

Importance of Management Information System in Electronic-Information Era

C.L.P.Gupta^{1*}, Shalini Sharma² and Sudhakar Tripathi³

ABSTRACT

Management Information system is a system which is very useful and helpful to get information about any organization or different departments of an organization and different kinds of fields. In this article we can analyze that what is a MIS, Components and types of MIS Why MIS and what is the use of MIS in an information field. The design of a computer based MIS to aid in the search for information is a specialized task, requiring extensive knowledge of how information can be organized and how people search for information. The advantages and disadvantages of MIS discussed in this article also. But there are some most important things for MIS like computerized infrastructure, technical trained staff, accurate data collection and a database manager or information officer.

KEYWORDS: Management information system, Information system, Decision support system, Executive system

1. INTRODUCTION

MIS refers broadly to a computer-based system that provides managers with the tools for organizing, evaluating and efficiently running their departments. In order to provide past, present and prediction information, an MIS can include software that helps in decision making, data resources such as databases, the hardware resources of a system, decision support systems, people management and project management applications, and any computerized processes that enable the department to run efficiently.

In MIS an information system is composed of two major portions: ecosystem and endosystem, as per Korfage and Delutis 2006[1].

- In an ecosystem we include the people who are involved with the system, availability of information and the equipment and technology available for the system.
- The endosystem consists of those factors that designer can specify and control, like equipment, algorithms and procedures used.

Few years back there is no computer and computer literate people. In that time every body depends on man sources to get information for different fields. A man power takes more time to collect correct information and give it to their users; some times the information lost its importance, value and usability cause of late delivery of information. But in modern information era there is need to use information in right

manner with organized way. Management Information System helps to use all collected information very easily.

2. WHAT IS MANAGEMENT INFORMATION SYSTEM?

Management Information system is concept and combination of three words:

- **Management:** It means to manage information in an organized manner to make information useful.
- **Information:** Information refers to collected, organized and meaningful data.
- **System:** A system means co-related components which work together for a same goal.

In Management Information System Information manager or Database manager command all management information system and they related to whole system, without them a system cannot operate or work. A relation between a Management Information System and a database manager or information manager show by a figure as below:

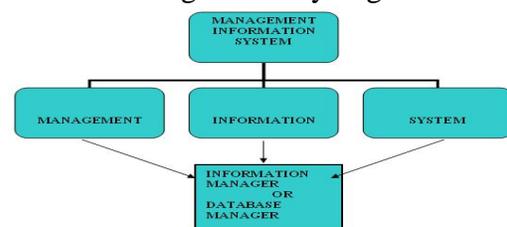


Fig. 1: Management Information System

1* C.L.P. Gupta, Sr. Lecturer, Dept of Computer Science & Engg, SMS Institute of Technology, Lucknow email: clpgupta@gmail.com

2. Shalini Sharma, Dept of MBA, Sagar Institute of Technology & Management, Barabanki, email: shalinisharma1dec@rediffmail.com

3. Sudhakar Tripathi, Sr. Lecturer, Dept of Computer Science & Engg, SMS Institute of Technology, Lucknow, email: p.stripathi@gmail.com

2.1 Definition

Sekhar, 2007[2] Defined management information system as "a system that collects and processes data (information) and provides it to managers at all levels, who use it for decision making, planning, program implementation and control."

An information system comprises of all the components that collect, manipulate, and disseminate data or information. It usually includes hardware, software, people, communication systems such as telephone lines, and the data itself

According to Laudon and Laudo, 2003[3] in their book Management Information Systems, an information system is

"A set of procedures that collects (or retrieves), processes, stores, and disseminates information to support decision making and control."

In most cases, information systems are formal, computer based systems that play an integral role in organizations. Although information systems are computer based, it is important to note that any old computer or software program is not necessarily an information system. "Electronic computers and related software programs are the technical foundation, the tools and materials, of modern information systems," Laudon and Laudon, wrote.

O'Brien, 2004[4-12] defined that MIS produces, pre-specified reports, displays, and reposes on a periodic, exception, demand or push reporting basis. A MIS provide information in the form of report and support business decision making.

2.2 Difference between a management information system and computer information system

The most of the people think and suppose that a management information system and a computer information system both are the same concept but there is a little bit difference in both concepts: The basic difference between MIS and CIS is the source of the information.

- Management of Information Systems handles information from all sources whether they are internal to an organization or external or from any kind of source like human being or from computer.
- Computer Information Systems is a bit more technical and strictly relate to computers and

how the current organization uses the internal computer system.

MIS and CIS have a major difference but both MIS and CIS are related and joined to each other in a respective manner that CIS is a part of MIS and helps in various kind of work which related to MIS.

2.3 Components and Activities of MIS

- Input: For input in a system there is a need to collect the data. For collection of data there is a need of raw material, energy and data.
- Processing: The process include manufacturing process, human ability process and mathematical calculations but the data should be processed as follow:
 - ❖ Modify and organized the data.
 - ❖ Entering the data.
 - ❖ Transforming the data.
 - ❖ To make all data usable in form of information.
 - ❖ Store the all data in secure form.
 - ❖ Control the data and in a system there is no repetition of data and use of unnecessary data.
- Output: The third component of a system is output. The output of a data is to be very to work or to give information. The output of a data should be accurate and on time.

An input, process and output shown as follow:



Fig. 2 : Input, process and output system

3. RESOURCES OF MANAGEMENT INFORMATION SYSTEM

To work on a management information system there is a need of some resources. In MIS we include all Kind of machine resources and human resources also but we listed the MIS resources as following:

People Resources: There is a need of people resources to operate and organize all Management Information system. These people resources have to categories:

- End User: End user is the client of a Management information system. The People who use an information system or produced information. In this category we include all kind of a worker or employee of an organization or

library users as an end users.

- Information system specialists: It is second category of people resource. Specialists are those people who developed and operate a system; we can include systems analysts, system operators and software developers in this category.

3.1 Hardware Resources

Hardware resources are the one of the major resource in Management Information system. In hardware resources we can include all kind of physical device and material which used to process the information. For example: C.P.U., Key-Board, Mouse, Desktop, Printer, Floppy, CD-ROM etc.

3.2 Software Resources

These resources help to operate the system and having a all sets of information processing. Software resources not only control hardware programming but control to all procedural information is a right and manage form.

3.3 Data Resources

Data is unorganized and raw material in a information system. Data has been taken in any form like numerical, Alphabetical or in any other form, but the collection of data should be proper and meaningful. All the data organized and stored as well as access properly by the users.

When the all data presented in a organized manner and meaning full then it can be used as a information fro knowledge and working.

3.4 Networking Resources

To use all MIS in proper manner there is a need of internet, intranet and extranet. In network resources we include t types of resources:

- Communication Media: All Kinds of coaxial cable, twisted-pair wire, & fiber optics cable, cellular, satellite & microwave technology include in this media.
- Network Support: In network support we can include various kinds of network, hardware and software and technologies which use in implementation an organized Communication network. For example, modem internet work process and internet browser packages.

We can show all the activities components and

resources of a Management Information System with help of a following figure:

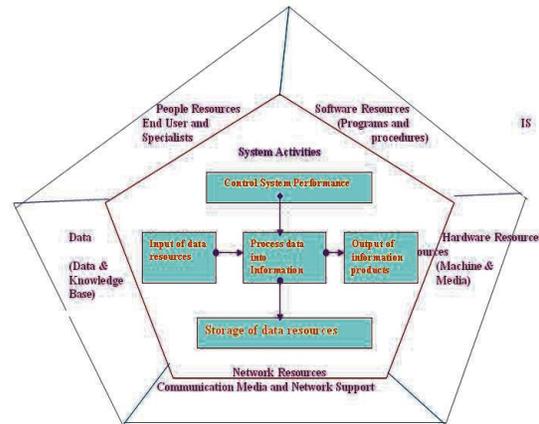


Fig. 3 : MIS Components, Activities & Resources
(Source : O'Brain, Management System, 2004{9})

4. TYPES OF MIS

Management Information System can be categories in four types of system and these subsystem having own specialty and working system. These four systems are:

4.1 Decision Support System

Decision support system is interactive well integrated systems that provide with data tools and models to facilitate semi-structured decision or tactical decisions. It automates the routine and repetitive elements in a problem while simultaneously supporting the use of institution and judgments. Decision support system are ideally suited for problems like location, selection, identifying new personnel and analyzing the effect that price increase for resources have on profits.

A Decision Support System allows to perform goal seeking in a organization which specifies what an action a manager or information officer should take in order to accomplish a certain goal. Another important feature of Decision support system is that an individual or a group of individuals can also use them. DSS that support group decision making are called Group Decision Support System (GDSS). GDSS are a set of interactive well integrated systems that facilitate and support group decision making.

In most organizations, decisions of any significance are made collectively by a group, not by a single person in this condition the GDSS helps the whole system.

4.2 Executive Information system

Executive information system are form of data retrieval system that provided selected and summarized information for senior executives, engaged in different kinds of crisis management and other strategic decision. It is a user friendly interactive system having excellent means and graphical capabilities. A typical way that EIS works is by exception reporting and drilling down to investigate the causes. For example: A director of an organization may be alerted that a particular department is well over budget. So the head of the department would then drill down the date by pursuing lower and lower detail.

4.3 Artificial Intelligence

It is branch of computer science whose goal is to design & develop machines that emulate human intelligence. It attempts to end now machines with capabilities and characterization that would indicate intelligence in a human being.

4.4 Expert System

It is also known as knowledge based system, is software designed to capture the knowledge and problem solving skills of a human expert. It has three main components:

- A Knowledge based
- An interface engine
- A user interface

In modern information era there is another kind of MIS, we can call it Research and Development Information System (R. & D. Information system). This system describe as follow:

4.5 R & D System

Advances in information technology there is a specialized information systems in many other areas include research and business development. The significant areas receiving considerable attention in R & D. R & D has long been recognized as an information intensive activity that is usually, responsible for evolving a stream of new products and production process innovations for the organization. R & D is responsible for creating and developing new and latest information and services in order to better opportunities and better environment.

Many researchers suggest that R & D information system should be considered to be strategic

information system. Like many other systems R & D is an open system that has improvement in information and communications exchange with the external environment and other organizational submits.

5. OBJECTIVES & GOAL OF MIS

- A Management Information System should be consists.
- It maintains better accountability and control over resources.
- A MIS Monitor and control also resources allocations.
- It Improve overall effectiveness of working in an organization.
- With the help of MIS an organization generate internal report an external report as required.
- A Management Information system Improve long term planning in an organization or a particular department.
- Facilitate performance major activities.
- A MIS should be reliable for an organization as well as for users.
- Security is a major factor of a MIS. It is very important that if an organization use information system, the system should be safe.
- All information of a department or organization must be available easily.
- A Management Information System should protect the all information entered or used in a system or a department or an organization.

6. FUNCTIONS OF MIS

Determination of information needs: For determination of information need there is a need to attempt some questions:

- How much information is needed? More information does not mean better performance.
- How, When and by whom will the information be used?
- In what form is it needed?
- What information is necessary for planning and controlling operations at different organizational levels?
- What information needed to allocate resources?
- What information is needed to evaluate performance?

7. INFORMATION GATHERING

For information gathering service is to improve the overall quality of the information. It includes the

following content:

7.1 Evaluation

It determining how much confidence can be placed in a particular piece of information. Such factors as the credibility of the sources, and reliability and validity of the data, must be determined.

7.2 Abstraction

It involves editing and reducing incoming information and data in order to task. Once information has been gathered, the service of indexing is important in order to provide classification for storage and retrieved purpose.

Information may be gathered following methods and sources:

- Internet Searches
- Experts
- Statistics
- Interviews
- Case Studies
- Knowledgeable People

8. INFORMATION PROCESSING

8.1 Dissemination of Information

Dissemination entails getting the information to the right manager at the right time, indeed; this is the overriding purpose of a MIS.

8.2 Storage of Information

The final information processing service is that of storage. An organization has no natural memory so every MIS must provide for storage of information in order that it can be used again if needed. Modern information storage equipment has greatly improved the 'Memory' capabilities of organization.

9. INFORMATION UTILIZATION

How information is utilized depends greatly on its quality, accuracy, how it is presented and in what form it is presented, and its timeliness. This is relates to the basic need determined in the beginning and the system is planned carefully, the user will be provide with relevant information.

Remember that the major goals are to provide the right information to right decision maker, at the right time. This brings up the point that timeliness may take precedence over accuracy. If important is not available when it is needed then its accuracy is not important.

For example, a production manager of an

organization may find accurate daily or weekly reports of production while a librarian of a library needs accurate information about daily circulated books in library.

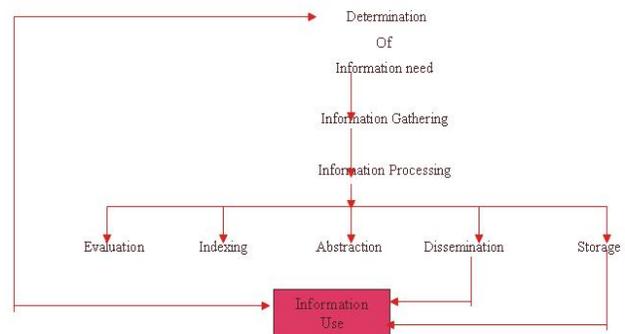


Fig. 4 : Function of a MIS

10 THE FUTURE OF MIS

Although some individuals still refer to MIS as a mirage, many organizations are operating with an MIS that is very effective. These organizations have been dissatisfied with the quantity and quality of the information provided to managers and has realized that to develop an effectively functioning integrated MIS involves a great deal more than expending or automating the data gathering process. Certainly, one of the major reasons for the increased interest in the concepts of information systems has been the rapid growth for the information technology; however, the study of information system is not the study of computers. The study of management information systems is part of a much larger task, the study of more effective methods of managing organization.

11. IMPORTANCE OF MIS

- **Financial Need :** When we using a MIS system in any organization or a particular department it declining Budget of the department or organization and values of information.
- **Information Glut :** If we have unorganized information that it has no value and no use. An unorganized information in system is difficult to use or difficult to understand.
- **Constant Change :** In information era there is fast change of technology and IT skill. Many organizations start new services and new products, so there is need to introduce the users to these services. For all these kind of work we need MIS.

- **Web Service:** Now it is time to digitalization and internet. The whole information is available on net or in digital form by most of the organization so if any organization proves itself they should provide information in latest form and in web form with help of MIS.
- **User Expectations:** It is time of fast track so every user need their information 24/7. So it very important for an organization or information manager that the information which is given should be latest, fast and easy to use for information seekers.
- **Shortage of Time:** Every user or information seeker has shortage of time and they collect their required information short spell of time because they save their time for more work and research their related field, department etc.
- **Automation:** Information, Knowledge and decision process are being increasingly automated and without a MIS it can not possible properly.
- **Demand of users as well as staff:** Demand of data, information, Knowledge, and intelligence is increasing and also increased demand for improved information and intelligence for senior managers.
- **Control on information production:** If we need to control on unnecessary, unusable, waste information and access of data then it is very important to control on information production, MIS helps in all these kind of works.

12. KEY POINTS FOR MIS

When an Information Manager uses any Information system then there are some useful or remember-able things or point which He/She Kept in his/her mind. These points are: Managers should keep in mind the following advice in order to get the most out of an information system:

- Use the available hardware and software technologies to support the system. If the information system does not support quality and productivity, then it is misused.
- Use the available technologies to create and facilitate the flow of communication within an organization and, if feasible, outside of it as well. Collaboration and flexibility are the key advantages offered for all involved parties.

Make the most of those advantages.

- Use the quantification opportunities presented by your information system to measure, analyze, and benchmark the performances of an individual, department, division, plant, or entire organization.
- An information system is more than hardware or software. The most integral and important components of the system are the people who design it, maintain it, and use it. While the overall system must meet various needs in terms of power and performance, it must also be usable for the organization's personnel. If the operation of day-to-day tasks is too daunting for the workforce, then even the most humble of aspirations for the system will go unrealized.

Sekhar, 2007(3) When we apply a new system in an organization or in a library there is a many advantages and disadvantages of all systems. Like many other system MIS also have various kind of advantages and disadvantages as follow:

12.1 An MIS provides the following advantages

It Facilitates planning: MIS improves the quality of an organization or an information centre by providing relevant information for sound decision - making. Due to increase in the size and complexity of a organization lost personal contact with the scene of operations.

- **It Minimizes information overload:** MIS change the larger amount of data in to summarized form and there by avoids the confusion which may arise when information officer are flooded with detailed facts.
- **MIS Encourages Decentralization:** Decentralization of authority is possibly when there is a system for monitoring operations at lower levels. MIS is successfully used for measuring performance and making necessary change in the organization plans and procedures.
- **It brings Co-ordination:** MIS facilities integration of specialized activities by keeping an organization aware of the problem and requirements of various kind of work. It connects all decision centers in the organization.
- It makes control easier: MIS serves as a link

between planning and control by a system manager in an organization. It improves the ability of management system of an organization to evaluate and improve performance. The used computers has increased the data processing and storage capabilities and reduced the cost.

12.2 MIS provides the following advantages for a Library

- MIS assembles, process, stores, Retrieves, evaluates and disseminates the information in a library information system.
- Provides consistent answers for repetitive decisions, processes and tasks in a library.
- Holds and maintains significant levels of information for users as well as for librarian benefit.
- Encourages a librarian to clarify the logic of their decision-making.
- When we use a MIS in a library it is very easy to get a information from library for users and a information officer can provide all information very easily and quickly.
- Provides timely delivery of information in CAS and SDI.
- Information that is provided is better understood by users and it is very useful for them.
- Filters data for users as well as a librarian.
- Improves to tracking information in various fields of knowledge for researchers and students.
- Provide managerial staff with internal and external data and tools for the analysis data.
- A MIS assist in the decision process.
- It is act as a support tools, does not replaced managerial judgment in a library.
- MIS improve effectiveness of judgment of the decision is the main objective.

12.3 MIS provides the following Disadvantages

The change of technology in new information era in a very fast way the MIS may lead to a loss of competitive advantages. MIS can be very expensive leading to a new category of solutions.

- MIS is often seen as too rigid and too difficult to adapt to the specific workflow in a library of an organization this is cited as one of the main causes of their failure

- . Many of the integrated links need high accuracy in other applications to work effectively. When an organization can achieve minimum standards, and then over time "dirty data" will reduce the reliability of some applications.
- Once a system is established, switching costs are very high for any one of the partners (reducing flexibility and strategic control at the corporate level).
- The blurring of organization boundaries can cause problems in accountability, lines of responsibility, and employee morale.
- Resistance in sharing sensitive internal information between departments can reduce the effectiveness of the system.
- Some large organizations may have multiple departments or different kinds of department which related to many kinds of subjects with separate, independent resources, missions, chains-of-command, etc, and consolidation into a single enterprise may yield limited benefits.
- Lacks common sense needed in some decision making in MIS
- Cannot make creative responses as human expert would in unusual circumstances
- Domain experts not always able to explain their logic and reasoning
- Errors may occur in the knowledge base, and lead to wrong decisions
- Cannot adapt to changing environments, unless knowledge base is changed the actual needs of the customer easily.
- Hard to quantify benefits and to justify implementation of an MIS.
- In MIS may encounter information overload.
- System may become slow, large, and hard to manage because of large amount of data and lack of technical staff.
- Difficult to keep current data in shortage of correct source of information or data resources.
- May lead to less reliable and insecure data.
- Small organizations and libraries may encounter excessive costs for implementation.

13. CONCLUSION

MIS it reveals that MIS play an important

role in information collection, process and distribution. For information management there is a need of information or database manager, and various kind of computerized systems. Without a computerized infrastructure we can not work on MIS so it is an essential need of MIS. But to work on MIS or Implementation of MIS with in an organization, we should aware disadvantaged of MIS and when an organization's MIS system is not properly managed, the user also feels that a given system does not meet his/her needs will turn elsewhere. If many users do this, the implementation of a MIS can be said to fail. For this purpose a database manager also aware technical problems of MIS which He/She could face any time in a system and tried to develop that kind of system by which an organization or department get more information and IT based infrastructure and also useful, easy to use for users as well as for staff.

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