Topics Covered/Syllabus

- *Evolution of a Information System*
- *Basic information system*
- *Decision making and MIS*
- *MIS as a technique for making programmed decision assisting information system*
- *Project planning for MIS*

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CHAPTER

EVOLUTION OF A INFORMATION SYSTEM

2.1. EVOLUTION OF A INFORMATION SYSTEM

Q.1. How do the Information system evolve? ***(KU 2014, 2010)***

Or

Briefly explain evolution of Information system.

Ans. Emergence of a new scientific paradigm : Emergence and expansion of MIS can be considered as the result of effects and consequences of "computer" invention in industrial developed countries. The concept of MIS was first used in 1965 in management department of Minnesota University.

It was, then, soon adopted by many management academic centers as a modern scientific attitude. Unfortunately, MIS did not progress as expected while communication and information technology has changed and transformed a lot during a period of less than 20 years. The main objective of this paper is to investigate and criticize important factors effective on MIS transformation and evolution (Panahi,2000).

Conceptual ambiguities of the classical paradigm : MIS was basically predicted and designed for organizational and managerial applications. Hence, it was called *"Management Information System"* which is composed of three concepts: "management", "information" and "system". Since, the beginning the main objective of MIS was to present cognitions and solutions to, and conduct required scientific principles and techniques for management students, managers and decision-makers of the society in order to design, apply and manage automatic information systems in organizations and management section. But many specialists and experts are still debating on the title. Therefore, no comprehensive definition of MIS is available. Here, we mention some definitions proposed so far: MIS deals with planning for management development and using information technology tools to help individuals implement all functions and performances concerning information processing and management. MIS is a

system which receives data from different units and produces information and provides managers in all levels with relative, just-in-time, precise and uniform information for decision-making.

MIS is a manual or computer system which improves every organization's just-in-time use, management and processing of data and information (Feizi, 2005). MIS involves official methods of providing precise and just-in-time information to facilitate managers' decision-making processes while planning, controlling and making effective and optimal decisions in the organization.

As can be seen, all definitions (except the last two ones) define MIS as a "system" not a "knowledge" or a "separate scientific specialty" and this is while MIS is firstly considered as a modern scientific paradigm the goal of which is to develop and apply new methods in analyzing, designing and applying automatic information systems in all fields requiring information production and exchange (Berch,1992). In general.

MIS can be considered in three concepts based on various definitions and studies mentioned so far:

1. **MIS (Management information systems) :** It is an independent "scientific field" which, like other sciences, provides required knowledge and cognition on planning and developing applied information systems. It must be noticed that MIS is not only useful in management, but also in all fields requiring information.
2. **MIS (Managerial information systems) :** As a "system" the main objective of MIS is to provide the organization with its required information. Information produced in this way can be used by managers directly as a supporting decision.
3. **MIS (Management of information systems) :** A set of management tools and methods used to maintain, guide and control automatic information systems in organizations and management section.

2.2. BASIC INFORMATION SYSTEM

Q.2. Give a detailed account for basic information system. **(Imp)**

(KU, 2015, 2014, 2012)

Ans. Management is the often unseen force that helps bind an entire organization and helps it to achieve its objectives by conducting the activities of planning, directing, organizing and controlling. In an organization the structure of management conforms to the pattern of a pyramidal structure (in most cases) with a well-defined hierarchy.

This hierarchy in the management with an increasing authority and responsibility as one rises up the pyramid has to be understood before a suitable MIS is designed for the organization. Management deals with organizational functions. Managers are the people who drive an organization by planning for its future, organizing and

controlling its present and directing others in the organization to work towards a common objective. However, strictly speaking, in functional terms, management is all about taking decisions. In fact, the only attribute, which distinguishes a manager from the rest of people in the organization, is the manager's ability to take decisions.

However, decision cannot be taken in isolation. Even simple decisions require information as an input.These decision requirements fuel an insatiable need for information within the organization. This information need is met by a set of information systems working in a synchronized manner, which is collectively called management information system (MIS).

The competitive environment of today's business necessitates that the MIS of any modern organization works on an information technology platform and that suitable information is delivered to the right person at the right time. Information systemscan be theoretically even manual systems but for all practical purposes3, information systems in today's organizations are based on information technology platforms.

Therefore, such information systems are expensive to acquire and maintain. The cost of their failure is even more expensive for the organization as lack of information may cause havoc within the organization. Thus, almost all business organizations have an information technology enabled information system.

Basic information systems : Definition and Characteristics

The role of information in enhancing the competitiveness of an organization has been known in management circles for quite some time now.

Timely information has always conferred power, both in the commercial and in the political marketplace. But as the availability and timeliness of information continues to increase, some of the more traditional sources of power (e.g., natural resources), are declining.

Today, management structures are being flattened and sharply reduced by those who really understand the impact of technology on business. The need for layers of management is being reduced everywhere, when information becomes available to more and more people at all levels at a faster rate; One of our leadership tasks is to design... databases which are important for our own business Anything that enhances the value of a company's data and makes it more available to executives who lack computer skills in general, cannot help but improve the performance of our companies. Corporations may have to develop a formal information strategy, or a formal financial strategy. As all successful companies are market driven, timely access to market information must not only be out in place, but it has to be linked to the internal MIS system.'

According to 'Nothing is more central to an organization's effectiveness than its ability to transmit accurate, relevant and understandable information amongst its employees. All of the advantages of an organization's economy of scale, financial and

technical resources, diverse talents and contacts are of no practical value if the organization's employees are unaware of what other employees require of them'.

Information systems come a long way. Over the years, their role in the organization has increased and their importance understood and valued by all. They have become sophisticated and now offer a variety of benefits to organizations. They deliver value by enhancing the organization's internal communication channels, extending suitable information to managers to help them take decisions, help in decision-making of top level management by simulating different scenarios, assisting in routine office tasks by automating them, capturing, stores and mapping all transactions between the organization and its internal and external customers. In short, in an organization they are all pervasive and offer tremendous value. This is evident from the enormous investments in information systems by most business organizations. Let us now formally define information systems and its related concepts.

Information System : Information systems are a special class of systems whose main objective is to store, retrieve and process, communicate and secure data. Information systems which help management at different levels to take suitable decisions are called management information systems. Typically information systems are housed in a computerized environment/platform to enable users to get faster and accurate information.

Q.3. Explain the why is there need of an information system? Also explain how does it impact the system?

Ans. Business and business environment have changed dramatically in the last one and a half 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.

Managers who run businesses are always tuned with the market realities so that they can react with minimum time and effort in case any problem or opportunity 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 proactive decision-making to embrace the changes in the marketplace and turn threats into opportunities. However, before we proceed any further, let us take a look at the major trends in modern business environment that have forced management thinkers to take a new look at the management of information.

1. Increasing Competition : The most important trend in the modern business environment is the increase in competition. Competition has forced businesses to become more efficient and effective. More and more corporate entities are obsessed with the efficient use of its resources to beat competition. Capital is freely flowing to low-cost (but not necessarily low quality) manufacturing and servicing hubs, the

world over. Economies of scale have become important along with the productivity of capital and labor. In fact, most of the measures that a business entity takes today are with a focus on competition. The main reasons for this increase in competition are due to Globalization and Liberalization

Market dynamics favoring the efficient. The markets have become demand driven. Customers today have greater choice and hence demand for better quality at a lower price, which in turn favors those companies which are efficient in their use of resources as they can deliver a better quality product at a lower price.

2. Increasing uncertainty in the marketplace : The fast pace of technological change and innovation has resulted in uncertainty. Businesses are continuously 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 alternatives get made in shorter time and from the most unexpected competitors and locations of the world.

This competition from unknown competitors and from unknown technologies and products creates a sense of uncertainty among businesses. The manner in which 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 shocks in the organization and by reducing the reaction time to changes in the marketplace. Information management becomes a crucial weapon in such environs where uncertainty is a certainty.

3. Increasing Globalization : Globalization is also another important trend in today's business. Geo-political boundaries have lost much of their relevance in business due to globalization. Today a other country business house can source its raw materials/components from a country in manufacture/assemble in China and sell it in Europe or 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. Corporations have a more pragmatic view of business and focus only on increasing value.

Globalization is a force in modern business that is growing with every passing day. Organizations are on the lookout for global markets, global manufacturing hubs, global logistic hubs, global labor force and global presence. Today a business entity tries to scale up its business to a global scale as soon as possible. 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.

Globalization has today transformed from being a business philosophy to a unifier. Several books have been written on the effects of globalization. Globalization has brought opportunities as well as threats to business.

4. Increasing tendency of outsourcing : More and more businesses are trying to beat competition by staying focused on their core functions and competencies and outsourcing the rest of the non-key functions to specialized firms.

Specialized firms have sprung up (especially in low cost countries like India) that have made managing the non-core businesses of other companies their core competence.

This helps the outsourcing companies to remain profitable by lowering costs and improving quality of its key and non-key areas. Its key functions are now free to be given complete focus within the organization and its non-key functions are now key functions for someone else Le. the outsourced entity. The tremendous wage arbitrage opportunity provided by transferring these non-core jobs to developing countries makes it a lucrative proposition for companies in developed countries..

5. Reducing hierarchy and improved transparency : Businesses have themselves transformed over time. The organization structures of business organizations are becoming flatter reducing unnecessary hierarchy.

The popular corporate culture within organizations, both in the West and in developing countries like India and China has changed dramatically to a more informal first name, efficiency focused and work driven culture.

6. 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 business in some cases. Environmental pollution, global warming, consumer protection, safety, etc., have now come to the centre stage of business attention. No business house can afford to ignore these interest groups in this changed order.

7. Increasing customer focus : Businesses have become increasingly aware of the need for customer focus to improve market share. They have realized that the customer today has a choice as never before. Those companies which will ensure customer loyalty through good delivery and service will come out as winners in the marketplace.

These trends of modern business indicate that the way business was being conducted has changed and will evolve further in the coming years. Now a more competitive business environment exists. Liberalization and globalization have made international and geographic boundaries meaningless. Cultural changes and social empowerment have themselves brought in positive changes in organizations. Corporate governance initiatives and media focus have made business more accountable and open. The WTO has reduced trade barriers. Businesses cannot survive in this environment in

isolation. They have to embrace these changes. The increasing uncertainty of market forces have to be neutralized by visionary decision-making. Businesses have to be proactive. Decisions will have to be based on proactive approach such as using predictive analysis rather than the age-old reactive approach. Efficiency will ultimately decide who wins and who loses. The need therefore is for faster access to the right kind of information and insight to improve the quality of management decision-making.

8. Increasing focus on knowledge in business : Business organizations are focusing more and more on knowledge as a key ingredient for success along with capital and labor. Focus is more on using knowledge to increase output and get greater value for the resources applied. More and more companies are investing therefore, 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.

2.3. DECISION MAKING AND MIS

Q.4. What are decision making tool and techniques assisting in decision making?

Ans. Decision making techniques can be classified in terms of decision-making in situations of certainty, uncertainty and risk. In certainty, where the outcomes are certain, no decision-making tool is required as the outcomes are certain to occur and hence anyone can take the correct decision (the obvious one). However, decision-making under risk means that the probability values associated with the success and failure of outcomes is known but the outcomes are by no means certain. In these kinds of situations, one can use the decision tree method to take decisions.

Decision making under Risk—

Decision tree : The decision tree method uses an oriented tree or the direction associated tree to represent the decision-making process. The nodes represent points in time, where the decision-maker takes one or the other decision and takes a path or is faced with a state of nature or the decision process terminates. Directed paths emanate out of nodes. These are called *branches*. They represent the decision branches for possible decisions under a state of nature. Under each branch the probability associated with the success and failure of the event is noted. Decision trees are helpful when probabilities are available for each event and are used to determine optimal decisions.

The decision-maker has to first prepare the decision tree and then from the terminal nodes calculate the expected payoff for each path of decision-making by back calculating. The path that gives the maximum payoff is the optimal decision path.

A is the starting node from where the decision-making starts and T are the terminal nodes that represent the possible terminal stages of decision-making. The

lines connecting nodes are called branches. As is evident, the branches represent decision paths and probability of success and failure are associated with each branch.

Decision-making under uncertainty means that decision-making is done when the probability about the success or failure of events is not known, unlike in decision-making under risk, where the probability values of success or failure is known. In such circumstances when the probability of occurrence of the states of nature are not known we use.

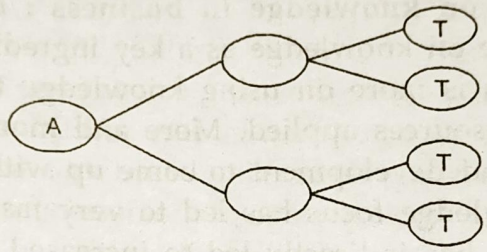

Fig. 2.1

Decision making under uncertainty—

Laplace criteria : In this technique equal probabilities are assigned to the possible payoffs and then selection is based on the maximum expected payoff.

For example, if a farmer does not know the probability of high or low rainfall but wants to plant a crop of wheat, rice or bajra for which the expected payoffs are as given below, then Laplace criteria is used in this case as,

Crop	Heavy rainfall H	Low rainfall L	Expected payoff (0.5 x H+0.5 x L)/2
Wheat	50	30	40
Rice	60	10	35
Bajra	20	30	25

Since, wheat gives maximum expected payoff the farmer selects wheat.

This method has been modified by using regret matrix and more refined methods are available like Hurwicz criteria and savage method.

Qualitative tools of decision-making : Some of the qualitative tools of decision-making are:

1. Pareto analysis
2. Force field analysis
3. Six thinking hats technique
4. Paired Comparison Analysis
5. Plus minus implication.

2.4. MIS AS A TECHNIQUE FOR MAKING PROGRAMMED DECISION ASSISTING INFORMATION SYSTEM

Q.5. How does MIS help in Decision making?

Ans. Information plays a vital role in decision-making. Even to take very simple decisions, we need information. To understand the role played by information in decision-making, we have to understand how decisions are taken. Decision-making is basically a process that includes the following stages:

Information is thus, very important to take decisions.

Imagine a simple decision like the one a driver (say) makes when he puts on the brakes to stop a speeding vehicle when he sees a child crossing the road (in middle of the road). The driver decides on braking based on a lot of information processing that happens in his brain. At every stage of the decision-making he uses information that he captures visually. All decisions are like this.

First, we get information about a problem, format it into a structure and then factor in the information about the context in which the problem has occurred. Like in the above case instead of the child being at the middle of the road and crossing it, the driver would have seen the child about to cross over with a few steps only he would probably not have braked to stop but would have slowed down, as he would have calculated that by the time the vehicle reaches the crossing stage, the child would already have passed.

So, if the problem was structured as 'how to not hit the child crossing the road?', and if the child was at the middle of the road, the driver would have braked but had the child been at (say) at ninety per cent completion level of crossing the road, the driver would have only slowed down and not braked to stop.

Therefore, we see that the context has a major role in the decision-making and information is required both about the problem and about the context in which the problem occurred. The next stage for the decision maker would be to generate alternatives. In the driver's case such possible alternatives would be

Stages of Decision-making	Role of Information
1. Identification and structuring of problem/opportunity	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.
2. Putting the problem/ opportunity in 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.

3. 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.
4. Choice of best alternative	Based on the information about the suitability of the alternatives, a choice is made to select the best alternative.

(*a*) to stop by braking
(*b*) to slow down
(*c*) to take a sharp turn towards left or right to avoid the child
(*d*) press the horn so that the child crosses the road fast
(*e*) To drive the vehicle on to the footpath and out of the road to avoid collision, etc.

Decision-making is the most important task of managers in an organization. Therefore, to enable managers to take good quality decisions, it is very important to provide them with the right kind of information.

Information management in organizations therefore assumes a special significance. In most organizations, business or otherwise, a systematic systems based method is used for information management. Systems based information management works best under a computerized environment and such computer based information management system is normally called '*Management Information Systems (MIS)*', which provides the service of information supply to the managers enabling them to take informed decisions. It may be worthwhile to mention here that MIS does not necessitates the use of computer based technology, but the use of computers and information technology makes MIS suitable for business organizations in a competitive environment as it helps to provide timely and accurate information.

MIS done manually, without the help of computers is neither timely nor accurate.

Q.6. What do you understand by Decision making? Discuss the nature and characteristics of decision?

Ans. The word **decision** is derived from the Latin word decide. Which means A decision, therefore is

- A Settlement
- A fixed intuition to bringing to a conclusive result
- A judgment
- A resolution

Decision: A decision is the choice out of several options made by the decision maker to achieve some objective in a given situation.

Business decision: Business decisions are those which are made in the process of conducting business to achieve its objective in a given situation.

Characteristic of Business Decision Making:

(a) Sequential in nature.

(b) Exceedingly complex due to risk and trade off.

(c) Influenced by personal values.

(d) Made in institutional setting and business environment.

Rational decision making: A rational decision is the one which, effectively and efficiently, ensure the achievement of the goal for which the decision is made .In reality there is no right or wrong decision but a rational decision or irrational decision which depends on situation.

Type of Rationality—

Objectively: Maximum the value of the objectives.

Subjective: If it is minimize the attainment of value in relation to the knowledge and awareness of subject.

Consciously: Extent the process of the decision making is a conscious one

Organizationally: degree of the orientation towards the organization.

Personal: Rational to the extent is achieved an individual's personal reason (goals).

Type of decision making system: There are two types of decision making system on the basis of knowledge about the environment.

(i) **Closed:** If the manager operates in a known *environment* then it is called *closed decision making system.*

Conditions:

(a) Manager knows the set of decision alternative and know their outcome in term of values.

(b) Manager has a model, by which decision alternatives can be generated, tested and ranked.

(c) The manager can choose one of them, based on some goal or objective.

(ii) **Open:** If the manager operates in unknown environment then it is called open decision making.

Conditions:

(a) Manager does not know all alternatives.

(b) Outcome is not known.

(c) No methods or models are used.

(d) Decide objective or goal; select one where his aspirates or desire are met best.

Types of decision: Types of decision are based on the degree of knowledge about the outcome of the events which are yet to take place.

Certainty: If the manager has full knowledge of event or outcome then it is a *situation of certainty.*

Risk: If the manager has partial knowledge or probabilistic knowledge then it is decision under risk.

Uncertainty: If the manager does not have any knowledge, it is decision making under uncertainty MIS converts the uncertainty to risk and risk to certainty. The decision at the low level management is certain, at middle level of the management the decision is under risk and at the top level management the decision is in under uncertain.

Nature of decision: Decision making is a complex task. To resolve the complexity the nature of decision are of two types:

Programmed and Non-Programmed Decision:

(*a*) If a decision can be based on a rule, methods or even guidelines, it is called the *programmed decision.*

(*b*) A decision which cannot be made by using a rule or model is the non-*programmed decision.*

2.5. PROJECT PLANNING FOR MIS

Q.7. Write in brief about Project planning of MIS. **(*KU 2010*)**

Ans. Before starting a software project, it is essential to determine the tasks to be performed and properly manage allocation of tasks among individuals involved in the software development. Hence, planning is important as it results in effective software development.

Project planning is an organized and integrated management process, which focuses on activities required for successful completion of the project. It prevents obstacles that arise in the project such as changes in projects or organization's objectives, non-availability of resources, and so on. Project planning also helps in better utilization of resources and optimal usage of the allotted time for a project. The other objectives of project planning are listed below.

- It defines the roles and responsibilities of the project management team members.
- It ensures that the project management team works according to the business objectives.
- It checks feasibility of the schedule and user requirements.
- It determines project constraints.

Several individuals help in planning the project. These include senior management and project management team. Senior management is responsible for employing

team members and providing resources required for the project. The project management team, which generally includes project managers and developers, is responsible for planning, determining, and tracking the activities of the project. Table lists the tasks performed by individuals involved in the software project.

TASKS OF INDIVIDUALS INVOLVED IN SOFTWARE PROJECT

Senior Management	Project Management Team
1. Approves the project, employ personnel, and provides resources required for the project.	1. Reviews the project plan and implements procedures for completing the project.
2. Reviews project plan to ensure that it accomplishes the business objectives.	2. Manages all project activities.
3. Resolves conflicts among the team members.	3 Prepares budget and resource allocation plans.
4. Considers risks that may affect the project so that appropriate measures can be taken to avoid them.	4. Helps in resource distribution, project management, issue resolution, and so on.
	5. Understands project objectives and finds ways to accomplish the objectives.
	6. Devotes appropriate time and effort to achieve the expected results.
	7. Selects methods and tools for the project.

Project planning should be effective so that the project begins with well-defined tasks. Effective project planning helps to minimize the additional costs incurred on the project while it is in progress. For effective project planning, some principles are followed. These principles are listed below.

(*i*) **Planning is necessary:** Planning should be done before a project begins. For effective planning, objectives and schedules should be clear and understandable.

(*ii*) **Risk analysis:** Before starting the project, senior management and the project management team should consider the risks that may affect the project. For example, the user may desire changes in requirements while the project is in progress. In such a case, the estimation of time and cost should be done according to those requirements (new requirements).

(*iii*) **Tracking of project plan:** Once the project plan is prepared, it should be tracked and modified accordingly.

(*iv*) **Meet quality standards and produce quality deliverables:** The project plan should identify processes by which the project management team can ensure quality in software. Based on the process selected for ensuring quality, the time and cost for the project is estimated.

(*v*) **Description of flexibility to accommodate changes:** The result of project planning is recorded in the form of a project plan, which should allow new changes to be accommodated when the project is in progress.

Project planning comprises project purpose, project scope, project planning process, and project plan. This information is essential for effective project planning and to assist project management team in accomplishing user requirements.

2. Project planning process : The project planning process involves a set of interrelated activities followed in an orderly manner to implement user requirements in software and includes the description of a series of project planning activities and individual(s) responsible for performing these activities. In addition, the project planning process comprises the following.

1. Objectives and scope of the project
2. Techniques used to perform project planning
3. Effort (in time) of individuals involved in project
4. Project schedule and milestones
5. Resources required for the project
6. Risks associated with the project.

Project planning process comprises several activities, which are essential for carrying out a project systematically. These activities refer to the series of tasks performed over a period of time for developing the software. These activities include estimation of time, effort, and resources required and risks associated with the project.

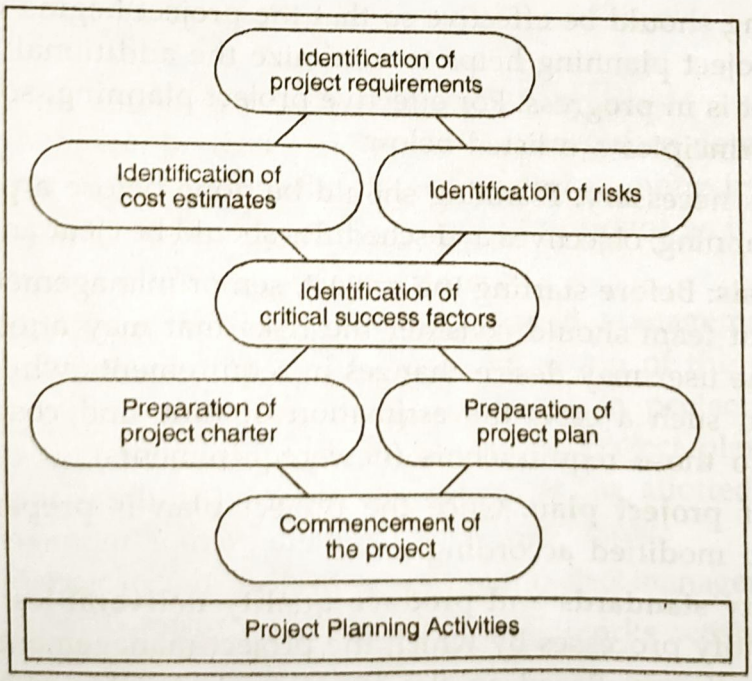

Fig. 2.2

Project planning process consists of the following activities.

(i) **Identification of project requirements:** Before starting a project, it is essential to identify the project requirements as identification of project requirements

helps in performing the activities in a systematic manner. These requirements comprise information such as project scope, data and functionality required in the software, and roles of the project management team members.

(ii) **Identification of cost estimates:** Along with the estimation of effort and time, it is necessary to estimate the cost that is to be incurred on a project. The cost estimation includes the cost of hardware, network connections, and the cost required for the maintenance of hardware components. In addition, cost is estimated for the individuals involved in the project.

(iii) **Identification of risks:** Risks are unexpected events that have an adverse effect on the project. Software project involves several risks (like technical risks and business risks) that affect the project schedule and increase the cost of the project. Identifying risks before a project begins helps in understanding their probable extent of impact on the project.

(iv) **Identification of critical success factors:** For making a project successful, critical success factors are followed. These factors refer to the conditions that ensure greater chances of success of a project. Generally, these factors include support from management, appropriate budget, appropriate schedule, and skilled software engineers.

(v) **Preparation of project charter:** A project charter provides a brief description of the project scope, quality, time, cost, and resource constraints as described during project planning. It is prepared by the management for approval from the sponsor of the project.

(vi) **Preparation of project plan:** A project plan provides information about the resources that are available for the project, individuals involved in the project, and the schedule according to which the project is to be carried out.

(vii) **Commencement of the project:** Once the project planning is complete and resources are assigned to team members, the software project commences.

Once the project objectives and business objectives are determined, the project end date is fixed. The project management team prepares the project plan and schedule according to the end date of the project. After analyzing the project plan, the project manager communicates the project plan and end date to the senior management. The progress of the project is reported to the management from time to time. Similarly, when the project is complete, senior management is informed about it. In case of delay in completing the project, the project plan is re-analyzed and corrective actions are taken to complete the project.

Q.8. Elaborate MIS planning in general.

Ans. The plan for development and its implementation is a basic necessity for MIS :

In MIS the information is recognized as major resource like capital and time. If this resource has to be managed well, it calls upon the management to plan for it

and control it, so that the information becomes a vital resource for the system. The management information system needs good planning. This system should deal with the management information not with data processing alone. It should provide support for the management planning, decision making and action. It should provide support to the changing needs of business management. A long range MIS plan provides direction for the development of the system and provides a basis for achieving the specific targets or tasks against time frame. Following are the contents of MIS planning:

MIS Goals and Objectives: It is necessary to develop the goal and objectives for the MIS which will support the business goals. The MIS goals and objectives will consider management philosophy, policy constraints, Business risk, internal and external environment of the organization and business. The goals and objectives of the MIS would be so stated that they can be measured. The typical statements of the goals can be providing online information on the stock and market; the query processing should not exceed more than three seconds and the like.

(*i*) **Strategy for Plan Achievement:** The designer has to take a number of strategic decisions for the achievement of MIS goals and objectives. They are:

(*a*) **Development Strategy:** Ex. an online, batch, a real time.

(*b*) **System Development Strategy:** Designer selects an approach to system development like operational verses functional, accounting verses analysis.

(*c*) **Resources for the Development:** Designer has to select resources. Resources can be in-house verses external, customized or use of package.

(*d*) **Manpower Composition:** The staff should have the staffs of an analyst, and programmer.

(*ii*) **The Architecture of MIS :** The architecture of the MIS plan provides a system and subsystem structure and their input, output and linkage. It spells out in details the subsystem from the data entry to processing, analysis to modeling and storage to printing.

(*iii*) **The System Development Schedule:** A schedule is made for development of the system. While preparing a schedule due consideration is given to importance of the system in the overall information requirements. This development schedule is to be weighed against the time scale for achieving certain information requirements.

(*iv*) **Hardware and Software Plan:** Giving due regards to the technical and operational feasibility, the economics of investment is worked out. Then the plan of procurement is made after selecting the hardware and software. One can take the phased approach of investing starting from the lower configuration of hardware going to the higher as development take place. The process needs matching the technical decisions with the financial decisions.

Q.9. Elaborate general business planning of MIS.

Ans. MIS for Business Planning :

(i) Business environment is prone to changes and this factor makes business planning very complex. Some factors such as the market forces, technological changes, complex diversity of business and competition have a significant impact on any business prospects. MIS is designed to assess and monitor these factors. The MIS design is supposed to provide some insight into these factors enabling the management to evolve some strategy to deal with them. Since these factors are a part of the environment, MIS design is required to keep a watch on environment factors and provide information to the management for a strategy formulation.

(ii) Strategy formulation is a complex task based on the strength and the weakness of the organization and the mission and goals it wishes to achieve. Strategy formulation is the responsibility of the top management and the top management relies on the MIS for information.

(iii) There are various business strategies such as overall company growth, product,market, financing and so on. MIS should provide the relevant information that would help the management in deciding the type of strategies the business needs. Every business may not require all the strategies all the time. The type of strategy is directly related to the current status of business and the goals it wishes to achieve. The MIS is supposed to provide current information on the status of the business goals.

(iv) MIS is supposed to give a status with regard to whether the business is on a growth path or is stagnant or is likely to decline, and the reasons thereof. If the status of the business shows a declining trend; the strategy should be of growth. If business is losing in a particular market segment, then the strategy should be a market or a product strategy.

(v) The continuous assessment of business progress in terms of sales, market, quality,profit and its direction becomes the major role of MIS. It should further aid the top management in strategy formulation at each stage of business. The business does not survive on a single strategy but it requires a mix of strategy operating at different levels of the management. For example, when a business is on the growth path, it would require a mix of price, product and market strategies. If a business is showing a decline, it would need a mix of price-discount, sales promotion and advertising strategies.

(vi) The MIS is supposed to evaluate the strategies in terms of the impact they have on business and provide an optimum mix. The MIS is supposed to provide a strategy-pay off matrix for such an evaluation.

(vii) In business planning, MIS should provide support to top management for focusing its attention on decision making and action. In business management, the focus shifts from one aspect to another. In the introductory phase, the focus would be on a product design and manufacturing. When the business

matures and requires and requires to sustain or to consolidate, the focus would be on the post sales services and support. The MIS should provide early warning to change the focus of the management from one aspect to the other.

(viii) Evolving the strategies is not the only task the top management has to perform. It also has to provide the necessary resources to implement the strategies. The assessment of resource need, and its selection becomes a major decision for the top management. The MIS should provide information on resources, costs, quality and availability, for deciding the cost effective resource mix.

(ix) When the strategies are being implemented, it is necessary that the management gets a continuous feedback on its effectiveness in relation to the objective which they are supposed to achieve. MIS is supposed to give a critical feedback on the strategy performance. According to the nature of the feedback, the management may or may not make a change in the strategy mix, the focus and the resource allocation.

(x) MIS has certain other characteristics for the top management. It contains forecasting models to probe into the future-the business model for evaluation of the strategy performance by simulation business conditions. It contains functional models such as the model for a new product launching, budgeting, scheduling and the models using PERT /CPM technique for planning. MIS for the top management relies heavily on databases which are external to the organization.

(xi) The management also relies heavily on the internal data which is evolved out of transaction processing. Management uses the standards, the norms, the rations and the yardsticks while planning and controlling the business activities. They are also used for designing strategies and their mix. The MIS is supposed to provide correct, precise and unbiased standards to the top management for planning. We can summaries the role of the MIS in the top management function as follows.

MIS supports by way of information, to

- Decide the goals and objectives,
- Determine the correct status of the future business and projects,
- Provide the correct focus for the attention and action of the management,
- Evolve, decide and determine the mix of the strategies,
- Evaluate the performance and give a critical feedback on the strategic failures,
- Provide cost-benefit evaluation to decide on the choice of resources, the mobilization of resources, and the mix of resources.
- Generate the standards, the norms, the ratios and the yardsticks for measurement and control.

Success of a business depends on the quality of support the MIS gives to the management. The quality is assured only through an appropriate design of the MIS integrating the business plan with the MIS plan.

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