

# **Management Information System and Managerial Decision Making of Business Organisations**

**DINAH, Dinatu Samuel**

Department of Accounting  
Bingham University  
Karu, Nasarawa State

E – Mail: s.dinah@yahoo.co.uk, Phone No: +234 8034510104

## **Abstract**

*Decision making is a fundamental aspect of managing any organization, it is the primary function of management. Decisions play significant roles as they determine both managerial and organizational activities of all business organizations. Managers take hundreds of decisions during the course of running a business to ensure objectives are achieved, making it a key component in the role of a manager. The business sector is a highly competitive, volatile and dynamic environment, the success of an organization relies mainly on the decisions made by its management, and therefore it is imperative that managers have the right information at the right time in order to bridge the gap between need and expectation. This paper reviewed and analysed relevant literature pertaining to the research which revealed that decision making strongly depends on information systems, it also identifies that Management Information System is one of the most important information systems that provide help to the manager for taking effective decision in an organization. A management information system collects and processes data and provides it to managers at all levels who use it for decision making, planning, program implementation, and control.*

**Keywords:** Management Information System (MIS), Information Technology, Decision-making, Management, Business Organization

## **INTRODUCTION**

The role of information in decision-making cannot be overstated; and effective decision-making demands accurate, timely and relevant information. As the numbers of employees, customers and transaction increases in an organization the more it becomes multi-layered, and the information needed for effective management, planning, decision-making and control unvaryingly becomes more complex. Decision-making is the task of every top management in an organization and they need relevant and timely information to assist in taking decisions. According to Lucey (2005), relevant information increases knowledge, reduces uncertainty and is usable for the intended purpose. However, there are difficulties in producing relevant and timely information, but with the advent of information systems most business organizations in Nigeria collect data which is processed to produce useful and meaningful data which can be used for decision-making which affects the current and future operations of the organization.

Laudon defined information systems as a set of interrelated components that collect, process, store, and distribute information to support decision-making, coordination, and control in an organization. In addition to supporting decision-making, coordination, and control, information systems may also help managers and workers analyse problems, visualize complex subjects, and create new products. Examples of information systems for decision making cover management information systems, decision support systems, executive information systems, artificial intelligence applications, data warehousing & data mining, and business intelligence/business analytics. Management information system (MIS) has played a crucial role in the business environment, it has evolved over time to become an integral part of its business operations. The global environment today is highly competitive, it is the basic requirement of the organization to set up management information system to compete in the market to become profitability, invest in innovation, and grow their businesses. All of these factors transformed the information system from data processing systems to decision support systems and have become the foundation of the new business environment. This study examines the role management information system play in the managerial decision making of business organizations in Nigeria.

## **LITERATURE REVIEW**

### **Conceptual Framework**

#### **Concept of Information System**

Information systems can be defined as an arrangement of people, data, process, information presentation and information technology that interact together to support day to day operations of business as well as support the problem solving and decision making needs of a management (Whitten, 2002). From the definition stated above, information system is a set of interrelated components that retrieve, process, store, and distribute information to support operations, management and decision making activities of an organization. Information systems develop for the purpose of solving business problems and helping to the people of business community (users). These people are important part of an information system. Data are raw facts about the organization and its business transactions. Most data items have little meaning and use by themselves. Data are the observations, measurement and recording from the source where source are consisting of the physical activities and objects, which are relevant to the business. On the other hand information is data that has been refined and organized by processing and purposeful intelligence. Information systems present the information according to the needs of the decision maker. Information technology is a contemporary term that describes the combination of computer technology (hardware and software) with telecommunication technology (data, image, and voice networks).

#### **Concept of Management Information System**

Management information system is used in organization for its business operation (Manish Kumar,2011). It provides strong advancement in the field of information technology through which an organization can easily achieve its strategic objectives. It helps in decision support, venture management, resource and people management and data base retrieval application. The use of management information system in business organization support business processes, competitive strategies and business operation which result and impact the performance of the work force of the specific organization. MIS plays the life blood role for an organization as no human can survive without it. Investment in MIS by the organization support it in core competencies, it also help in production process, human resources records, financial records and controlling and monitoring of the various activities which in turn impact the organization growth and development and also provide sound basis for strategic decision making process. The system of Management Information System shows that communication is needed to carry out the managerial functions and for linking the organizations with its external environment. Management Information System provides communication link that makes the activities and responsibilities surrounding management or managers possible, Burns, J.M. (1998).

The focus in Management Information System coupled with improved processing as led to the reduction in bottlenecks attached to management process. Managers have re-organized for years so that traditional accounting information aimed at the calculation of profit have been of limited value for control. Yet in many companies, this has been virtually the only regular collected and analyzed type of data. Managers need all kinds of non-accounting information about the external environment such as social, economic, political, and technical development. In addition, managers need non accounting information on internal operations. The information should be quantitative. Weihrich and Koontz [2001] defined Management Information system as a functional system of gathering, comparing, analyzing, and dispersing internal and external information to the enterprise in a timely, effective, and efficient manner. Management information system can be defined as a support to management to provide the competitive advantage which must support the goals of the organization, Kenneth and JaneLaudon (2003) Dos Santos (1991), Define Management information system as a planned system of collecting, processing, storing, disseminating data in the form of information needed to carry out the functions of management. It can also be a documented report of the activities, planned and executed.

According to Dantes and Hasibuan, (2011) MIS is a generic term for the computer systems in an organisation that provides information for its business processes as it is utilised to refer to individuals

who manage these systems. Typically, the term "MIS" or "MIS department" is used by large organisations to refer to a central or centrally coordinated system of computer experience and management, predominantly involving central computer systems, but also involving the full network of computer resources of the company (Gikang, 2016). Both Arrawatia & Meel, (2012); and Nowduri, (2011) unanimously agreed that MIS refers to a system that utilises information in order to ensure the appropriate administration of organisations. Essentially, all aspects of MIS work in conjunction to ensure the efficiency of the entire system. Therefore, failure in one part results to the total failure of the other parts as they are all designed to work in a coherent manner (Davenport, & Short, 1990). Based on previous definitions, MIS denotes a system consisting of a set of elements of inputs, processes, outputs, and feedback is intended to process the data and transform it into significant information to help upgrade the decision-making.

### **Decision-making in an organization**

Trewatha and Newport defined decision making as “a process that involves the selection of a course of action from among two or more possible alternatives in order to arrive at a solution for a given problem.” Decision making process is carried by an individual or a group to drive better functioning of any organization. It is a continuous and dynamic activity that pervades all other activities pertaining to the organisation. Decision making process can be regarded as a check and balance system that keeps the organisation growing, it seeks to achieve the pre-set business objectives, company missions and vision. To achieve company set goals is not an easy task as various obstacles in administrative, operational, marketing aspects of the business, such problems are sorted out through comprehensive decision making process. P.P. Drucker in his book “Practice of Management,” observes “whatever a manager does, he does through making decision.” The job of management involves the making of innumerable decisions, management is decision making. Decision making is carried out at various levels of management. Top management is responsible for the overall management of an organization. These people are called executives. They establish operating and guide the organization’s interactions with its environment. They actually take the decisions on non-programmer facts and those are strategic. Non-programmed decisions are used for unstructured, novel, and ill-defined situations of a nonrecurring nature. DSS and ESS help to the top level manager to take effective decisions. The middle level of the management hierarchy includes supervisors, college deans, project director, and regional sales coordinator. These managers receive the broad overall strategies, missions and objectives from executive level managers and translate them into specific action program. The middle level manager implements semi-structured decisions. They have taken routine decisions and taken strategic decisions collaboration with top executives. MIS directly provides Semi-structure decisions and they aid to the mid-level manager. First line manager supervises employees and resources at the lowest levels of the organizational hierarchy. Most of their concerns is with ensuring that specific work assignments are carried out on time. They have taken structured decisions and taken help from their top. TPS aids to the first line manager by providing routinedecisions.

### **Management Information System and Decision-making**

This is a universally accepted fact that all managerial functions are performed through decision making. For taking rational decisions, timely and reliable information is essential and is procured through a logical method of information collecting, processing and disseminating to decision makers. In today’s world of ever increasing complexities of carrying out business, every organization, in order to survive and grow, must have a properly planned, analyzed, designed and maintained MIS. This need is even more increased because organizations now have to compete not only locally but also globally. MIS assist decision makers, by providing the required information at various stages of decision making and thus greatly help the organization to achieve its goals and objectives. On the other hand, if an MIS is poorly planned and constructed, it may provide inaccurate, irrelevant or obsolete information, which may even prove fatal for the organization.

In today's business, decision-making is very important. Wherever the level, management of the organization make decisions on the basis of information, information may be manual or may be computerized. MIS is one of the important information system applications that help the different level managers to take effective decisions. MIS directly helps the mid-level manager by providing routine reports on the basis of TPS information that are collected from organizations' operational activities. DSS also facilitate the decision making process of semi-structured tasks. These systems are designed not to replace managerial judgment but to support it and to make the decision process more effective (Weihrich and Koontz, 2000). ESS also helps the senior manager by providing critical information from a wide variety of internal and external sources (O'Brien, 2003). On the basis of information transferring process i.e. bottom-up and decision-transferring process i.e. top-down, middle level manager makes decision based on MIS reports and transfer information to the top executives that are strategic. Mid-level manager gets strategic decisions from top executives for proper implementation.

### **Empirical Studies**

An information system as described by Encyclopedia Britannica, is an integrating component for collecting, storing and processing data; and for delivery information, knowledge and digital products. Business firms and other organizations rely on information systems to carry out and manage their operations, interact with their customers and suppliers, and compete in the market place. As major and new technologies for recording and processing information have been invented over the millennia new capabilities have appeared. One of the first computers used for information processing was the UNIVAC I installed at the U.S Bureau of the census in 1951 for administrative use and at General Electric in 1954 for commercial use. Starting in the late 1970s, personal computers brought some of the advantages of information systems to small businesses and to individuals. Early in the same decade the Internet began its expansion as the global network of networks. In 1991 the World Wide Web invented by Tim Berners-Lee as a means to access the interlinked information stored in the computers connected by the Internet was installed to become the principal service delivered on the network. The introduction of the Internet without any doubt has enabled access to information and other resources; this has facilitated forming relationships among people and organizations at an unprecedented scale. Rhodes added that Management Information Systems (MIS) give managers quick access to information. This may include interaction with other decision support systems (DSS), information inquiries, cross referencing of external information and potential data mining techniques. Nowduri highlighted in his related study that MIS provides a fitting platform for good decision-making. He further declared that without the established systems of getting information in MIS, it would be extremely difficult for organizations to make their decisions. Agwu, submitted in their study that information systems directly affects how decisions are made in an organization by altering the manner and frequency by which information is delivered to key decision makers. In corroborating the effects of information systems on decision-making, Ajayi stressed the need for MIS decision-making as it provides information that is needed for better decision-making on the issues affecting the organization regarding human and material resources. Obi in his publication submitted that Management Information Systems (MIS) is useful in the area of decision-making as it can monitor by itself disturbances in a system, determine a course of action and take action to get the system in control.

### **Theoretical Discussion**

Management Information system is interested in the use of information technology to carry out the functions of management. It is concerned with information related to people, product, procedures and technologies. As with any field of research, MIS research requires theories which provide a framework through which scholars and other researchers view phenomena in the field. Early research in MIS focused on problems focused by professionals in the field of information management, and were borrowed from other fields, such as management and computer science. The key theories in MIS include cognitive fit theory, cognitive dissonance theory, task technology fit, competitive strategy and socio-technical theory.

### **Cognitive fit theory**

Vassey and Galletta (1991) define cognitive fit theory as the match between task, problem representation and individual problem solving skills. Goodhue (1995) defines it as the “extent that technology functionality matches task requirements and individual capabilities.” Cognitive fit theory provides a guideline for the best way to present information that is relevant for solving a given problem. It suggests that any information pertaining to the organization must be well presented in order to affect the task performance of the organization positively.

### **Cognitive dissonance theory**

Leon Festinger’s theory proposes that inconsistency among beliefs or behaviors causes an underlying psychological tension. This underlying tension then motivates an individual to make an attitude change that would produce consistency between thoughts and behaviors. Therefore this theory is concerned with change to eliminate inconsistency between attitudes and behavior in the organization.

### **Task-Technology fit theory**

This theory holds that information technology capabilities must match user tasks in order for the technology to have a positive impact.

### **Competitive strategy theory**

This theory is concerned with how a firm competes in its business environment, how it intends to create and maintain competitive advantage with respect to competitors. It draws on economy concepts to determine factors that make a market attractive.

### **Socio-technical theory**

Socio-technical theory refers to the relationship between social and technical aspects of an organization. It recognizes the interaction between people and technology in workplaces. It emphasizes the need for consistency among independent sub-systems for the larger system to achieve optimal performance.

## **METHODOLOGY**

The study employed the use of secondary data. The main source of data for the research is basically secondary sources considering the array of variables involved in investigating the role of management information system in managerial decision making of business organisations in Nigeria. So for the purpose of the research, data was sourced using published and unpublished documentations such as reports, magazines, journals, newspapers, internet and journals that provide the conceptual framework and a definite meaning to the topic.

## **RESULTS AND DISCUSSION**

MIS provides information to company decision makers. Regardless of whether it is a marketing, financial or operational issue, managers need quick access to information so that they can make good decisions that will have a positive impact on the company’s performance. Management Information Systems enhance this by strategically storing vast amounts of information about the company in a central location that can be easily accessed by managers over a network. This means that managers from different departments have access to the same information hence they will be able to make decisions that collectively help solve the company’s problems in the quickest way. In any large company, there are many situations that call for input from several individuals or departments before decisions can be made. Without an efficient communication channel, these decisions can take a very long time. Even with good communication channels, if the different stakeholders don’t have access to all the available data, the process would hit a number of snags before it’s complete. Management Information Systems ensure that all the members of

the decision-making group have access to all the data that's required to make the decision even if they are working from different physical locations. Before making a decision that will affect the overall standing of the business, a lot of precaution must be taken. There is a need to check and verify that the company will not suffer after making a decision. Management Information Systems enable executives to run what-if scenarios so that they can see how some of the important metrics in the business will be affected by a given decision. The data is presented in easy to understand reports and graphs that make interpretation easy. For example, a human resource manager will be able to tell what will happen to the revenue, production, sales and even profit after reducing the number of workers in a manufacturing department. Another example would be the effect of a price change on profitability. Once executives have been able to see whether or not the decision will be beneficial to the company, it is easier to make good decisions that will not leave the company in chaos.

Management Information system also gives accurate projections of the company's standing in the short and long term. Most of the decisions made by top executives in companies have an effect on the company strategies. As a result, some of them may need some modifications done on the company goals or strategies. Most Management Information Systems come with trend analysis features that will enable you to project the performance of a business with the current configuration and how they will be affected once you have implemented any changes that you are considering. The Management Information Systems that don't have the trend analysis feature will still provide you with enough information to accurately carry out the analysis using external tools. Management Information Systems help track the implementation of particular decisions in a company. Before making a decision, executives use these systems to make projections of the expectations from the particular decision. If they decide to go ahead with the changes, there will be a need to keep monitoring the performance to see if you are on track to achieving the desired results. Management Information Systems give detailed reports and recommendations so that the evaluation of the goals moves smoothly and effectively. You get data that shows if your decisions have had the desired effect. If not, you will be able to take the necessary corrective measures early so that you can get back on track. MIS plays an important role when it comes to time management in an organization. As the saying goes "time is money," employees do not have to collect data manually for filing and analysis. Information can be documented swiftly and with ease into a computer program. Subsequently, Inflow of data becomes too large for employees to analyze, business analysts can build programs to access the data and information in line with the demands by management. With faster access to essential information, managers can make better decisions about strategies, future guidelines, developments by competitors.

## **CONCLUSIONS AND RECOMMENDATIONS**

This study examined the role of management information system in managerial decision making of business organizations in Nigeria. The study revealed that information system contribute significantly in management's decision making process. The adoption of information systems has influenced the ways decisions are made at various levels of management by changing the manner and rate at which information is provided for decision makers. It was also made known in the study that information systems provide relevant, timely and accurate information for the management for effective decision-making. The management of various business organizations in Nigeria are coming to the realization that information systems can be used to produce meaningful, relevant and accurate information which they can base their decisions. In view of this, it is recommended that business organizations in Nigeria should develop the various information system strategies to meet organizational needs in the ever changing business environment. Also, the companies need to develop productivity enhancing strategies that will enable them to successfully integrate the new technologies with their present operations; and the information systems unit in the sector should be well financed and given adequate maintenance to ensure adequate flow of information for decision-making on short term and long term planning. Lastly, organizations should give their staff adequate training and proper orientation to ensure the effective use of

information systems in the provision and circulation of information for efficient and effective decision-making.

## References

- Agwu, C.I.C., Adeola, R. O., Etefia, C. F. & Ogwu, J.N. (2010). *The Effect of Information System on Management Decision Making*. Nigeria: Wema Bank Plc
- Ajayi, I.A., Omirin, K. & Fadekemi, F. (2007). The Use of Management Information Systems (MIS) In Decision Making In the South-West Nigerian Universities. *Educational Research and Review*, 2(5), 109-116.
- Arrawatia, M. A., & Meel, P. (2012). Application of Management Information Systems for Business Decision Making: Review, Study and Suggestions. *Journal of Computer Science and Technology*, 8491(2006), 18–21.
- Banerjee, U. K. and Sachdeva, R. K. (2002), *Management Information Systems - 2nd revised edition*. Dhaka: Associated Business Corporation.
- Dantes, G. R., & Hasibuan, Z. A. (2011). *The Impact of Enterprise Resource Planning (ERP) System Implementation on Organization*. Indonesia: IBIMA Business Review.
- Davenport, T. H., & Short, J. E. (1990). The new industrial engineering: Information technology and business process redesign. *Sloan Management Review*, 31(4), 1–31.
- Davis, F. D., Bagozzi, R. P. & Warshaw, P. R. (1989). User acceptance of computer technology: a comparison of two theoretical models. *Management Science*, 35(8), 982–1003.
- Dixon, P. (2004). *Impact on New Technology on Consumer Life Styles and Business Strategy*. Stockholm: IBS Global Executive
- Idowu, P.A., Alu, A.O. & Adagunodo, E.R. (2002). *The Effect of Information Technology on the Growth of the Banking Industry in Nigeria. The Electronic Journal on Information Systems in Developing Countries*, 10 (2), 1-8.
- Islam, M. B. and Haque, M. M. (2003). Information Systems and Its Application in Managerial Decision Making. *Business Review*, 3(2), 43-49.
- Keen, G.W., (1981). Information Systems and Organizational Change. *Communications of the ACM*, 24(1), 24-33.
- Laudon, C. K. & Laudon, P. J. (2002), *Management Information Systems*, 7th edition, Pearson Education, New York.
- Laudon, K.C. & Laudon, J. P. (2001). *Essentials of Management Information Systems (4th ed)*. New Jersey: Prentice Hall.
- Lucey, T. (2005). *Management Information Systems (9th ed)*. London: Thomson Learning, (Chapter 3)
- Nowduri, S. (2011). Management Information Systems and Business Decision Making: Review, Analysis and Recommendations. *Journals Management and Marketing Research*, 8(5), 1-8.
- Mason, R. O. & Swason, E. B. (1981), *Basic Concepts for Designing MIS in Measurement for Management Decision*. USA: Addison-Wesley Publishing Co.
- Melville, N. Kraemer, K. and Gurbaxani, V. (2004). Information Technology and Organizational Performance: An Integrative Model of IT Business Value. *MIS Quarterly*, 28(2), 283-321.
- Obi, E. (2003). *Educational Management Theory and Practice*. Enugu: JAMOE Nigeria Enterprises.
- O'Brien, J. A. (2002). *Management Information Systems-5th edition*. New Delhi: McGraw–Hill Irwin.
- Rhodes, R. (2012). *The Role of Management Information System*. Retrieved online from: [http://www.ehow.com/facts\\_7147006\\_role-nformation-system-decision-making.html](http://www.ehow.com/facts_7147006_role-nformation-system-decision-making.html).
- Steven, A. (1980). *Decision Support Systems: Current Practice and Continuing Challenges*. USA: Addison wisely publishing Co.
- Uma, Gupta, (2004). *Management Information Systems – A Managerial Perspective*. New Delhi: Golgoti Publication.
- Weihrich, H. & Koontz, H. (2000). *Management– A Global Perspective - 10th edition*. Singapore: McGraw-Hill Publishing Co.
- Whitten, J. L., Bentley, L. D. & Dittman, K. C. (2002), *Systems Analysis and Design Methods - 5th edition*, New Delhi: McGraw–Hill Publishing Company Limited.
- Whitten, J.L., Bentley, L.D. & Dittman, K. C. (2001). *Systems Analysis and Design Methods (5th ed.)*. New York: McGraw-Hill, (Chapter 1& 2).