

MANAGEMENT INFORMATION SYSTEM IN NIGERIAN TERTIARY INSTITUTIONS: IDENTIFYING PROBLEMS AND EXPLORING FUTURE PROSPECTS.

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Abstract

This paper examines Management Information System in Nigerian Tertiary Institutions: Identifying Problems and Exploring Future Prospects. It delves into the implementation of Management Information Systems (MIS) in Nigerian tertiary institutions, with a focus on the problems and prospects that arise from its adoption. The implementation of Management Information Systems (MIS) in Nigerian tertiary institutions is faced with numerous challenges, including inadequate infrastructure, insufficient funding, and lack of skilled personnel. These problems hinder the effective integration of MIS, ultimately affecting the quality of education and decision-making processes in these institutions. While there is a growing body of research on the implementation of MIS in educational institutions globally, there is a dearth of studies specifically focusing on the Nigerian context. This study aims to fill this knowledge gap by exploring the problems and prospects of MIS in Nigeria.

The article explores the current state of MIS in Nigerian tertiary institutions, highlighting the benefits and drawbacks of its implementation. The paper also examines the national policy on ICT integration in tertiary education and its impact on the development of MIS in Nigerian tertiary institutions. To address these problems, the paper proposes prospects for effective MIS integration, including maximizing the use of educational management information systems, organizing periodic seminars and workshops for stakeholders, and intensifying efforts towards genuine ICT policy integration in tertiary institutions. Overall, this paper provides valuable recommendations on the problems and prospects of MIS in Nigerian tertiary institutions, highlighting the need for a more effective and sustainable approach to its implementation.

Keywords: Information Technology, Management Information System, Nigerian Education System, Problems, Prospects.

Introduction

In today's fast-paced digital economy, organizations are continually seeking ways to enhance efficiency, optimize operations, and improve overall productivity. The effective utilization of Management Information Systems (MIS) and technological innovation is critical to driving organizational performance. The global business environment is undergoing rapid transformation, driven by technological advancements and the increasing adoption of information systems. This shift is observed in both developed and developing countries, where the strategic use of technology has become essential for business growth and sustainability.

Management information systems (MIS) are critical components of modern business operations. These computer-based applications enable organizations to function efficiently and effectively, providing valuable insights for informed decision-making. As noted by Francis Kwadade-Cudjoe (2020), while Information Systems (IS) encompasses various types of systems, MIS is a specialized aspect of IS that focuses on supporting business decision-making processes. In today's competitive markets, businesses rely heavily on MIS to manage vast amounts of data and drive strategic decision-making. By generating data-driven reports, MIS enables organizations to respond promptly to market fluctuations and to stay ahead of the competition. As Andy Marker (2021) emphasizes, modern businesses cannot survive for long without using some sort of MIS to manage massive amounts of data. Furthermore, Munirat et al. (2014) highlight that MIS is a subset of the overall internal control of a business, covering the application of people, documents, technologies, and procedures by management accountants to solve business problems. MIS integrates various technologies, tools, and processes that enable organizations to efficiently collect, process, and analyze data (Bhima et al., 2023). These systems provide managers with timely and relevant information, allowing them to make informed decisions and improve operational effectiveness. Technological innovation plays a significant role in shaping business processes, enabling automation, enhancing communication, and

fostering competitiveness in an evolving market (Chowdhury, 2024). The interplay between MIS and technological innovation is essential for businesses seeking to gain a competitive edge.

The global interest in advancing education in developing countries has been challenged by lack of effective management information systems (MIS). MIS has become crucial in contributing to knowledge acquisition, utilization, and skills development. Therefore, this paper seeks to examine management information systems in Nigerian higher institutions: problems and prospects as educational institutions, must adopt MIS to remain relevant in the digital age.

Development and Current State of Management Information System in Nigeria

The emergence of Management Information System (MIS) in Nigeria can be traced back to 1980 and can be explained in four main phases.

Phase 1: The Initial Stage (1980): The first phase began with the transformation of the Nigerian Civil Service, which led to the need for concise data generation for decision-making. This phase resulted in the establishment of the Planning Research and Statistics Department in government ministries, departments, and agencies. “The primary objective was to build structures to harmonize, forecast, research, store, analyze, and distribute educational data” (UNESCO, 2015).

Phase 2: The International Donor and Development Partners Stage: This stage was characterized by international donors and development agencies conducting national-scale data collection and storage in an incomplete database. However, securing funding and support for data collection and analysis proved to be a significant challenge. The World Bank eventually agreed to conduct more comprehensive research on MIS in school systems.

Phase 3: The Contemporary Stage: The modern stage in the evolution of MIS aimed to correct inaccuracies and challenges of previous stages. This was achieved through a series of interrelated activities, including:

- Inviting relevant stakeholders
- Organizing seminars, workshops, and conferences
- Holding meetings
- -Reviewing and analyzing policies
- Needs assessment
- Investigation
- Sensitization
- Strengthening individual and institutional capacity building

Shoobridge (2016) noted that these efforts resulted in the development of the Nigerian Educational Management Information System Policy (NEMIS) through the combined

efforts of federal and state education ministries, international development partners, and civil society organizations,

Phase 4: The Devolution Stage: This approach to MIS development was driven by institutional growth, demanding compulsory census in schools. The idea was initially piloted in six states in Nigeria, with plans to extend to additional states.

Recent Trends in MIS Development: Recent developments in MIS have been influenced by emerging technologies, including:

1. Automation and Cross-Functional Integration: Automating tasks and integrating data across functions to free up time for higher-value jobs.
2. Big Data Analytics: Analyzing large amounts of data to improve operations, services, and marketing strategies.
3. Artificial Intelligence (AI): Using AI to detect patterns, recognize anomalies, and enhance decision-making.
4. Cyber Security: Protecting data from cyber-attacks and ensuring the security of business information.

These trends have the potential to enhance productivity, improve customer service, and drive business growth.

Concept of Management Information System

The concept of Management Information System (MIS) has been subjected to various definitions by scholars and researchers, resulting in a lack of consensus on a universally accepted definition (Okeke & Ikediugwu, 2021). Ovwasa (2019) defines MIS as a “prescribed method of gathering timely information via electronic subsystems in an organization to ease and improve effective decision-making”. Alabi (2016) views MIS as a “step-by-step procedure that augments the collection and presentation of information using integrated data-based devices”. Jahangir (2017) posits that MIS is a “method of collecting and processing data to offer the basis for effective decision-making”. Jones (2019) opined that MIS is a “procedure that managers plan and design to deliver precise information mandatory in the effective presentation of their roles”. Sarwani (2016) asserts that MIS is a “system for collecting information from its sources and providing administered information to various users for managing the business”. Boorne (2012) defines MIS as a “structured program that interacts with complex machines and persons to generate an arranged flow of information from organizational sources for effective decision-making”.

MIS is a technique for easing managerial challenges in an organization using electronic data-based devices. It can also be viewed as a database aimed at ensuring accurate, appropriate, and timely management of information in making pertinent educational decisions. In a global concept, it encompasses the use of contemporary technology to gather and analyze data for decision-making, policy formulation, planning, and monitoring for effective administration of educational systems at all levels.

Features of Management Information System

Management information systems (MIS) are specialized information systems that conform to numerous universal features or characteristics, which remain relatively consistent despite changes in knowledge around information management (Wako, 2013). The common features of MIS include:

1. Management Oriented: MIS is designed using a top-down approach, where the initiation system of improvement determines management desires and sets goals.
2. Future Oriented: MIS design and development are future-based, providing information beyond historical data.
3. Integration: MIS combines multiple sub-components to offer relevant information for decision-making, creating a necessary physical characteristic of management information systems.
4. Common Data Flow: MIS supports system analysis views, such as avoiding duplication, joining parallel functions, and streamlining operations, leading to cost-effectiveness and logical ideas.
5. Central Database: MIS stores data in a tabular base, allowing for setup, insertion, updating, and deletion of records, as well as covering information related to personnel, vendors, inventory, and data storage.
6. Strategic Planning: MIS requires high preparation to create an effective organization, ensuring its relevance to present and future occurrences due to dynamic activities.
7. Comprehensive: MIS is comprehensive, transacting the process of information systems designed primarily for administrators at all levels, and embracing other systems, such as formal and informal systems, manual and computer systems, and decision support systems.

Components of Management Information System (MIS)

MIS is composed of three primary mechanisms: hardware, software, and people (Al-Oteawu, 2012). These components work together to provide a comprehensive information system.

1. Hardware: Hardware consists of the physical components of the computer system, including:
 - Computers: Provide computing power for processing data.
 - Printers: Produce hard copies of information or reports.
 - Networking Devices: Connect computing resources to communicate with each other, including switches, networking hubs, and Wi-Fi routers.
 - Portable Devices and Laptops: Offer computing power and portability, enabling employees to access the server remotely.
 - Storage Devices: Store data, including audio, documents, video, database backups, and software installation packages.

2. Software: The software component of MIS consists of programs that run on the hardware, categorized into two main classes:

- System Software: Operating systems such as Mac OS, Windows, and Ubuntu that manage computer hardware resources.
- Application Software: Specialized programs designed to perform specific business tasks, including Point of Sale (POS) systems, banking systems, payroll programs, other business applications (Bodo, 2016).

3. People: The people component of MIS refers to the operators who utilize the system to record daily organizational transactions. These individuals are typically qualified specialists, including:

- Accountants
- Educationists
- ICT unit staff who provide technical support to ensure the smooth operation of the organization's MIS.

Nigeria's Policy on Integration of MIS in Nigerian Tertiary Education System

The Federal Republic of Nigeria (FRN, 2013), in its National Policy of Education emphasizes the importance of integrating Management Information System (MIS) in higher institutions to achieve the goals of tertiary education. According to Section 5 of the policy, the specific aims and objectives of tertiary education in Nigeria are:

- a. *Contribute to national development through higher-level manpower training.*
- b. *Provide accessible and affordable quality learning opportunities in formal and informal education in response to the needs and interests of all Nigerians.*
- c. *Provide high-quality career counseling and lifelong learning programmes that prepare students with the knowledge and skills for self-reliance and the world of work.*
- d. *Reduce skill shortages through the production of skilled manpower relevant to the needs of labour market.*
- e. *Promote and encourage scholarship, entrepreneurship and community service.*
- f. *Forge and cement national unity and*
- g. *Promote national and international understanding and interaction.*

Role of ICT in Achieving Policy Goals

To achieve the above goals, Section 8 of the policy empowers government at all levels to ensure the provision of appropriate Information and Communication Technology (ICT) facilities to support educational management at the tertiary education level. The use of ICT in higher institutions is expected to ease the operation of educational policy and promote the attainment of policy goals (Federal Republic of Nigeria, 2013)

Roles of Management Information System in Nigerian Higher Institutions

Management Information System (MIS) plays a vital role in Nigerian higher institutions, enhancing the overall efficiency and effectiveness of the educational system. The key roles of MIS, as identified by Balram (2020), are:

1. Improved Decision Making: MIS provides comprehensive background information on various educational issues, enabling educational managers to make informed decisions. The fast and accurate information provided by MIS facilitates quicker and better decision-making, ultimately contributing to the growth of the educational industry.

2. Improved Efficiency: MIS assists administrators in performing their tasks with greater ease and effectiveness, resulting in better productivity in the school system. By ensuring that routine tasks are effectively implemented, MIS enhances productivity and efficiency in the educational industry.

3. Connectivity: MIS provides secondary school administrators with a platform to connect with other members of the school and relevant stakeholders in the educational industry.

4. Student Academic Records Management: MIS provides educators with in-depth knowledge about students' behavior, enabling them to make data-driven decisions. Learning management systems help reduce workload by streamlining classroom activities, digitalizing students' online assessments, and providing valuable insights into student performance.

5. Student Information Management: MIS enables the tracking of students' behavior and storage of crucial information, such as financial records, examination records, hostel records, and health details. This information assists schools in optimizing online admission procedures, ensuring transparency, and operational efficiency.

6. Reduction of Teachers' Workload: MIS reduces teachers' workload by providing speedy access to students' information, which can be easily filtered and prepared. This enables teachers to utilize their time and energy more efficiently, focusing on core educational activities rather than administrative tasks.

Problems of Management Information System in Nigerian Tertiary Institutions

Despite the benefits of Management Information System (MIS) in Nigerian tertiary institutions, several challenges hinder its effective implementation. According to Jacob, Jegede, and Musa (2020) and Nkata (2020), the following are some of the challenges:

1. Lackadaisical Attitude of Lecturers: Lecturers' attitudes towards technology can significantly impact the adoption of MIS. A negative attitude can hinder the successful integration of MIS into teaching and learning processes.

2. ICT Incompetence: Many Nigerian teachers and lecturers lack basic knowledge and skills to use computers for effective data management, hindering the implementation of MIS.

3. Lack of Computer Self-Efficacy: Low self-efficacy in using computers can affect their willingness to adopt MIS. Low self-efficacy can lead to reluctance in using technology for teaching and learning.

4. Poor Teaching Experience: Research suggests that experienced lecturers may be less likely to integrate MIS into their teaching practices, highlighting the need for targeted training and support.

5. Lack of Professional Development: Professional development is crucial for successful MIS integration. However, studies have indicated that many lecturers lack training on technology, hindering their ability to adopt MIS.

6. Inadequate Accessibility of Facilities: The Majority of schools in Nigeria lack adequate ICT facilities, making it difficult for lecturers to use computers and internet facilities, even if they are competent and willing to do so.

Prospects of Management Information System in Nigerian Tertiary Institutions

Research has consistently shown that Management Information System (MIS) has a significant impact on the efficiency and effectiveness of school management. To address the challenges associated with the use of MIS in Nigerian tertiary institutions, the following measures are recommended:

1. Align MIS with School Objectives: Tertiary institution administrators should utilize MIS outputs to inform decision-making processes, ensuring alignment with identified school objectives.

2. Ensure Accurate and Timely Information: Information collection personnel should employ identified techniques to provide relevant and accurate data for decision-making activities in tertiary institutions.

3. Enhance Information Processing Facilities: More information processing facilities should be made available in higher institutions. Staff handling students' records should be computer literate to enhance the utilization and processing of students' records.

4. Effective Data Analysis: Information analysis personnel should use identified data processing and analysis methods to transform captured data into useful information for administrative decision-making.

5. Government Support and Funding: Federal and state governments should ensure that the level of MIS in all public tertiary institutions is high, with adequate funding to support its implementation.

6. Integration of Educational Management Information System: Tertiary institution administrators should maximize the integration of Educational Management Information System (EMIS) to inform decision-making. Regular seminars, conferences, and workshops on EMIS should be organized for relevant stakeholders.

7. Integration of ICT Policies: Concerted efforts should be made by the government and stakeholders in tertiary education to genuinely integrate ICT policies into the school system.

8. Attitudinal Change: There is a need for attitudinal change among lecturers and administrators towards the effective utilization of ICT facilities.

Conclusion

In conclusion, Management Information Systems have become indispensable tools for modern organizations, enabling them to enhance efficiency, productivity, and decision-making. By integrating technology, people, and processes, MIS provides a robust framework for managing information and supporting organizational goals. As technology evolves, MIS will play an even more critical role in driving organizational success, particularly with integrating emerging technologies such as AI, and big data analytics. MIS is a vital component of educational institutions, providing a structured approach to collecting, processing, and disseminating information for effective decision-making. Its role in ensuring accurate, timely, and relevant information cannot be overstated. Its proper management is a panacea for institutional success. Therefore, there is a need for educational institutions to adopt and effectively utilize MIS to achieve their goals.

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