MANAGEMENT INFORMATION SYSTEMS AND DECISION MAKING

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ABSTRACT

Information has risen to the status of a critical resource in the management of contemporary companies. As a result of the volatile, dynamic, and turbulent business environment that exists today, the growing demand for accurate, relevant, complete, timely, and cost-effective information is being created to drive the process of decision making in order to enhance organizational capabilities in managing opportunities and threats. MIS systems operate in an online mode with a moderate processing speed. In most cases, it is used by lower-level management. Incorporated decision support systems are strong tools that help corporate executives, administrators, and other senior officials in making decisions about a variety of issues. Management Information Systems (MIS) are an advantageous tool for decision-makers in businesses since they provide organized and summarized data in a timely way and enable managers to make sound judgments. This paper will examine the idea of management information systems (MIS), its features, kinds, and the MIS model, with a special emphasis on the effect and function of MIS on decision making.

Keywords: Management Information System, Information Systems, Decision-Making Systems.

I. INTRODUCTION

An increasing number of writers have written on how the role of information systems plays in decision making. In 1966, Kostetsyky was one of the first authors to write about the link between information systems, system analysts, decision-making, and decision-making processes. The management information system offers knowledge about the organization's relative position in the world and the fundamental factors at play. It offers the correct information required in the decision-making process and assists the organization in carrying out its management, planning, and operational tasks efficiently and effectively.

II. INFORMATION SYSTEMS

Method and analysis which is performed in your research work should be written in this section. A simple strategy to follow is to use keywords from your title in first few sentences. Information systems are continuously changing and developing as technology continues to develop and increase in sophistication. Generally speaking, we have many different kinds of information systems, such as management information systems, decision support systems, transaction processing systems, and expert systems, to name a few examples. However, we will be talking about management information systems and decision support systems. These systems are included in management information systems to assist lower-level management with problem-solving and decision-making. They make use of the results of transaction processing, as well as certain additional pieces of information. It consists of a collection of information-processing operations. It should be able to deal with questions as soon as they come in. The database is an essential component of any management information system. They provide assistance to senior management in making long-term choices via the use of decision support systems. These kinds of systems are capable of dealing with unstructured or semi-structured decision-making. It is deemed unstructured when the decision-making process is unclear and when not all of the factors that will be considered in the choice are easily identifiable prior to the decision-making process. According to the decision support system, they are not of a recurring character. Some occur just once or rarely, while others repeat regularly. A decision support system must be very flexible to be effective. The user should be able to create customized reports by providing unique data and formatting that are relevant to certain circumstances. When it comes to defining the kinds of information systems and their categories, there are a variety of viewpoints.

Transaction Processing System (TPS)

This is referred to as a data processing system in certain circles. It is responsible for the collection and processing of the organization's daily transactions, which is a critical function. In the organization, they are
responsible for the functioning of the organization. Purchases, wages, reservations, invoices, orders, and sales are just a few examples of types of transitions.

**Expert System (Specialist) (ES)**

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**Office Automation System (OAS)**

This system may be used to support a broad variety of corporate operations. Office systems are software programs that are intended to enhance productivity and communication among employees, regardless of where they are located physically.

When it comes to an office system, it processes and maintains documents (via word processing and desktop publishing), scheduling (through electronic calendars), and communication (through electronic mail, voice mail, and video conferencing).

### III. MANAGEMENT INFORMATION SYSTEMS

It has just been a decade or two since the Management Information System (MIS) was introduced. There have been many different interpretations and descriptions of it. Additionally, it is referred to as the Information System, the Information and Decision System, and the Computer-based information System. Management information systems are defined as follows: The term “management information system” refers to a system that offers information assistance for decision-making in an organization. In accordance with the Management Information Systems Institute's definition, a management information system (MIS) is a computer-based system that integrates human and machine intelligence in order to deliver information to support an organization's operations, management, and decision-making activities. The management information system (MIS) is described as a system that is based on the company's database and has been developed for the aim of delivering information to the individuals who work in the organization.

**Figure 1:** Simple View of MIS

**Decision Support System (DSS)**

Decision-making is a critical component of the functioning of any business. Information is received and analysed by decision-makers via a variety of media, including conventional print, group and interpersonal information exchanges, and computer-based technologies, among other things. Information systems that provide analytical modelling and information to help semi-structured and unstructured organizational decision-making are referred to as decision support systems (DSS) in general. The following are some of the most common features of DSS:
• Problem structure is utilized in both semi-structured and unstructured decision contexts to help people make decisions.
• Intended to assist and enhance decision-making, rather than to replace it.
• Supports the majority of the decision-making stages
• Makes use of underlying data and a model
• Interacting with others: The DSS is intended to be used as an interactive decision aid.

A decision support system (DSS) is an integrated collection of computer tools that enables a decision-maker to communicate directly with a computer to obtain information helpful in making semi-structured and unstructured choices, as well as in making complex decisions. The decision support system has the capability of assisting organizations in making decisions. Individual decisions should not be the responsibility of the organization. Utilizing the decision support system is a simple process. It should not be necessary for a user to be a computer operator in order to produce reports. It should be easy for the user to get access to and use the DSS system.

**Figure 2:** Simple View of DSS

**Difference between MIS and DSS**

The abbreviations MIS and DSS are two acronyms that are often encountered in the area of Business Management. They are distinct in a few respects. It is critical to understand that MIS is an abbreviation for Management Information Systems and DSS is an acronym for Decision Support Systems. It is noteworthy that management information systems (MIS) are a kind of connection that facilitates communication between managers from different disciplines inside a commercial company or organization. As a whole, it contributes significantly to the development of effective communication among corporate employees. However, DSS is an advance on the idea of management information systems (MIS). It is true that their areas of interest are very different from one another. The Department of Social Services (DSS) focuses more on leadership. It ultimately comes down to top management in a company offering a vision for innovation. MIS, on the other hand, is more concerned with the information that has been collected and the information that has come in from other sources. According to experts in management behaviour, DSS focuses more on decision-making than anything else. The management information system (MIS) on the other hand is primarily concerned with the preparation of reports on different subjects relating to the business that would help the managers in making critical choices pertaining to the operation of the organization. One of the most significant distinctions between MIS and DSS is that MIS is concerned with operational efficiency, while DSS is concerned with making effective decisions, or, in other words, with assisting the business in doing the right thing in the appropriate situation. In the case of MIS, the flow of information comes from both sides, both up and down.

As opposed to this, information is only sent upward in the case of the DSS. DSS reports may be tailored to meet the needs of the user, while MIS reports are often not that adaptable. The entry of a vast amount of data, the
production of summary reports, and the process itself are all characteristics of management information systems (MIS). Whereas DSS is defined by a small amount of data input, a decision analysis output, and a process that is described throughout the execution phase by an interactive model. Experts would also agree that management information systems (MIS) are a fundamental level of decision making, while decision support systems (DSS) are the final and most important element of the choice. This is one of the most often discussed distinctions between the two. In reality, management information system (MIS) is all about theory, while data systems (DSS) are all about practice and analysis. An organization should make good use of both of these systems.

**Decision-Making**

In reaction to risks and opportunities, decision-making is the process through which members of an organization select particular courses of action. Good decisions result in courses of action that assist a person, group, or organization in becoming more successful, while bad decisions have the opposite impact. Daft (2001: 399) argues that choices made by members of an organization determine whether the organization succeeds or fails. Decisions, according to Daft (2001: 399), maybe hazardous and unclear, with little chance of success. Simon (1984), a prominent expert on managerial decision-making, believes that the decision-making process is divided into four major phases:

- **Intelligence**: the process of examining the surroundings for circumstances that need making a choice.
- **Designs**: are created through creating, developing, and evaluating several potential courses of action. This includes procedures for understanding the issue, developing solutions, and assessing the viability of those solutions.
- **Option**: choosing one of many alternatives or a plan of action from among the variables.
- **Review**: evaluating previous decisions. George Huber subsequently integrated this concept into an extended model of the whole problem-solving process, which is known as the Huber Model (see figure 3).

**Figure 3**: Process of decision making

**Types of Decisions**

A straightforward perspective of decision-making is that it is a problem of selecting one option from a set of possibilities. A somewhat more complex perspective takes into account the process of creating the alternatives (i.e., give a problem statement, developing a list of choice options). A comprehensive picture includes a search for potential decision-making possibilities (i.e., discovering that there is a decision to be made). A company’s management may be faced with a decision in which the alternatives are obvious (e.g., the choice of a supplier from among existing suppliers). She may also be confronted with a situation for which she develops innovative decision-making alternatives (e.g., how to market a new product so that the ports are maximized). As a last option, she may choose to be more proactive in her operations, seeing decision problems as opportunities to be discovered via study into the operations of her company and its surrounding environment. There is a great deal...
The decision-making process, according to Simon (1984), may be divided into two main categories, depending on the degree to which it can be planned in advance:

- Programmed Decision: The term "programmed decision" refers to choices that are made in accordance with established norms, processes, or quantitative techniques. It is necessary for the decision-maker to use a performance program in order to make a programmed choice. A performance program is a typical sequence of behavior that organizational members follow on a regular basis whenever they face a particular kind of issue or opportunity. For example, inventory control decisions, machine loading decisions, scheduling, and so forth.

- Non-programmed Decisions: This kind of choice is used when dealing with unexpected or extraordinary circumstances. They are choices that are taken in reaction to new challenges and possibilities that present themselves. According to Lucey (2005: 171), this kind of choice is linked with a high degree of ambiguity, cannot be outsourced to lower levels of authority, may include objects, but always requires people. Examples include mergers and acquisitions, the introduction of new products, the employment of new employees, and so forth. Regardless of whether a decision is programmed or not, the information supplied by management information systems has a significant impact on the outcome.

- Having sound decision-making options ensures that decisions in organizations are feasible. According to Rhodes (2010), management information systems (MIS) provide managers with fast access to information. Collaboration with other decision support systems, information searches, cross-referencing external information, and possible data mining methods are just a few examples of what might be accomplished. It is also said that management information systems (MIS) have changed decision-making processes via automated systems. Managers no longer depend on employees to provide 24-hour service; instead, computers are to be trained to do tasks such as routine choices in lieu of humans. Adebayo (2007) said that management information systems (MIS) offer information that is required for improved decision-making on problems impacting companies’ people and material resources, among other things. Lucey (2005:179) stated that management information systems (MIS) provide information, investigate options, and offer assistance in situations when the manager makes the choice or the MIS takes the decision itself, particularly in the case of regular operations.

IV. MANAGEMENT INFORMATION SYSTEMS AND DECISION-MAKING

The development of information and communication technology, which is changing the structures of societies, has also had an impact on the job of making decisions by managers. To make effective and efficient use of emerging information and communication technologies, many companies take steps to prepare themselves. There are two advantages to using information and communication technologies in a business setting. For starters, it makes it simple for companies and managers to gather information. This will result in more assistance for the decision-making process. Second, the use of information and communication technology allows businesses to function more effectively in a globally competitive context and to make more informed decisions more quickly and efficiently. When it comes to decision-making, information and communication technology improves the quality of decisions, which is a critical element for every company. Bring about significant changes at all levels of the company, including organizational leadership and strategy, as well as in the behaviour of individuals. Information and communication technology has evolved into an important component of the decision-making process in organizations, with managers at all levels increasingly relying on information and communication technology for assistance. The area of information management system is undoubtedly made possible by current information and communication technologies (ICTs). When information and communication technology is used to collect, analyse, and evaluate information as well as transfer it from one location to another, it can result in instant access to information, cost reductions, better products, careful coordination, shorter lead times, improved control, and ultimately better services. Management has, without a question, been a requirement for humans from the beginning of time. If you examine the many management tasks, it can be plainly observed that the core of all management activities is decision-making. The ability to make decisions is an essential component of management. The management is very intelligent in each job.
determining the policies and growth goals of the organization. Organizational design, selection, assessment, and management techniques in all forms, as well as decision-making, are some of the most important basic foundations of every organization. In its most basic description, decision-making is the process of selecting a route between two or more alternatives.

Figure 4: MIS and decision-making process

Management Information Systems and the Decision-Making Process

According to Obi (2003), management information systems (MIS) are helpful in the decision-making process because they can monitor system disturbances by themselves, decide a course of action, and take action to bring the system back under control. Aside from that, it is essential in nonprogrammer selections since it provides help by giving information for all phases of decision-making including searches and analyses as well as evaluation and selection before moving on to the implementation process itself. The significance of management information systems (MIS) in decision-making was highlighted by Adebayo (2007), who said that they provide information that is needed for better decision-making on issues affecting the organization’s people and material resources.

Figure 5: Phases of Decision Making and Information systems

The management information system (MIS) is an organization-wide attempt to offer information about the decision-making process. All managers will have access to the computer as a result of the system, which is a formal promise by the leadership. The successes in the other field, which is DSS, the virtual office, and knowledge-based systems, are facilitated by the achievements in MIS. The fundamental concept underlying management information systems (MIS) is to ensure that management has a constant supply of information. Following that, choices are made based on the facts and information collected from the MIS.
MIS (management information systems) are, if you think about it, a tool for converting data into information that can subsequently be used as input in decision-making processes. Figure 1 illustrates this view of information as data that has been processed for a specific purpose.

V. CONCLUSION

It is impossible to overstate the importance of information in decision-making. Effective decision-making requires the availability of reliable, timely, and relevant information. Organizations' planning, control, and operational activities may be carried out more successfully if they have correct and timely information at hand. The management information system (MIS) aids in the decision-making process by delivering accurate and timely information. In addition, management information systems (MIS) play a critical role in ensuring that decision-makers have access to a broad variety of simplified alternatives from which to choose their preferred options, thereby ensuring that, regardless of the choices made by decision-makers, the outcome is more frequently favourable. As a matter of fact, this is one of the primary reasons why many corporate decision-makers choose to use management information systems (MIS) when making difficult business decisions. MIS is a well-known term, and making excellent decision choices ensures that our companies make profitable judgments. From the explanation above, we may conclude that decision support system (DSS) is concerned with decision-making, while management information systems (MIS) are concerned with information. Management information systems operate in an online manner, while decision support systems operate in a real-time mode, as described below. The management support system can handle a moderate amount of data, while the decision support system can handle a large amount of information. The decision support system, on the other hand, makes extensive use of visuals, while the management support system makes little use of graphics. Management information systems (MIS) concentrate on completely organized tasks or routines for decision-making, while decision support systems (DSS) concentrate on both structured and semi-structured data. Aside from the distinctions mentioned above, both MIS and DSS serve as the foundation of an information system, meeting the needs of various levels of management.

VI. REFERENCES