CHAPTER - 1
INTRODUCTION

"Where is the wisdom we have lost in knowledge?
Where is the knowledge we have lost in information?
Where is the information we have lost in data?"

- With apologies to T.S. Eliot

The growth of data and information processing are related directly to the growth of organisations which comprise society in general. Since the formation of small, loosely organised tribes in prehistoric days, civilization has evolved slowly but continuously into societies of organisations. This trend towards organisation affects all aspects of our lives. For example, most of us are employed by organisations, educated and trained by organisations, governed by a series of organisations, worship in organisations, and even spend a large amount of leisure in a manner specified by organisations. The evolution of organisations, has two dimensions - there are more organisations, and they are becoming larger and more complex. To operate, control and use these organisations efficiently and effectively, it is necessary to process data and produce information accordingly.

The information system of consumers and producers is of paramount importance, as producers of information, managers
are part of the information system. As consumers of information, managers are key users of information system.

The current trend to formalise and computerise the information system in large organisations has emphasised the role of the manager as a consumer. This movement is responsible for the description, Management Information System (MIS), so common in the literature. However, this same literature is replete with references to automated and computerized systems failing to meet management's information requirements adequately. A survey of the function and role of Management Information System in Maruti Udyog Ltd may provide some insights into why this is true. With this background, one can briefly discuss the role of Management Information System in sales promotion in Maruti Udyog Ltd.

Some authorities state that an essential function of management is to deal with changing conditions. Others say that the essential function is to recognize and assimilate technological changes in such a manner that practical items of value will be produced and disseminated to society in an orderly, timely and economical manner. Still others say that management is simply "getting things done through the efforts of others".

The literature describes many tasks associated with the management function. Some of these tasks are planning.
scheduling, directing, organising, hiring, training, controlling, supervising, and so forth. More current studies emphasize the importance of decision making as an essential task of management. In all cases the importance of information attributes such as accuracy and timeliness are deemed necessary to perform these tasks effectively. However, as important as information is to performing these tasks, the gathering and processing of data to provide the information is usually considered only a minor concern of the manager. In a study concerning the nature of managerial work, Mintzberg defines a manager in terms of ten distinct but inter-related roles.

Significance of Management Information System

There are different reasons for why information systems have become vital today:

1. Organisations have grown to unprecedented complex levels. Information plays a vital role in holding together and co-ordinating organisations.

2. The second reason is the advent of computer in the ground of business. Computer has power to access and record.


2 First Computers, "End-user computing", under Windows 95 part one, Novena Offset Printing Co, Chennai, 1997, p 3
information and perform calculations at speed which is truly unbelievable

3 The progress made in communication technology and the feasibility of linking computers through communication networks is the third reason why computer has become important today.

The available technology provides choice for processing information. Ten years ago, it was far too expensive to provide individual users with computers, but today the investment for a personal computer is not much more than for a sophisticated typewriter. In fact, some researchers in management have gone so far as to define a manager as a transducer that transfers information to decisions. Hence, a new discipline called management information system was born in response to this challenge.

4 Management information system is a formal entity composed of a variety of logical and physical resources. From organisation to organisation, these resources are arranged or structured in an infinite number of ways. Moreover, because organisation and information systems are dynamic resources a structure one constructs today may not necessarily reflect the actual arrangement to these resources the next day.

5 Every organisation has Management Information System which may be manual or combination of man and machine, good, bad or indifferent and deals with the management functions of planning, organizing, directing and controlling.

6 Management information system must provide the managers with the information that is relevant to his decision-making needs. Therefore, the system must contain all the information needed for a specific decision of the manager and must arrive in time.

7 Management Information System (MIS) is closely related with the objectives, policies and strategies organisation established by the management.

8 Management Information System has a major impact on the utilization of physical, human and financial resources of a productive system.

9 Management can distinguish between information oriented problems and those which have other underlying causes. For example, inventories in an organisation may be high because of poor stocking strategies or failure of inventory control information system.

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10. A business organisation does not exist in a vacuum. It is surrounded with environment. Hence, information requirements are never static. In fact, environment is a supersystem of which organisations are subsystems, each having identifiable boundaries that separate a business organisation from its environments which is external and beyond the control of the organisation. A business organisation receives inputs from the environment, transforms them, and returns outputs.

Business environment are of two types, one is internal environment and the other is external environment. External environment may be classified in various ways, such as local, national and international, or past, present and future, or economic and non-economic. The determinants of economic environment are fiscal policy, monetary policy, industry policy, physical controls of prices, incomes etc. The non-economic environment that has direct impact on business organisations comprises of socio-cultural, educational, legal, political, physical, historical and technological.

11. The value of information depends upon analysis.

1 Shukla M C, "Business Organisation and Management" S Chand & Company Limited, New Delhi, 18 edition, 1993 p. 16
explanation and finally understanding. The absence of analysis, interpretation, or explanation is thus of little value. Moreover, human beings and organisations develop a model within which information is valuable.

Today, the frontiers in information processing are systems which also provide information resources in support of managerial and decision-making functions. Such a system is commonly called a management information system or (MIS).

However, decision making is an important aspect of management in managing the activities of an organisation. The quality of decisions made by managers depends upon their intelligence, i.e., the ability to retrieve and understand knowledge. All the managerial functions are necessary for successful organizational performance. To support the functions, especially planning and controlling systems for supplying information to managers are of special importance.

Managers require information which assists them in their decision-making and controlling activities. Information is needed on the estimated selling prices, costs, demand, competitive position and profitability of various products and services rendered. Shareholders require information on the value of their investments and the income which is derived from their shareholdings. Employees require information on the ability of the firm to meet wage demands (regarding wages and salaries, bonus, incentives and perquisites, etc.) and avoid redundancies. Creditors and suppliers of loan capital require information on a firm's ability to meet its financial obligations. Government agencies like the Central Statistical Organisation collect accounting information and require such information as the details of sales activity, profits, investments, stocks, dividends paid, the proportion of profits absorbed by taxation, and so on. In addition, the Income Tax Office needs information on the amount of profits and earnings which are subject to taxation. Similarly, the Sales Tax Department, the Commercial Taxes Department, the Excise Department, the Customs Department, etc., all require data to assess the estimate in their respective field. All this information is important for determining policies to manage the country's economy. The following chart shows the organisation as an information processing entity.
Chart - 1
The Organisation as an Information Processing Entity

The Law of Information

Generally managers are flooded with information about reports on some aspects while they can't seek some vital information on other aspects. This makes their operations complex and they have to depend much on guess work. Thus, they find it difficult to maintain balance between different aspects of business results.

Professor Finagle\(^1\) has very aptly formulated the Law of Information. He says:

"The information we have is not what we want
The information we want is not what we need
The information we need is not available."

The complexities of intercorrelating various business processes make it difficult to manage information required to successfully monitor performance of the organisation. Not all information is valuable. So one has to watch cause events, rather than just waiting for results. In everyday life one receives vast quantities of information in excess of requirements. Brains act as filters.

Thus neither too much information nor inadequate data with lack of information are useful to management. Hence accurate.

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timely, relevant and adequate data pertaining to a problem at a certain time are essential for deriving necessary information. Information is knowledge and data ordered and processed in a manner that they can be used for a given purpose at a given time. It is the output of a data processing system, such as an income account and a balance sheet of a company, which summarises information based on accounting data.\(^1\) Information retrieval is the technique of summarising and demonstration of relevant information in business situation, which can be done by organizing data from reports or statements in groups, so that the detailed items do not divest attention from the main issue or graphic display of data in a form which emphasizes trends, changes from year to year etc.

The importance of information system management has increased because of the increased complexities of organisations resulting in diversity of information needs of managers in all functional areas and at all levels.\(^2\) Different kinds of decisions are made at different levels of management which are follow


The top management is usually involved in making decisions about the purpose and mission of the organisation. It's focus is the environment in which he constantly interacts to remain resident and up to date. The top management that fails to liaise with the environment would soon find it difficult to survive. Furthermore, the determination of the purpose and mission of the organisation give only a broad framework for directing the policies and strategies towards that end. They find data for their decision from the environment and use these for the effective decision.

The middle level managers make decisions which are internal in nature. Their decisions are made in the framework of internal needs and capabilities of the association. They find data for their decisions mostly from internal sources and use them to maintain the effectiveness of the organisation.

The first level managers are generally involved in routine decisions affecting their immediate charge which may be a division or a section within the organisation. As a matter of fact, their decisions are not really made by them. They are made by experts on the basis of their knowledge and experience. These decisions are standardized into routines. The main focus of
supervisory level managers is to see that these routine decisions are faithfully followed and implemented

**Data is an Input to the Information System**

Data is an input to the information system as processor is to produce information as an output, as shown in Chart-2. Data refers to material that has not been evaluated for its work to a specified individual in a particular situation.

![Chart - 2](chart.png)

**Information system as processor of Data (Input) to produce Information (output)**

In many circumstances the manager has to make a decision under the pressure of time. The higher the pressure the less perfect the decision is likely to be. This is one of the reasons why all the decisions made by management do not turn out to be right. It is said that a manager who makes fifty percent right

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decisions is supposed to be a successful manager. Therefore the quality of managerial decision is linked with the quality, quantity, adequacy and speedy availability of data. Information is a concept familiar to everyone yet the use of the word in the term management information system is somewhat more precise than its common use. Information consists of evaluated data. Data being symbolic, usually numbers, used to represent things. Information is the raw material and the product planned is the decision the manager has to make. Thus the better in the quality and adequacy of data the higher in the viability of decision. It is almost a tourism that, more often than not, the managers have to make decisions on the basis of incomplete data.
In the olden days, information travelled very slowly, about as fast as a horse could gallop.\(^1\) Competition was scarce. As a result the only way for securing information about the market and the competitors was by venturing into the market and visiting the premises of the competitors.

However, men have over the years used machines and animals to lighten the burden of manual labour. Today one uses computers to lighten our burden of storing, processing and retrieving data for decision making. Conversely, computers may store data which may be in abundance and irrelevant, distorted, polluted, tampered with or similarly unclear data is worse than no data at all.

The Romans built signal stations along the east coast of Britain, which sent off smoke or fire to indicate the approach of the barbarians. As man became more busy and the element of time became important the semaphore system of sending messages by holding the arms or two flags in certain positions according to an alphabetic code was invented to enable quick sending of messages. This consisted of towers with movable arms just within sight of each other, so that messages could be

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passed on from station to station. This was the quickest way of sending messages before the advent of electricity.

Pigeons were also used for communication of information. This was soon replaced by the post. The history of sending information is as old as the oldest writing in the world. The oldest evidence of writing by man, discovered so far consists of clay tablets excavated at summer in Mesopotamia and dated approximately 3000 B.C. These tablets contain records from an inventory system carrying information on receipts and issues made to individuals from a temple gain store. In fact, many historians believe that writing arose in response to the need for such management information.

**Evolution of Management Information System**

The following Chart-3 shows the evolution of MIS. There were four stages of MIS. The first stage (1954-64) was turned as centralised data processing meant for accounting and clerical applications. In the second stage (1965-79) management focussed on data processing for direct support for managers and operational functions. The third stage was known as decentralised.

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end user computing (1980-85) where personnel computers are under direct control of users. The fourth stage (1986-onward) is playing an important role in linking of individual end-users through an interactive network. It is estimated that by 1999, 80 per cent of managers will have hands on access to a computer.

Chart - 3
Evolution of MIS

<table>
<thead>
<tr>
<th>Stage</th>
<th>Approximate Time Period</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 Centralised Data Processing</td>
<td>1954-64</td>
<td>Accounting and clerical applications</td>
</tr>
<tr>
<td>2 Management focussed Data Processing</td>
<td>1965-79</td>
<td>Direct support for management and operation functions</td>
</tr>
<tr>
<td>3 Decentralized end-User Computing</td>
<td>1980-85</td>
<td>Personal computers under the direct control of users</td>
</tr>
<tr>
<td>4 Interactive Networks</td>
<td>1986</td>
<td>Linking of Individual end-users</td>
</tr>
</tbody>
</table>

Source:

Position of Management in an Organisation
The following Chart-4 shows the position of management in the field of any enterprises or company

<table>
<thead>
<tr>
<th>Position</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Chief information officer</td>
<td>Overseas technology, bridge between users, managers, and the technical staff</td>
</tr>
<tr>
<td>IS Manager</td>
<td>Responsible for daily operation of the ISD, including systems analysis and design, user services, operations, etc.</td>
</tr>
<tr>
<td>Department manager</td>
<td>Manages a local ISD, may report to IS manager or to user management.</td>
</tr>
<tr>
<td>Systems manager</td>
<td>Responsible for all systems analysis and design projects.</td>
</tr>
<tr>
<td>Programming manager</td>
<td>Manages and consults for the programming staff.</td>
</tr>
<tr>
<td>Manager of operations</td>
<td>Responsible for all systems that are in production.</td>
</tr>
<tr>
<td></td>
<td>schedules computer use and plans for new capacity.</td>
</tr>
<tr>
<td>Manager of end-user computing</td>
<td>Supports various users who work with special languages and microcomputers.</td>
</tr>
<tr>
<td>Database administrator</td>
<td>Responsible for defining and maintaining applications using database management systems.</td>
</tr>
<tr>
<td>Manager of quality control</td>
<td>Some firms have formal quality groups that varify changes made in existing applications and review and accept new systems.</td>
</tr>
<tr>
<td>Project manager</td>
<td>Leads a team developing a new computer application.</td>
</tr>
<tr>
<td>Manager of systems programming</td>
<td>Responsible for the technical support of the computer and systems software.</td>
</tr>
</tbody>
</table>

Management Information System and Decision Making

The life of a manager is filled with making decisions. Managers see decision making as their central job because they constantly choose what is to be done, who is to do, when, where and how to do.¹

Management information system exists to support the decision making process of managers by identifying decision needs and supplying supportive information. The decision making is the process of selecting among several alternatives, the best alternative in order to resolve a conflict. Decisions are typically characterized as unstructured, semi-structured and structured.²

Unstructured Decisions

The unstructured decisions occur when the relevant parameters as well as the influencing relationships are unknown. The manager does not know the information required. The information system can be of no help to the manager under this type of situation.

¹ Prasad L M., "Principles and Practice of Management", Sultan Chand and Sons New Delhi, 1997, p 207
Semi-Structured Decisions

Semi-structured decisions occur in an environment where the relevant parameters are mostly known and where influencing relationships are suspected or are approximately known. In such cases the MIS can provide assistance to the decision maker through provision of information that accurately models the managed system. The supporting system must provide easy manipulation of information and must be responsive to adhoc inquiries.

Structured Decisions

Structured decisions are those where both the relevant parameters and relationships are known. Any decision process that can be defined in a procedure and issued to an organization is an example of structured process. For example, inventory control, the reorder point, determination of the economic order quantity and the safety stock are structured decisions. The structured decisions can be automated and can be computerized. The objective of an MIS is to ensure that all the structured decisions are computer generated and the managers need not spend much time on structured decisions.
Furthermore, Herbert Simon¹ 1977, who won a Nobel Prize for his work on decision making says that management and decision making are the same thing. Decision making begins with the recognition of problem, and once it is recognised and defined, alternatives to change the unfavourable situation into a more favourable one are sought. And according to Dr Prabhati Pati, the skill could well be enhanced and sharpened through careful grooming.

Every organisation involves a complicated pattern of decisions ranging from setting of organisational objectives to specific decisions about day-to-day operations. Some of these decisions have long-term effect while others have only short-term effect. From this point of view, decisions fall into two categories: strategic and tactical or operational, and distinction between two types of decisions should be made. The distinction is required because authority for tactical decision may be delegated to lower levels in the organisation while for strategic decision, it cannot be delegated lower than a particular level in the organisation. However, the distinction between strategic and tactical decisions is not as fine as a manager would wish because both these decisions...

decisions attempt to achieve organizational objectives. Moreover, what might be a strategic decision for one organization may be a tactical decision for another.

Use of Information in the Decision Making Process

From the management information systems angle, we are primarily concerned with accomplishment of the organization's work through the management process. This process includes functions like planning, organizing, staffing, coordination and controlling etc. The process of management cannot be undertaken adequately without the back-up of a meaningful organizational structure, well-defined procedure of work and clearly laid down objectives.

The useful and well-known model proposed by Herbert A Simon has proposed a useful and well known model for decision-making process. Every decision is the outcome of a dynamic process which is influenced by multiple forces. This process is presented in the following chart.

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However, this process should not be interpreted to mean that decision making is a fixed procedure. A process is basically a dynamic concept rather than static. Events and relationships are dynamic, continuous and flexible and must be considered as a whole in which many forces interact, a force affecting others and being affected by others. Therefore, the decision-making process should be seen as sequential process rather than a series of steps to enable decision maker to examine each element in the progression that leads to a decision. Moreover, the process reveals that it is more applicable to non-programmed decisions than to programmed ones. Problems that occur frequently, are unstructured and are characterised by a great deal of uncertainty regarding their outcome, require the manager to utilise the entire process. For frequently occurring, structured problems, it is not necessary to consider the entire process.

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Information Requirement for Decision Making

Simon has identified following three stages in decision making:

(i) Intelligence activities concerned with scanning the environment to identify events and conditions requiring decisions. The MIS should contain decision models to process data and generate alternate solutions. The models should assist in analyzing the alternatives.

(ii) Design phase to develop, analyze, and evaluate alternative courses of action. This involves processes to understand the problem, to generate solutions, and to test solutions for feasibility.

(iii) Choice implementation activities to select an alternative as appropriate course of action from amongst the available alternatives and implementing and monitoring the alternative selected. The meaning of each phase is summarized below.

1. Intelligence consists of searching the environment for conditions calling for decisions; it is synonymous with problem recognition.

2. Design is inventing, developing, and analyzing possible courses of action.

3. Choice involves selecting a course of action and implementing it.

References:


Review of Literature

Before the advent of industrial revolution, business organisations were essentially small in size. Even today there are a large number of small organisations. The industrial revolution has also given birth to a large corporation starting from a one-man organisation to very large corporations employing thousands of workers. Organisations today are operating under an environment of change which poses daunting challenges to the management to tackle a host of emerging problems pertinent to various functional activities of the organisation. To face these problems, it becomes a full-time job of management. With the growth and complexity of organisation, new dimensions of problems have emerged in the field of planning, control, communication and the most sensitive among them being the human relation. The old techniques of management by intuition, rule of thumb, whim, personal prestige and saying of 'grand sams' are no longer valid in management decision making of the present-day organisation. In carrying out management analysis, planning, and control, managers need adequate information at almost every turn. In other words, management in every organisation is now constantly looking for
qualitative information to take administrative action. It is generally recognised that in any organisation the quality of decision making depends on the type of information available and the manner in which it is obtained and utilised. It is the properly organised and analysed information that the decision maker needs for the necessary intelligence as also awareness of the likely impact of an indicated course of action. Information is, thus, perhaps the most crucial ingredient of the decision making process.

The researcher has made an endeavour to carry out an extensive review of literature on the exclusive subject of management information system. He has also made an attempt to identify the research gap in the field of organisational MIS to build up hypothesis to go deeper into field and explore possibility of innovative applicability of MIS in organisation for productive end.

In presence of this objective, the researcher has surveyed the bibliography of several journals, newspapers, magazines, annual reports of Maruti Udyog Ltd and dissertations available in the Maulana Azad Library-Aligarh, Faculty of Management Studies-Aligarh, Institute of Business Management-Kanpur, All India...
Leavitt and Whisler\(^1\) (1953) were pioneers in predicting the way that computers might influence corporations. In 1958 they published an article entitled "Management in the 1980's" and anticipated that (a) Large industrial organisations would reverse the trend towards decentralisation and would recentralise (b) Programmers and research development personnel would move upward into the top management group (c) Top managers would initiate innovative planning and other creative functions.

Howard S Levin\(^2\) (1953) advocates that "Information is a knowledge derived from the organisation and analysis of data. The data that are useful in achieving the objectives of the business."

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Stanley Vance\(^1\) (1956) has expressed "the significance of MIS in the context of management that it helps in the process of decision making and control over the action of human beings for the purpose of attaining predetermined goals."

Adrain M. McDonough and Gordon Pask\(^2\) (1963) have laid emphasis on information as that it is an evaluated data in a specific situation, when uncertainty about it is zero, no further information about it can be received."

Estees H.M.\(^3\) (1966) has stated that "Management Information is growing by the microsecond and even nanosecond. One cannot turn off the flow, therefore it is better to learn to control it." Likewise, information is the net value obtained from the process of matching the elements of a present problem with appropriate elements of data.

Lee Thayer\(^4\) (1968) in his book captioned as

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3. Estees H.M., "Will Managers be Overwhelmed by the Information Explosion?" Armed Forces Management, December, 1966, p. 84
'communication and communication system, discusses the information system. He has laid stress that information is the raw material for thinking, decision-making, problem-solving, and for all human activities concerning psychological behaviour.

As Steiner¹ (1969) has mentioned that information flows are as important to the life and health of a business as the flow of blood is to the life and health of an individual. High performance information systems can do much to promulgate organisational success. Computer based information systems have become increasingly important to modern business.

Desai and Bhaskar² (1970) in their proclamation have logically explained the view that the survival of banking industry is vitally dependent on the effective use of information technology because the banking industry has become very wide due to the scale of its own success, the magnitude of growth and the increasing complexity of its operations.

Schwartz M H³ (1970) in his paper has explained that the

"MIS as a federation of systems rather than a single system. His development approach is evolutionary within the context of a long-range plan.

Simat M (1973) has stated that management information system should be linked with the manufacturing activity. His theory on MIS described various components of such a subsystem, their interactions and relations to other subsystem within the integral information system. He has surprisingly disregarded the relationship of information system with three other major functional aspects of an organization that is finance, marketing and personnel.

In 1974 Gordon B Davis provided a conceptual framework of MIS. He defined that "Information is data that has been processed into a form that is meaningful to the recipient and is of real or perceived value in current or prospective decisions. The value of information is related to decisions. If there were no choices or decisions information would be meaningless."

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unnecessary. The decisions can range from simple, repetitive decisions to long-range strategic ones. The value of information is described most meaningfully in the context of a decision. Then the terms "data" and "information" are often used interchangeably, but there is a distinction in that data is the raw material that is processed to provide information. Information is associated with decision making, and for this reason information can be considered as at a higher and more active level than data.

In 1976 Ivancenrich and Donnelly's Management System (MS) may be defined as an "approach in its organisation decision making in which the principles of scientific methods are utilized to find solution to management problems." The application of Management science to MIS represents a tremendous advance over the dis-organised collection of information and management by experience based on feelings. Management science requires managers to define their problems and assumptions carefully usually in terms that may be quantified and measured, so that they may achieve better solutions.

Narendra K Sethi \(^1\) (1980), in his article presented that every department of organization has an information system, manual of combination of man and machine, either good or bad or indifferent.

Bengt \(^2\) (1982) writes that a number of approaches to information modelling has been presented in the decade of 1980 and 90s in which most approaches assumed that the correctness of information design is decided from intutive considerations. He has advised three correctness criteria of information and information design namely satisfiability, completeness and consistency.

John G B. Feler R S & Gary G \(^3\) (1983) explained that all organisations have an information system. This information system is a formal entity composed of a variety of logical and physical resources. From organization to organization these resources are arranged or structured in an infinite number of ways. Moreover because organization and information system

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are dynamic resources of structure. We construct one day but it may not necessarily reflect the actual arrangement of these resources the next day. Thus we need a concept that logically portrays the structure of an information system that reflects all its physical resources, it is appropriate for any size of information system in any type of organization, and remains relatively constant. He was of the opinion that the most important item and stages in installation of MIS was transfer of the problem of designing and realization of the management from the sheer technical aspect to the organizational one. Further, the role of information pattern of communication and most important - the information content has not been highlighted.

Mensah K E (1984) in his article has discussed various techniques for the dissection of information needs of a business organisation and progressing an information system design to address their need. They illustrate a formal method for deciding on the configuration of the information subsystems. He described three main criteria as a guide in recognizing the subsystem in any enterprises namely separability, Comprehensibility and flexibility.

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1 Mensah K E. "Identifying Subsystems in Information System Analysis", Information Systems Vol (9), USA 1984, p 181
Kendall and Kendall\(^1\) (1984) have mentioned that the structured watching of the environment is the only faithful way of obtaining information which are unobtainable through interrogation and examination.

Subhash Sharma\(^2\) (1985) has mentioned in his paper that the basic objective of management control is to modulate the goal directed behaviour of the organisations. Therefore, the control system and in particular MIS aims as measurement of the performance against predetermined standards so that the behaviour of the organization can be properly monitored. In order to know whether the organization is moving in the right direction, it would be necessary for the management to know the direction of movement through proper signals. Furthermore, MIS should aim at focussing the attention of managers on the key variables. Hence one of the important design considerations is that MIS should highlight the key variables. He has also explained some of the key variables related to input which are Raw material availability, Quality, Raw material costs, capacity, Losses, ...

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1. Kendall K E and Kendall J E "A Structured approach to observation of the decision making environment" Information and Management Vol 7(1), Nebraska 1984, p 1
2. Subhash Sharma "Key Variables and MIS design", Economic Time New Delhi October, 1985
Quality control, Maintenance, Marketing variables, Market share, Order book position and Environmental variables

H A Lakhani¹ (1986) in his article has stated that the use of computers can be extended beyond transaction processing in banks. The computerisation will yield considerable benefits, and enable them to retrieve in report form.

Today's younger managers exposed to computers in college or even high school, feel at home in front of a keyboard. If anything, they have swung to the other extreme: they have become dependent on their computers and feel threatened when access is limited. By the mid-1990’s, these individuals—nurtured on computers from their teenage years—will fill many lower-and middle-level managerial positions in organizations. Senior managers who refuse to learn their systems and take advantage of their MIS’s capabilities will find it increasingly difficult to perform as effectively as their peers. Over time, managers will have no choice. They will either become active “hands-on” users or they won’t survive. How will hands-on use change what managers do? Among other things, they will spend less time on the phone travelling to conferences, and waiting for

¹ H A Lakhani, "Developing MIS and DSS", Economic Times New Delhi December 1986
subordinates to provide progress reports. They will be using network for electronic mail-videoconferencing and closely monitoring organizational activities.

In 1987, according to Robert G M, Joel and James R C, the information system and the management groups are similar to the nervous system and brain of the human being. If sensing or reporting is faulty, incomplete, or cut at some major juncture, the entire organism will become disoriented. The study of the MIS of a business organization requires consideration of every behavioural and mechanistic aspect of the organization and therefore this is an excellent system to study. In the changing business milieu, every organization must have means for gathering and transmitting information to the major decision makers to control present and future activities. The MIS is supposed to handle certain type of problems on a more or less routine basis and supply information to management according to a specified program. Besides that, at the present state of the art, MISs are being designed primarily as subsystems of a potential total business MIS. A total sophisticated MIS for a large corporation or industry would certainly verge on a supersystem.

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but this is potentiality rather than a reality

In 1987, Dennis A Wheatley in his paper entitled "Impact of Information Technology and Office Automation on Administration Management" presents the benefits of information technology for every business. He has mentioned that "the benefit of Information technology are largely unquantifiable. Managerial effectiveness and office productivity should increase, but how do you measure the increase? The competitiveness of the company should improve, but how can you be sure that this has happened as a result of introducing it? In time, the job satisfaction of employees should increase, but there is a difficult period of transition to overcome before that happens. These factors must be considered when deciding upon a company's attitude to information technology. But the alternative of not introducing it must also be considered. Will the company continue to produce information inefficiently often too late to be of real value to the company's decision-makers and thereby causing a loss of competitiveness?"


System for Modern Management”, examines the difference between system and sub-system as ‘a set of elements forming an activity or a processing procedure/scheme seeking a common goal or goals by operating on data or energy and matter in a time reference to yield information, energy and matter. A sub-system is part of a larger system with which we are concerned. All systems are parts of larger systems. For our purposes, the organization is the system, and the parts (divisions, departments, functions, units, etc.) are the subsystems. The system concept of MIS is therefore one of optimizing the output of the organization by connecting the operating subsystems through the medium of information exchange.

Brain Oakely¹ (1987) the commander of British Alvey Project on fifth generation computers, in his paper “Information Technology existing and future possibilities”, discusses the available and future possibilities of information technology. He states that in the coming future the societies and organizations that will take the maximum advantages of the over widening applications of new technology like computers, internet, fax and

¹ Brain Oakely, "Information Technology : Existing and Future Possibilities", Indian Management, New Delhi, October, 1987, pp 4-8
electronic mail would be the ones to have the upper hand over the world. Computers are heralding in a new era of information technology. Apart from managing their functional areas alone managers need to organize the information flow in the firm and in their respective areas also. In the years to come, information may become an entity in itself to be managed as a resource just like the six M's money and market. The technology boom is creating a complex but efficient structure for managing information. Moreover, in this competitive environment an efficient information system is a major advantage for the organization.

In addition to these operational uses of information, the management of many firms is interested in how it can use information resources to compete more effectively. One way to use information is to help reduce costs in order to follow a strategy of being the low-cost producer in the industry. How does information help to achieve this goal? Information can be used to run a plant or deliver a service efficiently. Production control, material requirements, planning, and just-in-time inventory approaches all require information to function. This information is usually processed on some type of computer. Another way to use information to gain an edge on the competition is to develop
a special product that fits into a niche in the market.

T.V. Seshadri and N. Kinra¹ (1988) in their publication analyse the decision processes of 30 organizations that had bought a computer system-mini, mainframe, or macro. They based on a questionnaire study and factor analysis, the authors conclude that the EDP Department and Board of Director are critical in buying grids of the purchasing organizations. They draw implications of their findings for managers marketing computer systems. Besides, they explored the buying decision for computer systems among organizations-organizations that are expected to stress rationality in their problem solving. And they tried to identify the buying centres

Rajendra Prasad² (1989) under the title "Management by Computer-Bridging the Knowledge Gap", attempts to illustrate several stages in computerization projects and the activities which follow

² Prasad Rajendra, "Management by Computer-Bridging the Knowledge Gap", Indian Management, New Delhi, July, 1989, pp 4-9
Sen Gupta\(^1\) (1989) has tried to improve on the wide use of computer in marketing and management of material in an organization, thus enabling a materials manager to engage in more creative pursuits than the daily routine work. Light has also been thrown on the doubts, distrust and reservations associated with the use of a computer.

Obviously, in the present day with so much knowledge and with the emerging Information Technology all over the world, it has become possible to minimize the fact, risk and uncertainty\(^2\). With this changing scenario, innovation becomes the key to growth. Strategic management has to be looked at in the context of innovation to achieve specific objectives and establishing methods necessary to assure that policies and strategic programmes.

Singla M L\(^3\) (1992) has expressed the apprehension of individual executives regarding the effectiveness of information.

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system in public sector enterprises which varies with the growth in the MIS function. This study was behaviour-oriented and not technique-oriented.

Ali M N V. (1993) is of the view that in the past five years, packed software has become a significant force in information processing. The costs and time required for systems development plus the frequent inability to produce a good system have made custom-developed applications much less appealing today. Software refers to a set of computer programme instructions that direct the operation of the hardware. A set of instructions for a specified task is termed as routine and complete set of instructions to execute a related set of tasks is called a programme. The software can be classified as system software and application software.

Elam and Leidner (1993) have explained the executive system like a computer based information system, designed to provide senior managers access to information relevant to their

1 Ali M N V, "MIS-Overview and Problems In Implementation", Department of Business Administration, A M U Aligarh, 1993

administration activities. With the concept of globalization gaining momentum, an intense competition has surfaced increasing the importance of fast and accurate decision making. The use of these systems by executives may become a particularly important component of their decision making behavior. Their research examines the effects of Executive Information System (EIS) on use of an aspect of the decision making process. It examines three decision making process variables that have received considerable attention in the recent theory on the impact of advanced information technology use, decision making in organization and are well grounded in the organizational research.

A P Gupta\(^1\) (1996) is of the view that information system today is the most vital component of infrastructure and is regarded as the key to all the complex task operations undertaken by national level system. Besides, the significance of information system is realized in almost all countries of the world especially by their informed leaders that information is crucial to the life and performance of citizens, economic enterprises and nations of the world.

\(^1\) Gupta A P, "MIS at National Level in India, Analysis of Problems and Issues," Vikalpa Vol 21 July-September, 1996 pp 3-14
Scope of the Study

Management Information Systems have changed dramatically during the last 20 years as a result of an increased usage of computers by more and more number of organisations. The situation today is significantly different from that a decade ago. It is therefore, necessary to conduct a careful study to see how it affects decisions made by a manager and draw lessons for managers who are faced with a dynamic and fast changing business scenario.

Role of MIS can be studied in a group of industries. On one hand its role on any one functional area of a group of industries can be sought to be formulated or on the other one can seek to trace its role in all functional areas with reference to a particular industry. However, the scope of research encompasses a much wider spectrum. A number of researches have been done in India on various aspects such as significance, utility, applicability of MIS organisation and their role in decision making in different functional areas etc. But no work has been done especially on the role of MIS in sales promotion. Hence the present study is an attempt to assess the role of MIS in sales promotion in Maruti Udyog Limited.
Objectives of the Study

The objectives of the study are as follow

1. To review the concept of management information system
2. To review the growth and development of automobile industry in India
3. To examine the growth and development of Maruti Udyog Limited
4. To assess the practice and applicability of management information system in Maruti Udyog Limited
5. To evaluate the role of sales promotion techniques in promoting sales volume
6. To identify the problems of Maruti Udyog Limited if any and suggest suitable measures for the same

Research Methodology

The study is based on primary and secondary data. The secondary data were collected through annual reports of Maruti Udyog Limited, Government reports of automobile industries, magazines such as Indian Management, Harvard Business Review, Business World, Datamation and Advertising and Marketing News Papers e.g. The Times of India, The Economic Times, The Financial Express, The Hindustan Times and different national and international books etc.
The primary data have been collected by the scholar through a structured questionnaire. The questionnaire 'A' and 'B' was to be given to the managers and divisional managers of branches of MUL's showrooms located in ten cities i.e. Agra, Aligarh, Delhi, Ghaziabad, Gurgaon, Jaipur, Mumbai, Moradabad, Mysore and Pune selected on a random basis. During the field work, a lot of inconvenience was faced by the researcher. The sales executives formed the impression that the researcher was a government agent or foreign agent and trying to extract facts from them about their organisation. It took a lot of time to convince them that this study has nothing to do with the government administration.

Most of the executives asked the scholar to leave the questionnaire with them with a provision that the questionnaire would be returned after filling up by post to the residence. So the researcher left the questionnaire with them at their offices.

In addition to the above mentioned problems, the sales executives were not in a position to spare time for any non-business activities, due to their heavy schedule. Because of this, the researcher had to visit the centres three or four times to collect the required data. Senior executives accepted the questionnaire reluctantly stating that all informations are confidential.
Apart from this, to achieve the above mentioned objectives an extensive use of the facilities available in the following libraries and government offices have been made several libraries of universities such as, Maulana Azad Library, A M U Aligarh, Seminar Library, Department of Commerce, A M U, Aligarh, Library of Coaching and Guidance Centre, A M U, Aligarh, Library of General Education Centre, A M U, Aligarh and other libraries at different places were used in order to collect necessary data

Besides, seminars and workshops organised by some universities on the subject were attended

Limitations of Study

The limitations of study are as follow

1 The present study is only confined to Maruti Udyog Limited

2 The second limitation of the study was the shortage of finance due to which the other counters could not be visualised for survey work, keeping in view the extensive nature of the study and limitation of available present data

Scheme of Chapterisation

The present study is an attempt to study the Role of Management Information System in sales promotion in Maruti
Udyog Limited  For detail study and keen insight into the subject, the entire study has been divided into seven chapters

The first chapter deals with the influence of MIS, review of literature, objective of the study etc

The second chapter has been devoted to review the concept of Management Information System.

The third chapter highlights the growth and development of automobile industry in India.

The fourth chapter has been devoted to evaluate the working functions and organisational structure of Maruti Udyog Limited

The fifth chapter has been focused to examine the process of management information system in Maruti Udyog Limited

The sixth chapter deals with the role of MIS in sales promotion in MUL and also deals with the consumers problems and satisfaction

The last chapter summarises the conclusions and suggestions of the study. Which has been given in the end for the improvement of MIS in MUL
Conclusion

On the basis of above discussion, it can be concluded that the Management Information System has come a long way in the last four decades. Most of this progress is directly a result of improvement in Computer power. In 1946, there was one Computer in the United States. In 1954 the first computer was installed for a business application and processing of payroll. By 1974, only 25 years later, there were over 100,000 Computers in the United States.

Payroll processing by Computer was a revolutionary item in 1954, is now considered a rather routine application. This information processing system also provides information for management decision. Such a system is commonly called as a management information system (MIS).

The importance of management information system has increased because of the increased complexities of organizations resulting in diversity of information needs of managers in all functional areas at all levels. In the evaluation of MIS there were four stages - the first stage was termed as centralised data processing for accounting. In the second stage was management, focussed on data processing. The third stage was known as
decentralised end user computer which was for the direct control of uses. The fourth stage was playing an important role in the use of individual users.

Management information systems play an important role in decision making which ultimately achieve the objectives of the organisation. Management information system is a formal entity composed of a variety of logical and physical resources. From organisation to organisation, these resources are arranged or structured in an infinite number of ways. Management information system must provide the managers with the information that is relevant to their decision-making needs. It is closely related with the objectives, policies and strategies of organisation established by management.

Management information system has a major impact on the utilization of physical, human and financial resources of a productive system. Management Information System is a combination of people, machines and procedures organized to provide past, present and prospective information relating to internal operations and external intelligence. It supports the planning, control and operational function of an organisation by furnishing uniform information in the proper time-frame to assist the decision-making process.
Information management refers to study a complete view at the interlocking sub-systems that operate within a firm MIS for different levels as, the top managers needs information for strategic planning and management control. The middle level managers are concerned with the current and future performance of their units. Information system may involve use of manual or electronic data processing devices. MIS can be differentiated from data processing from the users of view.

The role of MIS is basically that of generating and packaging of information in the useful quantum of knowledge. MIS exists to support the decision-making process of managers by identifying decision needs and supplying supportive information.

After discussing the evolution and significance of management information system, it has been of paramount importance to study the concept of management information system. The next chapter has been devoted to the same.