

## **THE RELEVANT OF COMPUTER IN MANAGEMENT INFORMATION SYSTEM: A CASE STUDY OF MTN ENUGU**

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**Abstract:** This study set out to provides a concise overview of the study investigating the significance of computers in the Management Information System (MIS) of MTN Enugu, a leading telecommunications company. The research delves into the critical role that computers play in enhancing operational efficiency, decision-making processes, and overall strategic management within the company. The study explores various dimensions of the integration of computers in the MIS of MTN Enugu, examining how these technological tools contribute to data management, real-time monitoring, communication enhancement, decision support systems, and security measures. By focusing on the telecommunications sector, which operates in a dynamic and competitive environment, the research sheds light on the ways in which computer technologies enable the company to navigate complexities and maintain a competitive edge. The abstract emphasizes the importance of efficient data management, real-time monitoring, and communication enhancement facilitated by computers in a telecommunications company's MIS. It also acknowledges the challenges associated with cyber security and the need for continuous technological updates and employee training. The findings of this case study contribute to the broader understanding of the symbiotic relationship between computers and MIS in the telecommunications industry. The lessons learned from MTN Enugu's experience provide insights that can be valuable for other companies seeking to leverage computer technologies for effective management in a rapidly evolving business landscape. The research emphasizes the dynamic and evolving nature of the telecommunications industry and underscores the necessity for organizations to adapt and innovate through the integration of computer systems in their management processes.

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**Keywords:** Management information system (MIS), Relevance of computer, MTN Enugu.

### **1. Introduction**

In an era defined by rapid technological advancements, the role of computers in shaping and optimizing organizational processes has become increasingly vital. Nowhere is this more apparent than in the domain of Management Information Systems (MIS), where the integration of computer technologies plays a pivotal role in enhancing operational efficiency, facilitating informed decision-making, and ensuring the overall effectiveness

of strategic management. This study delves into the specific context of MTN Enugu, a prominent telecommunications company, to explore the profound relevance of computers in its MIS.

It is said that to manage an organization is to manage its future. How can the future be managed? The answer through a timely procurement of relevant and reliable information is the complement of its procurement. The whole lot of activities therefore ranging from information procurement through its collation validation and analysis to feedback make up what can be seen as a system. The type of system in management is known as management information system (MIS)

Management information system is the formal processes of data collection organization analysis processing and dispersing of information internal and external to the organization in an effective and efficient manner (LUCEY 1987) it entails not only any organized and interacted approach at placing relevant and timely information on the desk of the manager to aid decision making but also the control and accessibility any plant on time as may be demanded by management.

Primary the MIS. is set up for the purpose of providing planned and controlled information to all levels of management to effect appropriate decision making This it does by gathering data imputing and processing them into information and further disseminating these items of information to managers in the form of financial as well as non-financial information system can be subdivided into functions information system such as marketing information system the financial information system and the present information system and so on depending on the type of organization.

How does the management information system organizations serve various level a of management. The answer is not for fetched for instance for the lower management concerned with the day-to-day process of supervision and direction of the routine activities of the organization, whose decision are often repetitive with short time horizon and few uncertainties, the MIS provides operational information which are mainly historical detailed largely and narrow in scope. Also, it provides and direct the operations and function of the organization. Finally, to the top management, organization as a whole in addition to the formulation of objective the development of strategies, policies and tactics that are to be adopted in achieving organizational goals the MIS provides strategies information which are largely external, forward looking and mostly qualitative.

This, the management information system (MIS) provides management with varying information depending on the level thereby making for increase on the efficiency of the organization through better management decision, more effective utilization of resources increased profits better and less costly administration.

a) MIS performs four basic functions collection of data from a variety of sources. This means obtaining facts such as records of the day transactions of the organization either by observation or research from both external and internal source.

b) Efficient organization of data accessing and storing data in database. A database is an organized collection of data. For instance, an ordinary hand written address book is an example of a simple manually maintained database.

c) Data procession into information upon which is to be used by management. Data is stored, analyzed compared, calculated and generally worked on to produce message in the form required by the manager, which is then termed information.

d) Presenting data in a meaning and useful form. This could be by means of various kind of reports including stoical reports such as sales analyses and control information such as budget variance reports.

## **2. Related Literature**

Management information systems play a strategic role in the life of organizations, it provides the management with appropriate information and in the right place and time to help the management to do various functions of planning, organizing, directing and control and decision-making. Every business organization in this era needs management information system to keep track of all business activities.

### **Information Technology and Organizational Performance**

The literature on the relationship between information technology (IT) and organizational performance provides a foundational understanding of how the integration of computers into Management Information Systems (MIS) can impact overall business success. Researchers such as Brynjolfsson and Hitt (1996) argue that the strategic use of IT, including computer systems, can lead to improved operational efficiency and enhanced decision-making processes.

### **Telecommunications Industry Dynamics**

Studies examining the dynamics of the telecommunications industry are crucial for contextualizing the relevance of computers in the MIS of companies like MTN Enugu. Research by Varadarajan and Yadav (2002) explores the challenges and opportunities within the telecommunications sector, shedding light on the need for technological innovation to maintain competitiveness.

### **Data Management and Analytics**

The importance of effective data management and analytics in modern business environments is a recurring theme in the literature. Laudon and Laudon (2016) highlight the role of computer-based information systems in handling vast amounts of data and transforming it into actionable insights. This perspective is particularly relevant to understanding how computers contribute to data management in MTN Enugu's MIS.

### **Real-Time Monitoring and Decision Support Systems**

Scholars such as Turban et al. (2019) have extensively discussed the significance of real-time monitoring and decision support systems in organizational decision-making. The literature in this area explores how computers enable companies to gather, process, and analyze data promptly, contributing to agile and informed decision-making processes within the dynamic environment of the telecommunications industry.

### **Communication Technologies and Organizational Communication**

The role of computers in enhancing communication within organizations is well-explored in the literature on organizational communication. Studies by Daft and Lengel (1986) and Markus (1994) provide insights into how computer-based communication tools influence the flow of information within companies. This literature is relevant for understanding how computers enhance communication in MTN Enugu's MIS.

### **Cybersecurity in Telecommunications**

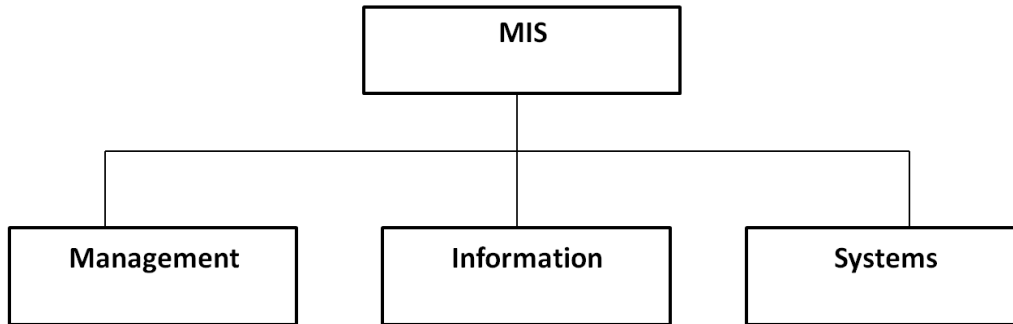
Given the sensitive nature of data in the telecommunications sector, the literature on cybersecurity is crucial. Works by Whitman and Mattord (2019) and Anderson and Moore (2006) delve into the challenges of securing information systems against cyber threats. Understanding this literature is essential for examining the security measures implemented by companies like MTN Enugu to protect their MIS.

### **Technology Adoption and Organizational Change**

The literature on technology adoption and organizational change, as discussed by Rogers (2003) and Kotter (1996), provides a theoretical framework for understanding how organizations integrate new technologies. This perspective is relevant for assessing the adoption process of computer technologies within the MIS of MTN Enugu and the associated challenges and benefits.

### 3. Management Information System

The term of management information systems consists of three parts, to understand the meaning of this term must understand what the meaning of management, information, and systems. It is better to understand each part of the term.



**Figure 1.** The Meaning of Management Information System (MIS)

#### 3.1.1. Management

Management is to achieve organizational goals efficiently and effectively through planning, organizing, directing and controlling organizational resources, its ability to achieve the goals by others. According to business dictionary Management is the organization and coordination of the activities of a business in order to achieve defined objectives. Management is often included as a factor of production along with machines, materials, and money.

#### 3.1.2. Data and Information

Data is raw unprocessed facts and figures that have no context or purposeful meaning and information is processed data that has meaning and is presented in a context According to Hardcastle Data is a raw fact and can take the form of a number or statement such as a date or a measurement. Information is generated through the transformation of data. According to OBrien & Marakas Information as data that have been converted into a meaningful and useful context for specific end users.



**Figure2.** The process of Data processing

#### 3.1.3 System

According to O'Brien & Marakas a system is a set of interrelated components, with a clearly defined boundary, working together to achieve a common set of objectives by accepting inputs and producing outputs in an organized transformation process. According to Hardcastle a system can be defined as a collection of components that work together towards a common goal. The objective of a system is to receive inputs and transform these into outputs.

### 3.2. Benefit of MIS

MIS provide reports to various managers among the middle and low-level managers of the organization. Especially, for middle level managers management information system provides the organizational performance reports, which in turn help predicting the future performance of the organization According to Nath &

Badgujar management information system provides several benefits to the business organization: to come out with appropriate responses to a business situation; the means of effective and efficient coordination between different departments at all the levels of the organization; access to relevant data and documents; use of less labor; improvement in organizational and departmental techniques; management of day-to-day activities. Management information system provides a valuable time-saving benefit to the employees. Employees do not have to collect data manually for filing and analysis. Instead, that information can be entered quickly and easily into a computer program. Access to the information needed is faster. According to Babu & Sekhar the Primary purpose of management information system is to help an organization achieve its goals by providing managers with insight into the regular operations of the organization so that they can control, organize, and plan more effectively. In addition management information system provide the right information to the right person in the right format at the right time.

### **3.3. Management Information Systems in Telecommunication Companies**

In MTN telecommunication companies in Enugu, management information systems enable compilation, processing and storage of the information; with overall purpose to make that information available on demand in the required format. Communications companies used modern computers and advanced servers connected to an advanced network, this network connects all network communications centers to each other. The system is connected to the main server so that the data is stored and files on a central server. So it is easy to retrieve data when needed. The telecommunication companies develop the systems and network and provide technical support by specialists and experienced in this field. In addition provide specialized training programs for their employees to help them to use the management information systems. Telecom Companies can't work without management information systems as the number of participants in these companies more than million subscribers, so it's hard to save their data using the manual method (using files). As we know that telecom companies are saving the subscriber data (name, card number, etc.) in a database where the subscriber can go to any branch in any city to inquire. Management information systems assisted in automating tasks. Automation can save time, money, resources, reduce employee's staff, and enhance organizational workflow. In addition, assist in increased organization productivity, effectiveness, increase customer satisfaction, and efficiency of the work. Management information systems play a key role in the life of organizations; it provides the appropriate information in right time as needed to support the management activities.

## **4. Relevant of Computer system**

Computers are fundamental tools that have become an integral part of modern life, playing a crucial role in various aspects of society.

A computer is an electronic device that processes data to perform various tasks according to a set of instructions called a program. It is a versatile and powerful tool that can handle a wide range of operations, from simple calculations to complex computations, data storage, and communication. Computers consist of hardware and software components that work together to execute tasks efficiently.

MTN, as a prominent telecommunications company, relies heavily on computer technology across various aspects of its operations. The use of computers is integral to providing efficient and innovative telecommunication services. Here are several ways in which computers are utilized within MTN's operations:

### **4.1.1. Network Management**

Computers are extensively used in the design, optimization, and management of MTN's extensive network infrastructure. This includes managing cell towers, network protocols, and ensuring optimal coverage.

#### **4.1.2. Data Handling and Analysis**

MTN deals with vast amounts of data daily, including customer call records, network performance metrics, and market trends. Computers are crucial for handling, processing, and analyzing this data to gain valuable insights.

#### **4.1.3. Customer Relationship Management (CRM)**

MTN employs CRM systems, powered by computers, to manage customer interactions, preferences, and feedback. This helps in tailoring services to meet customer needs and enhancing overall satisfaction.

#### **4.1.4. Billing and Financial Systems**

Computers play a key role in managing billing systems, ensuring accurate and timely invoicing for services. Financial systems, including budgeting and financial reporting, are also computerized to streamline financial processes.

#### **4.1.5. Innovation and Service Development**

MTN utilizes computers for innovation and the development of new services. This includes the creation of mobile applications, the deployment of advanced technologies like 5G, and the continuous improvement of existing services.

#### **4.1.6. Communication and Collaboration**

Computers facilitate internal communication and collaboration among MTN employees. Email systems, messaging platforms, and collaborative tools enhance communication efficiency within the company.

#### **4.1.7. Security Measures**

Cybersecurity is a critical aspect of MTN's operations. Computers are used to implement and manage robust security measures, including encryption, firewalls, and intrusion detection systems, to protect customer data and network infrastructure.

#### **4.1.8. Operational Efficiency**

Computers contribute to the overall operational efficiency of MTN. They are employed in various internal processes, workflow management, and decision-making support systems, optimizing the company's day-to-day operations.

#### **4.1.9. Employee Training and Development**

Computers are utilized for employee training programs and professional development within MTN. Online training modules and educational resources enhance the skills and knowledge of the workforce.

### **4.2. Advantages of Using Computer**

**The usage of computer gives following advantages in comparison to manual MIS**

#### **1. Speed**

The speed of carrying out the given instruction logically and numerically is incomparable between a computer and human being.

Computer can perform and give instructions in less than a millionth of a second. The speed of the computer is specified in terms of Nano seconds and in Pico seconds, whereas human beings require most time to perform these functions. Therefore, from speed point of view, computer's functioning is very fast.

#### **2. Accuracy**

Computer calculates very accurately and computer never does mistake although we often hear about the false results of computers. This may be due to the error in data entry or due to poorly designed program. Since, human beings do data entry and programming; hence, the error may make the results false. Otherwise, computer never does mistake. It works on the principle of “Garbage In, Garbage Out”.

### **3. Versatility**

Previously, the computer was thought as only a calculating machine, but a computer can also carry out logical operations. Any job can be computerized with the help of appropriate software. Limited sets of instructions are enough to carry out a computer processing.

Generally, the use of computer is restricted to typing and storage of information, in most of the business organizations. This may be due to the lack of complete knowledge regarding the use of computer on the part of the user.

### **4. Reliability**

The information stored in computer is in digital forms. The information can be stored for long time and have long life. If maintained properly, at least data processing and storage components are guaranteed for several years. A user may feel comfortable and be reliable, while using information stored in computer.

Previously, a digital form of information was not accepted in Government departments and the information stored in the floppies was not accepted in the court as evidence. However, after the establishment of Ministry of Information Technology by Government of India, efforts are taken by the Government to provide the legal status to the information stored in the digital form.

### **5. Storage**

Human brain can store a piece of information to some limitation of numbers and up to some extent of time. When he is asked to reproduce the information after a long period, he may find himself in a difficult situation to recall the information. Human being generally distorts the information.

### **6. Automatically**

A computer performs automatically in user friendly and menu driven program. Electronic equipment like tape recorder, television, and calculator, VCR etc. can be operated with basic knowledge of operation. In the same manner with some basic knowhow technique, a computer can be operated.

### **7. Compactness**

Now a day, the size of the computer has reduced drastically. The modern computers are laptop and tabletop computers. They do not occupy more space. Moreover, laptop has provided mobility to the computer. Now we can carry computer with us and through remote accessing, we may be in touch with our office.

With the advancement of technology, the benefit of this device has been multiplied. Internet and video conferencing facilities have made it possible for the business executives to control, direct, and monitor the functioning of the office even when they are not present in the office.

### **8. Repetitiveness**

Computer can be used repetitively to process information. It does not feel mental fatigue as in case of human being. There will be no difference in the speed and accuracy of the information presentation if a computer operates continually even for 1, 2 or any number of days. We can understand the importance of the unique features when company is sending information to its shareholders.

Generally, the number of shareholders in any company is very large. To send the information to them manually is very tiresome and time consuming. However, through mail merging, thousands of letters can be prepared and dispatched in a day.

For this, the company has to do only three things:

- (a) Prepare address database.
- (b) Draft a letter.
- (c) Merge the database.

Computer will automatically type the addresses to the letter to be sent to the individual shareholder and the work, which is supposed to be done in month manually; now can be performed in a day.

### **9. Diligence**

A computer is an electronics device. It does not suffer from the human traits of lack of concentration. So, the results will be continuously of the same standard.

### **10. No Feelings**

Computers are devoid of emotions. They have no feelings and no instincts because they are machine. Although men have succeeded in building a memory for the computer, but no computer possesses the equivalent of a human heart and soul.

Based on our feelings, taste, knowledge and experience, we often make certain judgments in our day to day life. But computers cannot make such judgements on their own. Their judgement is based on the instructions given to them in the form of programs that are written by us. They are only as good as man makes and uses them.

### **4.3. Disadvantages of Using Computer:**

**The usage of computer gives following disadvantages in comparison to manual MIS:**

1. Lack of common sense
2. Memory without brain
3. Slavery

#### **1. Lack of common sense**

Computer is only an electronic device. It cannot think. If we provide an incorrect data, it does not have the commonsense to question the correctness of the data. For overcoming this problem, several Software Specialists are engaged in the project of developing intelligence to the computer. To it, they have given name as Artificial Intelligence. They are willing to develop the feeling and inhumation in this device.

We hope that in near future the artificial intelligence will help this device to function in more interactive way. Today, software's are available which may convert our speech into text. This is the beginning of an era where computer may be quite interactive with human beings. In addition, to execute the function, operator will give verbal instructions.

#### **2. Memory without brain**

Computer can store data in its memory. However, if a wrong instruction is provided, it does not have a brain to correct the wrong instructions.

#### **3. Slavery**

A computer is a slave; it cannot execute the program by itself. It requires instructions to execute the program and generate information. Thus, we see that the computer cannot do anything by itself. It has a relationship of master and slave. Until master is not instructing, slave will not perform any function. In the same way computer

## 5. Telecommunication Companies (MTN ENUGU)

Nigeria boasts one of the largest and most competitive telecommunications markets in Africa. The sector has experienced significant growth and transformation over the years, with multiple players contributing to its expansion.

MTN is one of the major telecommunications operators in Nigeria, providing a wide range of services, including mobile telephony, data services, and mobile money. It has played a crucial role in shaping the telecommunications landscape in the country.

### Conclusion

This study presented the literature review on management information systems. In addition, clarify the role of management information systems in MTN Enugu.

Where this study clarifies the benefits of use management information systems in telecommunication companies. Management information systems makes it easier to collect, store and process the data and retrieve information easily when needed, which increases the efficiency of these companies. This study generally encourages the use of management information systems in MTN Enugu.

In conclusion, the exploration of the relevance of computers in the Management Information System (MIS) of MTN Enugu reveals the integral role technology plays in shaping the telecommunications landscape. As one of the leading telecommunication companies in Nigeria, MTN has embraced and leveraged computer technologies to enhance its operational efficiency, customer services, and strategic decision-making processes.

The utilization of computers in data management, real-time monitoring, decision support systems, communication enhancement, and security measures underscores the multifaceted impact of technology on MTN's MIS. The company's ability to process vast amounts of data, implement real-time solutions, and secure sensitive information highlights the pivotal role of computers in navigating the complexities of the telecommunications industry.

Furthermore, the study delves into the challenges and opportunities presented by the evolving technological landscape, emphasizing the need for MTN Enugu to stay abreast of innovations and emerging trends. The dynamic nature of the industry requires continuous adaptation and investment in computer-based solutions to maintain a competitive edge and meet the ever-growing demands of consumers.

As technology continues to advance, the strategic integration of computers into MTN Nigeria's MIS not only addresses current challenges but also positions the company for future growth and sustainability. The emphasis on innovation, cybersecurity, and efficient data management exemplifies MTN's commitment to delivering high-quality services while ensuring the security and privacy of its customers.

In essence, the case study of MTN Enugu serves as a testament to the transformative power of computers in shaping the trajectory of a telecommunications giant. The lessons learned from this exploration can provide valuable insights for other organizations navigating the intersection of technology and management information systems in an ever-evolving digital landscape. As the reliance on computers intensifies, the continuous pursuit of technological excellence remains paramount for companies seeking to thrive in the dynamic and competitive telecommunications sector.

### References

- Nwekwo, Ngozi Mabel Ph.D., Victoria Nnenna Chukwuani and Ezuwore Obodoekwe Charity Nkeiru, PhD. (2024)**
- Lucey, T. (1987). *Management Information Systems*. Publisher.
- Brynjolfsson, E., & Hitt, L. M. (1996). Paradox Lost? Firm-level Evidence on the Returns to Information Systems Spending. *Management Science*, 42(4), 541–558.
- Varadarajan, P., & Yadav, M. S. (2002). Marketing Strategy and the Internet: An Organizing Framework. *Journal of the Academy of Marketing Science*, 30(4), 296–312.
- Laudon, K. C., & Laudon, J. P. (2016). *Management Information Systems: Managing the Digital Firm* (14th ed.). Pearson.
- Turban, E., Pollard, C., Wood, G., & Jay, E. (2019). *Information Technology for Management: On-Demand Strategies for Performance, Growth, and Sustainability* (12th ed.). Wiley.
- Daft, R. L., & Lengel, R. H. (1986). Organizational Information Requirements, Media Richness and Structural Design. *Management Science*, 32(5), 554–571.
- Markus, M. L. (1994). Finding a Happy Medium: Explaining the Negative Effects of Electronic Communication on Social Life at Work. *ACM Transactions on Information Systems*, 12(2), 119–149.
- Whitman, M. E., & Mattord, H. J. (2019). *Principles of Information Security* (6th ed.). Cengage Learning.
- Anderson, R., & Moore, T. (2006). Information Security: Where Computer Science, Economics, and Psychology Meet. *ACM Transactions on Information and System Security (TISSEC)*, 9(4), 367–394.
- Rogers, E. M. (2003). *Diffusion of Innovations* (5th ed.). Free Press.
- Kotter, J. P. (1996). *Leading Change*. Harvard Business Review Press.
- Al-Najjar, F.G. (2010) *Management Information Systems Managerial Perspective*, daralhamed for Publishing and Distribution.
- Patterson, A. (2005) *Information Systems-Using Information, Learning and Teaching* Scotland
- Hardcastle, E (2011) *Business Information Systems*, Ventus publishing ApS.
- O'Brien, J.A., & Marakas, G.M. (2007) *Management information systems-10th ed.*, by McGraw-Hill/Irwin, a business unit of The McGraw-Hill Companies.
- Babu, K.V.S.N.J., & Sekhar, B.M.R (2012). MIS. Vs. DSSS in Decision Making, *Global Journal of Management and Business Research*, Volume 12 Issue 16 Version 1.0.
- Nowduri1, S., & Al-Dossary, S. (2012). Management Information Systems and Its Support to Sustainable Small and Medium Enterprises *International Journal of Business and Management*; Vol. 7, No. 19, pp. 125-131.

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Nath, R.P., & Badgujar, M. (2013) Use of Management Information System in an Organization for Decision Making, ASM's International E-Journal of Ongoing Research in Management and IT.