

Review on Management Information Systems (MIS) and its Role in Decision Making

¹Sasanka S Mishra, ²Bibhuti B Pradhan,

Abstract: *The paper focuses on understanding the MIS philosophy, the need for MIS, the benefits of MIS in an organization, the MIS model, decisions and decision-making method, and MIS's position in decision-making. This addresses MIS in brief considering the definition of MIS, the MIS model used by organizations, use of MIS, and need of MIS in organization. It then gives an overview of the decision making process and the decision-making system that is needed to understand the decision making process. Finally, the main focus of this paper is on the role MIS plays in an organization's decision making. How to make decisions in an organization that uses MIS, what challenges the organization faces in this process and a few recommendations to curb these challenges. Management Information Systems (MIS) is an integrated, flexible and automated information system that deals with the process of collecting, processing, and distributing relevant information to support an organization's management operations. In an organization, the data is distributed among the different departments.*

Keywords: *Benefits Of MIS, Decision Making, MIS, MIS Model, MIS Concept, Need For MIS.*

I. INTRODUCTION

Data processing takes place in different ways such as graphs, diagrams, maps, reports, to produce accurate and relevant management information. MIS provides central storage of all information about the company[1]. MIS is used in an organization, at all levels. There are different kinds of information systems for the management. This paper focuses on the information systems for decision-making. MIS plays a vital role not only in collecting and handling information, but also in displaying it in various formats that make important organizational decisions useful to management.

MIS offers quicker access to the information required to help the company make timely and successful decisions on every level depending on the organization, such as finances, employments, goods, etc. Decision-making generally refers to choosing a certain course of action from among many choices[2]. It is essential management that takes place at every management level and in every role. The organization's effectiveness depends on the quality of decisions that inform its operation. Decision-making is a significant criterion for assessing success or failure of the organizations. This paper focuses on understanding the need, advantages, types of MIS, MIS model, decision-making method and mostly MIS's role in company decision-making[3].

*Bibhuti Bhusan Pradhan, Department of Management, Siksha 'O' Anusandhan (Deemed to be University), Bhubaneswar
bibhutibhusanpradhan@soa.ac.in*

II. NEED FOR MIS

Organizations found it hard to manage the information as a whole, before computer technology had flourished. Computer technology advances have allowed managers to quickly obtain, incorporate, store and handle the information in the form they need, based on their needs and timing. Most may use the details concurrently[4]. The information must be up-to-date, accurate, concise, timely, complete, well presented and retainable. Based solely on personal computers is not sufficient for organizational effectiveness until it is used efficiently and effectively. Advanced technological systems for data collection and sorting can also be costly if not given to the workers by the senior management. Informative structures thus came into the picture. Information system is a process that ensures the managers have access to information according to their need and time[5]. This provides information important to the decision making process. Management information is an important tool for decision making, preparing, coordinating, executing, and tracking and regulating at every point within the organization.

Managers have to assimilate masses of data, convert that data into information, draw conclusions about that information and make decisions that lead to business goals being achieved. Information is as much an important resource for an organization as money, machinery and manpower. This is important for the company's survival. Therefore, the information management system plays an important role in managing information, making it easy for managers to collect, integrate and assign information, and ensuring effective and efficient decisions.

III. CONCEPT OF MIS

Information is a set of classified and interpreted data used in decision making and it has also been defined as "some tangible or intangible entity which serves to reduce uncertainty about future state or events". There are different levels of decision making, for which information can be described as:

- source
- data
- inferences and predictions drawn from data
- value and choices
- Action which involves course of action.

Management information system has the function of meeting the general information needs of all employees within an organization or in some of the organization's subunits. A subunit may be focused on functional areas or can be viewed at level of management[6].

Considering the definition for MIS, one of the common meanings defines the management information system (MIS) as "an organizational tool for providing past, current and expected information related to internal operations and external intelligence. This facilitates an organization's planning, management and operational processes by providing reliable information in the right timeframe to assist decision-makers. " The information in MIS defines the enterprise or one of its major systems in terms of what has happened in the past, what is happening now, and what is

likely to happen in the future. The information is provided in the form of mathematical simulated reports and outputs. Namely, there are two types of reports, periodic and special. All managers use the output of the information as they take decisions to solve the problems of the firm.

A management information system has also been defined as "an integrated user machine system for providing information to support functions in an organization that support operations, management and decision making. The system uses computers, manual procedures, analysis, planning, control and decision-making models, and a database". All of those concepts provide a succinct description of the whole of MIS.

IV. BENEFITS OF MIS

MIS is making a big difference for business organizations. This offers a number of benefits, including

- Effective and efficient coordination between Departments
- Quick and reliable referencing
- Access to relevant data and documents
- Use of less labor
- Improvement in organizational and departmental techniques
- Management of day-to-day activities
- Day-to-day assistance in a Department and closer contact with the rest of the world.
- Provides a valuable time-saving benefit to the workforce.

The most important factor for a company is to function efficiently and effectively in a minimum amount of time. MIS embraces this dimension of financial benefit and ensures workers are not forced to manually collect data for filing and review. Instead that knowledge can be loaded into a computer program quickly and easily[7]. As the data expands, business analysts are finding it difficult to analyze the data; thus MIS provides a platform for developing programs to access the data in response to management queries. With faster access to the information needed by competitors, managers can make better decisions about procedures, future directions and developments and make them faster.

V. THE MIS MODEL

This section describes how they actually look like a MIS model. MIS Model Components consist of:

- Database
- Organizational decision maker
- Report writing software
- Mathematical model

The organization of these components can be referred from Figure given below.

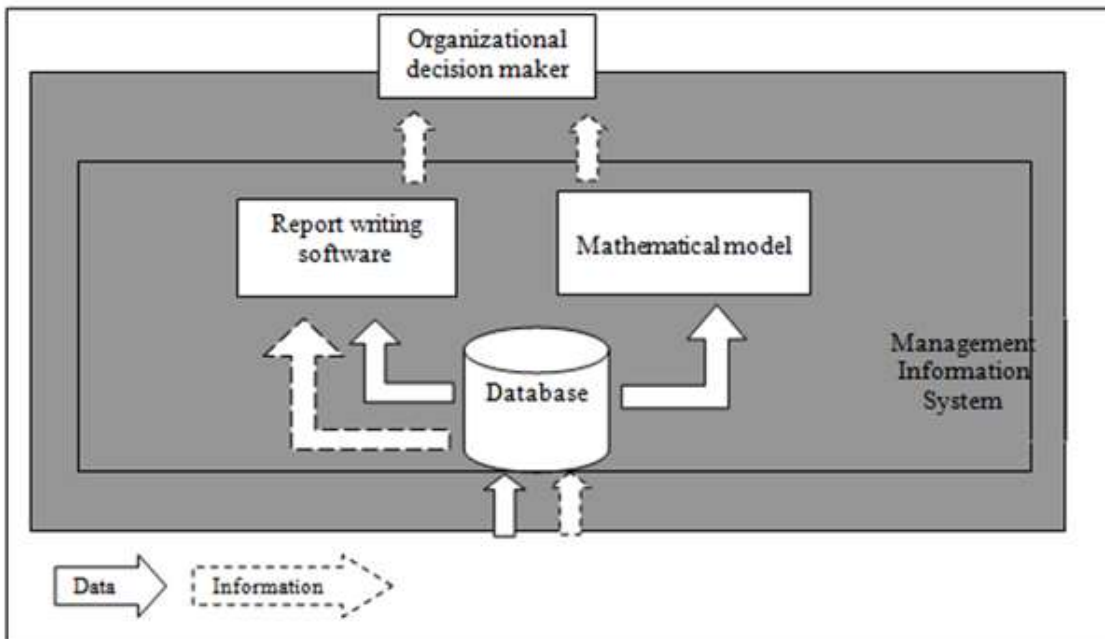


Fig. 1: MIS model

MIS model functioning begins with data and information coming from various sources[8]. The data made available through the accounting information system is stored in the database. The information and data are entered from the environment. Data based on data is sent to the report writing software to produce regular and special reports, as well as to the mathematical model to simulate the various aspects of the activities of the company. The report writing program production and mathematical model are then sent to the people responsible for solving the problems. To solve the problem, efficiency needs good decision-making. In the world of the company there are decision-makers who may or may not exist. The environment could consist of other organizations, such as suppliers, to which the company has collaborated, from an Inter Organizational Information System (IOS). In such a case, MIS shall provide information to the other IOS member.

VI. ROLE OF MIS IN DECISION MAKING

Decision-making is the mechanism by which organizational leaders select particular course of action in response to opportunities and challenges from a number of alternatives. The decision-making process ends either in a good or a bad decision. A good decision results in the organization's productivity and course of action that allows an individual, community or organization to be competitive, while a bad decision results in unsuccessful and inefficient choice of course of action leading to poor productivity or no productivity and total loss of time, effort, finance and labor. Each organization, as a result of decisions made by its members, develops, prospers or fails[9]. The effectiveness of decision-making depends heavily partly on the information available, and partly on the process

components known as functions. For instance, if managerial goals are absent or unclear, probably due to insufficient information, there is no basis for a search. Without the details, the search has no meaning because there will be no alternatives to comparing search results, resulting in an unnecessary outcome due to random selection of a particular course of action. According to a researcher the search could be through:

VI.I. Undirected viewing: There is a general access to information where the audience doesn't have a particular purpose in mind and looks blindly for information from the whole information pool.

VI.II. Conditioned viewing: Data is exposed to direct exposure. Furthermore, it does not include a more or less clearly identified region or type of information being actively sought.

VI.III. Informal search: This is a relatively limited and unstructured attempt for a specific purpose to obtain specific information. It actively searches for the information it wants.

VI.IV. Formal search: This is an intentional effort, usually following a pre-established plan, procedure or methodology to secure specific information related to a particular issue.

Simon (1984), a leading authority in management decision making considers that decision making comprises four principal phases:

- *Intelligence-* To check the world for the conditions needing decision making.
- *Design-* To discover, create and evaluate potential lines of action. This includes processes for understanding the problem, developing solutions and evaluating the viability of solutions.
- *Choice-* selecting an alternative or course of action from those variables
- *Review-* assessing and analyzing all the past choices

MIS can be viewed differently in that it serves as a means of data processing which is used as information in the decision-making process. In the MIS process, which comes out in the form of information, the data is flooded and this information is an input for the user processes. For a specific purpose, the data is converted into information and it offers many options to decision-making, of course, from which one course of action is chosen which nothing but the decision taken is.

A specific MIS approach should be selected to enhance decision-making using MIS, and ensure that the choice made is fully compatible with the method. Time and money will thus be saved, and the likelihood of choosing a wrong choice will diminish. The method chosen for the MIS should also be aligned with the decisions made. This means there should be a common point for the company to use between the decisions and the MIS plan[10].

MIS can track any irregularities in the network, according to a researcher, and hence it is useful for decision making. Through taking a particular course of action, MIS brings the machine under control. It is also important in

non-programmer decisions, as it provides support by providing information for the decision-making process of search, review, assessment and choice and implementation. Given the different aspects of how MIS aids in decision making, the selection of individuals for decision making is another key factor here. MIS is an extremely complex process that requires great caution. Therefore, companies carefully selects the people for running the processes. The more competent a person is, the more he or she can manage decision making that increases the organization's chances of correct decisions and positive outcomes.

Decision-making on another level often relies on past work or historical information. This is where record-keeping comes in. MIS plays an important role in storing databases which can easily retain sensitive and essential knowledge. The organization's administrators ensure information security in the repositories. Furthermore, databases provide a forum from which to retrieve information. Consequently, MIS record keeping and database tools ensure that decisions are taken in a feasible manner while at the same time running smoothly without interruption.

VII. CONCLUSION

Management Information Systems offers reliable, timely, appropriate, and complete information required to promote organizational decision-making. This allows to be carried out effectively and efficiently in the planning, control and organizational functions. It provides the decision-makers with a wide range of decision alternatives, allowing them to make their choice depending on the system and the situation. It ensures that more often results in the choice, a positive outcome. These are the main reasons why MIS is preferred for decision making and information management by renowned organizations. MIS has a few problems with all of its benefits that need to be resolved. Organizations will ensure top-level management participation to ensure the company works efficiently when it comes to MIS. Decision making these organizations inn would be quicker and more compatible with modern and efficient business practices. Business owners need to learn how to cope with the ever-changing trends in MIS and decision-making, without which positive progress in decision-making will be extremely challenging. Finally, it is important to note that enhancing decision-making is ultimately meant to ensure customer satisfaction as successful businesses continue to flourish. The MIS approaches should be applied according to the requirement and should aim at achieving the business objectives.

REFERENCE

- [1] L. Ogiela and M. R. Ogiela, "Management information systems," in *Lecture Notes in Electrical Engineering*, 2015, doi: 10.1007/978-94-017-9618-7_44.
- [2] V. Venkatesh, M. G. Morris, G. B. Davis, and F. D. Davis, "Management Information Systems Research Center, University of Minnesota," *MIS Q.*, 2014.
- [3] C. Talamo, M. Bonanomi, and C. Talamo, "Information Systems for the Information Management," in *Knowledge Management and Information Tools for Building Maintenance and Facility Management*, 2016, pp. 105–132.

- [4] D. A. Garwood and A. H. Poole, "Project management as information management in interdisciplinary research: 'Lots of different pieces working together,'" *Int. J. Inf. Manage.*, 2018, doi: 10.1016/j.ijinfomgt.2018.03.002.
- [5] K. M. Ko, P. C. Ko, S. Y. Lin, and Z. Hong, "Quality-guided image classification toward information management applications," *J. Vis. Commun. Image Represent.*, 2019, doi: 10.1016/j.jvcir.2019.102594.
- [6] A. Asemi, A. Safari, and A. Asemi Zavareh, "The Role of Management Information System (MIS) and Decision Support System (DSS) for Manager's Decision Making Process," *Int. J. Bus. Manag.*, 2011, doi: 10.5539/ijbm.v6n7p164.
- [7] N. Novkovic, C. Huseman, T. Zoranovic, and B. Mutavdzic, "Farm management information systems," in *CEUR Workshop Proceedings*, 2015, doi: 10.1515/hjbpa-2017-0024.
- [8] L. Mishra, R. Kendhe, and J. Bhalerao, "Review on Management Information Systems (MIS) and its Role in Decision Making," *Int. J. Sci. Res. Publ.*, 2015.
- [9] M. Babaei, B. branch, and J. Beikzad Banab branch, "Management information system, challenges and solutions," *Eur. Online J. Nat. Soc. Sci.*, 2013.
- [10] E. N. Sari and D. Priantinah, "Managerial Decision Making With The Role Of Management Information Systems (MIS): What The Literature Says," *Petra Int. J. Bus. Stud.*, vol. 2, no. 1, pp. 74–78, 2019, doi: 10.9744/ijbs.2.1.74-78.