?
11. Explain how information can be considered as a resource.
12. Explain the need for MIS in changing business trends.
13. What is meant by data?
14. What is information?
15. What are the dimensions of information?
16. What is the role of information in decision making?
17. Differentiate information system from information technology