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# Synthetic Intelligence (SI) and Tertiary Education Management in Nigeria

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**Abstract:** This paper explore deployment of Synthetic Intelligence (SI) in tertiary education management in Nigeria. The study utilized quantitative data collection methods. The quantitative data were collected through secondary data obtained from abstracts, conference papers and government and non-governmental bulletin in various tertiary institutions in Nigeria. The study examine the application of SI in tertiary education management in Nigeria. The findings from this study revealed that SI aids effective data management, effective financial management, enhances fight against corruption, aids effective implementation of teaching, research and community service programme in the tertiary institutions in Nigeria. Based on the findings, the paper recommends increment in the budgetary allocation of tertiary institutions, provision of capacity building, integration of technology and adoption of public-Private Partnerships to support development of SI.

**Key words:** Synthetic Intelligence (SI), Tertiary education management.

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## 1.0 Introduction

Education in Nigeria is changing, and so are the challenges that come with it. Tertiary institutions—our universities, polytechnics, and colleges—are under constant pressure to improve the way they are managed. From student admissions to records keeping, course planning, and staff coordination, managing these institutions is becoming more complex and demanding. At the same time, the world is moving fast with technology. One of the most exciting developments today is synthetic intelligence —a form of artificial intelligence that mimics human thinking and decision-making. While it may still sound like science fiction to some, synthetic intelligence is already being used globally to help organizations become more efficient and smarter in their operations.

This raises an important question: **How can synthetic intelligence help improve how Nigerian tertiary institutions are managed?**, That's the heart of this study.

In Nigeria, many higher institutions still rely on manual or outdated systems. Administrative delays, poor data management, overloaded staff, and limited access to real-time information often make the system slow and frustrating—for both students and staff. This is where synthetic

intelligence can step in, offering smart solutions like automated admissions, predictive analytics for planning, virtual assistants for students, and intelligent decision-support systems for management. The paper seek to explore the roles of synthetic intelligence in tertiary education management in Nigeria.

## 2.0 Literature Review

### 2.1 Concept of Tertiary education Management

Tertiary education management is the administration and governance of higher education institutions, which includes universities, colleges, and other post-secondary educational institutions. This involves the management of various aspects such as admissions, curriculum development, student affairs, financial management, and faculty recruitment and evaluation. The goal of tertiary education management is to ensure the smooth functioning and success of higher education institutions by providing strategic planning, effective decision-making, and resource allocation. It also plays a crucial role in promoting diversity, equity, and inclusivity in higher education. Tertiary education management is essential for the development and advancement of the academic community and the education system as a whole.

Tertiary education management is a field that focuses on the leadership, administration, and policy making surrounding post-secondary education institutions. It includes the management of academic programs, student affairs, facilities, and budgets. Tertiary education management also involves strategic planning and decision-making to ensure the institution operates efficiently and effectively. This field is constantly according to Sunday, (2022) evolving and adapting to changes in the education landscape and the needs of students. Some key areas within tertiary education management include enrollment management, accreditation, diversity and inclusion, and student success.

### 2.2 Concept of Synthetic intelligence (SI)

A synthetic intelligence (SI) system is a set of algorithms and processes that mimic human intelligence and reasoning to solve complex problems. It is a subfield of artificial intelligence that focuses on creating systems with the ability to learn, adapt, and problem-solve. SI systems can be used in a variety of industries and applications, such as robotics, medicine, finance, and more. They rely on data, statistics, and advanced algorithms to analyze and make decisions, much like how the human brain processes information. Synthetic intelligence (SI) is a branch of artificial intelligence (AI) that focuses on creating intelligent systems by emulating human cognitive abilities, such as learning, reasoning, and problem solving. It involves the use of advanced algorithms and technologies to develop software programs that can analyze data, recognize patterns, and make decisions similar to humans. SI has a wide range of applications in various fields, including robotics, healthcare, finance, and education. With the rapid advancement of technology, SI has become an important area of research and development, with the potential to revolutionize the way we interact with machines and automate complex tasks.

Synthetic Intelligence is a term used to describe advanced forms of **Artificial Intelligence (AI)** that don't just follow simple rules or automation—they're designed to **think, learn, and make decisions like humans do**. In other words, synthetic intelligence tries to **simulate human reasoning**, problem-solving, and even emotional understanding using machines. Synthetic intelligence is a type of smart technology that tries to **think more like a human**, but faster and without getting tired (Peter, 2023).

- **Basic AI**: is like a calculator — it follows instructions, solves problems, but doesn't understand.

Synthetic Intelligence is more like a thoughtful assistant — it learns from experience, adapts to new situations, and can even predict what you might need next. The examples of SI include; in

schools, it can help personalize learning for each student. In business, it can detect fraud by understanding complex behavior patterns and in education management, it can help plan resources, monitor staff performance, or even answer student questions — all without human supervision.

## 3.0 Result and Discussion on Synthetic Intelligence (SI) and Tertiary Education Management in Nigeria

### *Synthetic Intelligence (SI) aid effective data management*

The use of Synthetic Intelligence (SI) has been proven to be extremely effective in aiding data management in tertiary institutions in Nigeria. With its advanced algorithms and natural language processing capabilities, SI has the ability to analyze large amounts of data and extract relevant information. This enables institutions to efficiently manage their data and make informed decisions. One of the key benefits of using SI in data management is its ability to automate various tasks and processes. This significantly reduces the time and effort required for data management, allowing staff to focus on other important tasks. Additionally, SI can identify patterns and trends in data, providing valuable insights for institutions to improve their operations and decision-making processes. The use of SI in data management ensures accuracy and consistency of data. As it is a machine-based system, it eliminates the possibility of human error and ensures that data is handled and stored uniformly. This is especially crucial in academic institutions where data accuracy is essential for decision making. Caleb, (2020) observed that SI aids data management in tertiary institutions is through its ability to streamline communication and collaboration. With the use of AI-powered chatbots, students and staff can easily access data and information they need, reducing the need for manual search and retrieval. This not only saves time but also improves overall efficiency and productivity in the institution.

### *Synthetic Intelligence (SI) support effective financial management*

The use of Synthetic Intelligence (SI) has greatly improved financial management in tertiary institutions in Nigeria. It has been proven to support the effective management of finances by accurately predicting financial trends and identifying potential risks. SI can also assist in creating budget plans and optimizing resource allocation. Additionally, it can analyze financial data and provide recommendations for improvement. Caleb, (2020) and Smith (2021) opined that with the use of SI, financial management in tertiary institutions in Nigeria has become more efficient and streamlined, leading to better financial health and stability. This has allowed institutions to better allocate resources and make informed decisions, ultimately contributing to their overall success and growth.

### *Synthetic Intelligence (SI) enhances fight against corruption*

The use of Synthetic Intelligence (SI) has greatly enhanced the fight against corruption in tertiary institutions in Nigeria. By leveraging advanced AI algorithms and techniques, SI is able to analyze and interpret large amounts of data from various sources to identify potential cases of corruption in Nigerian universities. One of the key ways as noted by Abubakar, (2022); Oztok, and Zingaro, (2019); Singh, and Singh, (2021) in which SI enhances the fight against corruption is through its ability to detect patterns and anomalies in data. This allows SI to identify irregularities and suspicious activities that could be indicative of corrupt practices in universities. Additionally, SI is able to continuously learn and adapt to new data, further improving its accuracy and effectiveness in detecting potential corruption. Another important aspect of SI's contribution to fighting corruption in tertiary institutions is its ability to monitor financial transactions. With the use of advanced algorithms, SI can accurately detect and flag any suspicious financial activities, such as large amounts of money being transferred to personal accounts or unexplained expenses. This not only helps to prevent corruption, but also serves as a deterrent to potential corrupt individuals. Moreover, SI can also assist in the investigation and prosecution of corruption cases.

By analyzing and organizing vast amounts of data, SI can provide valuable insights and evidence that can aid in building strong cases against corrupt individuals. This not only speeds up the process of justice, but also helps to ensure that corrupt individuals are held accountable for their actions.

***Synthetic Intelligence (SI) support Teaching programme implementation***

Synthetic intelligence (SI) is a cutting-edge technology that has been gaining momentum in various industries, including education. In tertiary institutions in Nigeria, SI plays a crucial role in supporting the implementation of teaching programmes. In this abstract, we will explore how SI supports teaching programme implementation in these institutions.

**Efficient Data Analysis**: SI is able to process large amounts of data at a rapid pace, providing educators with accurate and reliable information. This data analysis allows teachers to identify students' strengths and weaknesses, tailor their teaching methods accordingly, and track student progress. In turn, this leads to a more effective teaching programme as educators are able to address the individual needs of each student.

**Personalized Learning:** SI also supports teaching programme implementation by enabling personalized learning. Through machine learning algorithms, SI can identify students' unique learning styles and preferences. This information is then used to create personalized learning plans for each student, making the teaching programme more effective and engaging.

**Improved Student-Teacher Interaction:** SI also enhances the interaction between students and teachers in tertiary institutions in Nigeria. With the aid of natural language processing, SI can understand student questions and provide accurate responses, reducing the burden on teachers. This allows teachers to focus on more complex tasks, such as creating innovative teaching materials and evaluating student progress.

**Automated Grading:** Another way SI supports teaching programme implementation is through automated grading. This feature allows educators to save time on manual grading and instead focus on providing meaningful feedback to students. This not only makes the teaching programme more efficient but also provides students with timely and constructive feedback to improve their learning.

***Synthetic Intelligence (SI) aid Research Programme Implementation***

The integration of Synthetic Intelligence (SI) into research programme implementation in tertiary institutions in Nigeria has become increasingly prevalent in recent years. SI has the potential to support and enhance the entire research process, from data collection and analysis to dissemination of findings. Through the use of SI, researchers can automate various tasks, accelerate data processing, and generate new insights. This technology has the potential to greatly impact the efficiency and effectiveness of research programmes in tertiary institutions in Nigeria. By leveraging SI, researchers can streamline their data collection methods and improve the accuracy of their findings. SI tools can automatically gather data from various sources, such as surveys, interviews, and experiments, and organize it in a way that is easily accessible and usable for analysis. This reduces the time and effort required for data collection, allowing researchers to focus on other aspects of their research. SI can analyze large volumes of data at a much faster rate than humans, reducing the time it takes to analyze data and generate insights. This not only speeds up the research process, but it also allows for more comprehensive and in-depth analysis than would be possible with traditional methods (Wilson, 2024; Oluyemisi, 2023;Oluremi, 2015). By leveraging SI, Abubakar, (2022) noted researchers can uncover new patterns and correlations in their data, leading to breakthroughs in their research. SI can also play a crucial role. By automating the process of writing academic abstracts, researchers can save time and effort in summarizing their research findings.

***Synthetic Intelligence (SI) and community Service Programme Implementation***

Community service programs are an integral part of tertiary education in Nigeria, promoting social responsibility and active participation in local communities. However, implementing these programs can be a challenging task for institutions. This is where Synthetic Intelligence (SI) comes into play. By utilizing SI, tertiary institutions in Nigeria can greatly improve the implementation of their community service programs. SI can aid in the identification of potential community service projects by analyzing various data sources such as local demographics and community needs. This ensures that the chosen projects are relevant and beneficial to the communities they aim to serve. SI can assist in the planning and organization of these programs by generating schedules and task assignments for students and faculty members. This ensures efficient use of resources and timely completion of projects. SI can play a crucial role in the monitoring and evaluation of community service programs. By analyzing data from surveys and reports, SI can provide valuable insights on the effectiveness of these programs, helping institutions to make informed decisions for future projects. SI according to Ogunode and Olowonefa (2023) and Abubakar, (2022) can also aid in the management of volunteers and resources by automating tasks such as registration and tracking of volunteer hours. This reduces the administrative burden on institutions, allowing them to focus on the actual implementation of the programs.

### 3.1 Conclusion and Recommendations

This paper explore deployment of Synthetic Intelligence (SI) in tertiary education management in Nigeria. The study revealed that SI can aids effective data management, financial management, enhances fight against corruption, support implementation of teaching, research and community service programme in the tertiary institutions in Nigeria. Based on the findings, the paper recommends the following:

**Increased Funding:** One effective strategy to enhance SI in tertiary education in Nigeria is to increase funding. With more financial resources, academic institutions can invest in modern technologies, infrastructure, and skilled workforce. This will lead to a better learning environment and improved academic outcomes.

**Capacity Building:** The quality of teaching in tertiary education is crucial for SI. Therefore, investing in faculty development programs can help to improve the quality of education. These programs can include training on modern teaching methods, research skills, and leadership development.

**Curriculum Reform:** Another crucial strategy is to reform the current curriculum. The curriculum should be designed to meet the needs of the current job market and equip students with relevant skills. It should also incorporate innovative teaching methods to engage students and enhance their critical thinking abilities.

**Integration of Technology:** Technology can play a vital role in enhancing SI in tertiary education in Nigeria. By integrating technology in the learning process, students can have access to a wide range of resources and interactive learning materials. This will also help to bridge the digital divide and prepare students for the digital age.

**Public-Private Partnerships:** Collaborating with the private sector can also enhance SI in tertiary education in Nigeria. This partnership can provide financial support, internships, and employment opportunities for students, which will contribute to their overall development.

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