

# COMPUTER APPLICATIONS AND MANAGEMENT INFORMATION SYSTEM

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## INTRODUCTION

Computer applications and management information system serves and chains the process of managerial activities. Contribution to growth of MIS concept has been made by two streams of people. Firstly, by those researchers and professionals in management who were concerned with improving the usefulness of managerial decision making process and secondly, by those working with data processing systems who secondly by those working with data processing systems who wanted to make their data-processing activity more effective and useful. Understandably, these two started from their own areas of strength to achieve their objectives. The former were trying to understandably the process of management decision making and were looking for concepts and tools to supports that process and found that information is one of the essential ingredients to improve the effectiveness of the management process. Those who started from the data processing activity were trying to find more meaningful uses for their activity were trying to find more meaningful uses for their activity and learnt that to make their activity more effective decision-making needs will have to be served. The approaches taken by them to achieve their ends, naturally, were influenced by their own strengths, past experiences and to some extent their biases. Importance of MIS

It goes without saying that all managerial functions are performed through decision-making; for taking rational decision, timely and reliable information is essential and is procured through a logical and well-structured method of information collecting, processing and disseminating to decision-makers. Such a method in the field of management is widely known as Management Information Systems (MIS).

In today's world of ever-increasing complexities of business as well as management, every business organization, in order to service and grow, must have a properly planned, analyzed, designed, designed and maintained MIS so that it provides timely, reliable and useful information to enable the management to take speedy and rational decisions.

MIS has assumed all the more important role in today's environment because a manager has to take decisions under two main challenges:

- First, because of the liberalization and globalization, in which organizations are required to compete not locally but globally, a manager has to take quick decisions, otherwise his business will be taken away by his competitors. This has further enhanced the necessity for such a system.

- Second, in this information age wherein is doubling up every two to three years, a manager has to process a large voluminous data; failing which he may end up taking a wrong decision that may prove to be very costly to the company.

In such a situation managers must be equipped with some tool or a system, which can assist them in their challenging role of decision-making. Thanks to the advances in Information Technology (IT) that has come to the rescue of today's manager.

It is because of the above-cited reasons, that today MIS is considered to be of paramount importance, sometimes regarded as the nerve centre of an organization. Such systems assist decision-makers in organizations by providing Information at various stages of decision-making and thus greatly help the organizations to achieve their pre-determined goals and objectives. On the other hand, the MIS which is not adequately planned for, analysed, designed, implemented or is poorly maintained, may provide delayed, inaccurate, irrelevant or obsolete information, which may prove costly or even fatal for the organization. In other words, organizations today just cannot survive and grow without properly planned, designed, implemented and maintained MIS. It has been well understood that MIS enables even small organizations to more than offset the economies of scale enjoyed by their bigger competitors and thus helps in providing a competitive edge over other organizations.

## **MANAGEMENT INFORMATION SYSTEMS**

The term MIS is of recent origin. But it does not mean that organizations were doing without such a system. In fact, MIS has been in existence since the advent of business organizations. Until recently, MIS occupied the status that oxygen did before Lavoisier's discovery of the gas – it was both vital and unrecognized. However, business as well as management happened to be simple in both vital and unrecognized.

However, business as well as management happened to be simple in yesteryears. Whereas today both have grown to unprecedented levels of complexity. Also as has already been mentioned, with the advent of computers and communication technology, it has now become possible to transmit large amounts of information across long distances cheaply and without loss of time. Thus, environmental pressures have necessitated that information be considered as a fifth important resource along with the traditional four resources of money, materials, men and machines. In fact, some management researchers have gone as far as to define a manager as a transducer that transfers information to decision. Thus, there is no denying the fact that MIS, though was very much in use since that start of the first business organization, it remained manual, very simple and unrecognized, whereas today, it has got a greatly refined nomenclature, along with a well designed computer based structure, which follows the systems approach.

MIS is considered of recent origin in management but it had always been in existence in past as well. Of course, it was not in a refined form then. Thus, what is new in MIS, is only nomenclature and its computerizations, which perhaps has become necessary because of

environment pressures on modern business organizations. MIS is acronym of three letters, i.e. M (Management); I (Information); and S (System). Management is to plan, organize, staff, direct and control business resources to achieve predetermined objectives; for performing all these functions, a manager has to take an array of decisions. For taking rational decisions, information is an essential input information, which is processed data becomes information when it is used in decision-making and follows certain characteristics, viz., it is timely, relevant, accurate, current, adequate without superfluous data, clear in form and non-repetitive.

System is a set of interrelated elements joined together to achieve a common objective and has input, process, output, feedback and control elements. MIS is a man/machine system consisting of people, machines, procedures, and database and data models as its elements. It gathers data from the internal and external sources of an organization; processes it and supplies Management Information to assist decision-making by managers in an organization. The concept of MIS is interdisciplinary and involves various disciplines of accounting, management, computers, operations research, behavioral sciences, etc. It is neither a pure science nor an art; rather a combinations of both. MIS is a good example of physical as well as information system, which finds application in diverse fields of management.

MIS captures data from various sources; process it to convert this data into Information and disseminates it to the decision-makers in an organization.

## **A BRIEF HISTORY OF COMPUTERS**

In his widely quoted book, future shock, Alvin Toffler points out that almost as much has happened since we were born as happened before we were born. The barrage of change, scientific acceleration, and technological turnover is causing a psychological shock wave throughout society. Toffler indicates that if the last 50,000 years of human existence were divided into lifetimes of approximately 62 years each, there have been about 800 lifetimes. Of these 800, fully 650 were spent in caves. Only during the last lifetimes has it been possible to communicate effectively from one lifetime to another—as writing made it possible to do. Only during the last six four has it been possible to measure time with any precision. Only in the last two has anyone anywhere used an electric motor. And an overwhelming majority of the material goods we use in daily was developed within the present the 800<sup>th</sup>, lifetime. This type of analysis holds for computers and the science of information processing. Certainly computers have been characteristic only of the 800<sup>th</sup> lifetime—in fact, the last half of the 800<sup>th</sup> lifetime, if you consider computer in the commercial scene.

## **THREE CONTRIBUTORS TO THE DEVELOPMENT OF COMPUTERS**

At this point, it would be inappropriate to proceed without at least the brief mention of three men, who though not necessarily associated with specific computer hardware development, were instrumental in the introduction of logic and programming elements

enabling the computer to execute complex instructions and to control a wide gamut of business and scientific operations. These men are George Boole, Norbert Wiener, and John von Neumann.

George Boole lived in Babbage's time. Though not involved in hardware development, he used his genius in mathematics to lay the groundwork for the theory behind computer logic. Modern computers operate with a binary or two stage operating logic; each instruction or piece of data is converted to this two stage form before entering the computer and being processed. The data is then converted back to decimal and alpha mode at output time. The binary representation and internal arithmetic manipulation are called Boolean algebra, after George Boole, and this indeed represented a most significant contribution to computer development.

Norbert Wiener, who received a Ph.D. in 1913 at the age of 19, reincarnated the word from the Greek *kubernets* in the 1940s. The science of cybernetics describes how automatic machines or computers function, including, the elements of input, output, processing, communications, and feedback loops. Wiener's work helps us understand the basic concept of a system is the foundation of the systems theory we use to solve today's business problems. Wiener's writings develop an analogy of the automatic feedback system to the business nervous system. This intention tremor and Parkinsonism are impairments of the normal feedback loops between brain and motor functions. Wiener's work assists us in comprehending the overall science or body of thought in which the computer plays a significant part.

John von Neumann is a prominent name to people familiar with the early development of computers in the United States. In a book entitled *The Computer from Pascal to von Neumann*, Herman Goldstone, who worked with von Neumann, a brilliant mathematician, had a profound influence on the development of early hardware but he concentrated on the memory and software side, the latter being an area that is finally receiving the emphasis and what these instructions should do. His initial concept of storage in a mercury delay line is the forerunner of core memory and today's semiconductor memory. Prior to von Neumann, *Punch* tape was the accepted vehicle for getting instructions to the processor. John von Neumann's contributions are immense.

From 1946 to 1951 the computer field was dominated by the government by the government, universities and small, companies working with government or university grant. It was five years before the world's first commercial computer was produced was Remington Rand. Remington Rand has purchased control of the Eckert Mauchly Computer Corp. development of the ENIAC. The first commercial computer as delivered in 1951 to the same U.S. Bureau of the Census that first spurred Dr. Hollerith to use punched cards in calculations. The first non-government installation of a UNIVAC-I was at General Electric appliance plant in Louisville, Kentucky, in 1954.

The installation of UNIVAC I at the census department and general electric opened up the commercial era of computers, and few could forecast what was to come several prominent prognosticators of the time proclaimed that no more than 100 of these machines would be needed to handle the computations for the entire country.

Though Remington rand had the lead and dominated the market from 1951 to 1956, IBM made its delayed entry into the market and via a strong sales and support forced was the dominant vendor by 1957, a position they have maintain dot this day.

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