

## INTELLIGENT DECISION SUPPORT SYSTEMS (IDSS) FOR STRATEGIC EDUCATIONAL RESOURCE ALLOCATION IN PUBLIC SECONDARY SCHOOLS IN THE CENTRAL GEOPOLITICAL ZONE OF NIGERIA

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### Abstract

*This study explores the application of Intelligent Decision Support Systems (IDSS) for strategic educational resource allocation in public secondary schools across Nigeria's North Central Geopolitical Zone. The research adopted a descriptive survey design with a strong emphasis on documentary analysis. The population of the study comprised 18 planning documents published between 2020 and 2024, including six UBEC annual reports, four NEMIS bulletins, three State Education Sector Plans (ESPs), two Federal Ministry of Education policy briefs, and three international reports from UNESCO, UNICEF, and the World Bank. These documents were purposively selected to examine two key areas: existing resource allocation patterns and the level of IDSS awareness and integration in educational planning. Findings revealed notable disparities in educational resource allocation across the region. FCT (Abuja) and Kwara had lower pupil-teacher ratios, higher percentages of qualified teachers, and better access to learning infrastructure, while states like Nasarawa and Kogi exhibited overcrowded classrooms, limited access to libraries, and inadequate staffing. The study also found that awareness and integration of IDSS remain extremely limited in most states, with the exception of FCT (Abuja), which showed moderate to high levels of digital adoption. Based on these findings, the study recommends institutionalizing IDSS in educational sector plans, strengthening capacity-building efforts for planners, and establishing a unified national framework to guide IDSS deployment. These measures are essential for achieving equitable, data-driven, and effective educational resource management across the region.*

**Keywords:** Intelligent Decision Support Systems, Educational Planning, Resource Allocation, North Central Nigeria

## **Introduction**

Education serves as the backbone of national development, and the equitable distribution of educational resources is critical to achieving quality and inclusive education. In the face of growing demand, limited funding and systemic inefficiencies, educational managers and policymakers must adopt data-driven approaches to ensure that resource allocation aligns with needs and priorities. Intelligent Decision Support Systems (IDSS) offer a promising technological solution to enhance planning, decision-making, and resource distribution processes. In Nigeria, particularly in the North Central Geopolitical Zone comprising states like Benue, Kogi, Kwara, Nasarawa, plateau, Niger, and the Federal Capital Territory (FCT), disparities in resource allocation persist across public secondary schools, exacerbating inequalities in access, infrastructure, and learning outcomes. This study investigates how IDSS can be leveraged to address these disparities by focusing on two critical areas; current educational resource allocation practices and the level of IDSS awareness and integration in educational planning.

Intelligent Decision Support Systems (IDSS) are advanced computer-based systems that assist decision-makers in solving complex and unstructured problems by leveraging artificial intelligence (AI), machine learning, data analytics, and expert systems. IDSS integrate dynamic learning algorithms and cognitive computing to offer intelligent, data-driven insights and recommendations (Turban et al., 2022). IDSS are typically composed of four core components: a user interface, a knowledge base, a model base, and an inference engine powered by AI. Artificial Intelligence (AI) in education refers to the use of computer systems to mimic human intelligence in automating administrative tasks, personalizing learning experiences, and providing intelligent tutoring systems (Busa, Adamu, & Umar, 2024). These components work collaboratively to process large volumes of structured and unstructured data, recognize patterns, simulate scenarios, and support optimal decision-making under uncertainty (Olumide & Ibrahim, 2024). The "intelligent" element of these systems refers to their ability to learn from data, adapt to new situations, and continuously refine their recommendations without requiring manual reprogramming.

According to Nwakpa and Omole (2023), IDSS are particularly effective in environments where decisions must be made in real-time and where traditional rule-based systems fall short. In such

cases, IDSS can analyze historical trends, predict future outcomes, and provide prescriptive analytics to support human judgment. These systems are widely applied in sectors such as healthcare, finance, agriculture, and increasingly, education, where strategic planning and efficient resource allocation are essential. In the educational context, IDSS can support a wide range of functions, including student performance analysis, school budgeting, teacher deployment, infrastructure planning, and curriculum optimization. For example, an IDSS could use real-time enrollment data, geographic information, and student achievement scores to recommend how best to deploy teachers across rural and urban schools or where to construct new classrooms (Azeez et al., 2022).

Nigeria's education system is managed through a tripartite structure involving the federal, state, and local governments. Public secondary schools are largely managed by state ministries of education, with oversight from national bodies such as the Universal Basic Education Commission (UBEC) and the Teachers Registration Council of Nigeria (TRCN). Despite ongoing reforms, the sector continues to struggle with inefficiencies in planning, resource management, and accountability (World Bank, 2023). According to the National Bureau of Statistics (NBS, 2023), public secondary schools across the country suffer from overcrowded classrooms, inadequate teacher deployment, dilapidated infrastructure, and unequal distribution of teaching and learning materials. These challenges are more pronounced in the Central Geopolitical Zone, where rural-urban divides and limited funding create severe imbalances in education service delivery.

The current educational resource allocation practices in Nigeria are often driven by political interests, outdated records, and manual processes, rather than data-informed decision-making. In many states, allocation is influenced by non-transparent criteria, leading to the oversupply of teachers in some areas and severe shortages in others (Okebukola, 2022). Infrastructure development is similarly misaligned with enrollment demands, leading to congestion in urban schools and underuse of facilities in some rural areas. The inefficiency of these allocation mechanisms is a direct result of the absence of intelligent tools to analyze school needs, project resource requirements, and evaluate allocation impact (Ololube, 2021).

In the North Central Geopolitical Zone, Nigeria, for instance, reports have shown that while some schools in Abuja and parts of Kwara are relatively well-resourced, schools in parts of

Nasarawa, Kogi, and Benue continue to operate without adequate science laboratories, libraries, or qualified teachers (UNICEF Nigeria, 2022). The allocation of resources has remained largely reactive rather than strategic, lacking the predictive capacity that advanced systems like IDSS can offer.

Strategic resource allocation is critical for improving learning outcomes, reducing disparities, and optimizing limited educational resources. When resources are allocated based on accurate data, school needs, and projected demand, student performance tends to improve due to better access to qualified teachers, teaching aids, and conducive learning environments (Adebayo & Omotayo, 2023). IDSS can support this strategic allocation by integrating data from multiple sources to guide decisions on where, what, and how much to allocate. Such systems can provide school administrators with scenario-based planning, predictive analytics, and intelligent recommendations that improve both equity and efficiency in educational management (Azeez et al., 2022).

Despite the potential benefits, the level of awareness and integration of IDSS in Nigeria's educational planning remains extremely low. Most education planners and administrators still rely on Excel spreadsheets, paper-based statistics, and bureaucratic approvals that lack the real-time agility and intelligence offered by modern digital systems (Olawale & Musa, 2023). This lack of integration is not due to resistance alone but also to infrastructural limitations, lack of training, and minimal institutional support. Awareness of IDSS as a strategic tool is limited to top-level education officers, while local school administrators and zonal education boards remain unaware of how such systems can transform their operations (UNESCO, 2023).

This study is therefore anchored on the need to analyze the current state of educational resource allocation practices and to assess the level of awareness and integration of IDSS in planning efforts within the North Central geopolitical Zone of Nigeria. The aim is to provide actionable insights and evidence-based recommendations for improving education resource management through intelligent systems.

### **Statement of the Problem**

The persistent problem of inefficient educational resource allocation in public secondary schools across Nigeria's Central Geopolitical Zone continues to hinder school performance and overall

educational development, despite numerous federal and state government interventions. Government programmes such as intervention funds from national education commissions and state-level trust initiatives have made noticeable contributions; however, these efforts are frequently undermined by resource misallocation, poor data management, and the absence of intelligent systems to support evidence-based decision-making. However, these efforts are often undermined by recurring issues such as resource misallocation, poor data management, and the absence of intelligent systems to guide evidence-based decision-making. One of the central problems lies in the current educational resource allocation practices. These practices are rarely aligned with the actual and dynamic needs of schools. Rather than being strategic and data-driven, resource allocation processes are often reactive, inconsistent, and sometimes influenced by non-educational considerations. The lack of statistical forecasting tools, geographical mapping, and other analytical aids limits the accuracy and fairness of distribution, especially in underserved areas.

Another critical concern is the low level of awareness and integration of Intelligent Decision Support Systems (IDSS) within educational planning structures. Many educational planners, particularly at the state and local levels, are either unfamiliar with the concept of IDSS or lack the technical expertise to utilize such systems effectively. This absence of integration impedes the use of real-time data for forecasting, trend analysis, impact evaluation, and predictive planning, all of which are essential for achieving efficiency and equity in educational resource management. If these issues are left unaddressed, they are likely to further deepen the existing inequalities in resource distribution and weaken institutional effectiveness. Ultimately, this will undermine national efforts aimed at achieving quality and inclusive education, as outlined in Nigeria's strategic education plans and global development goals. There is therefore a pressing need to evaluate current practices and promote the adoption of intelligent, data-driven planning systems in order to foster more equitable and effective educational outcomes across the region.

### **Objectives of the study**

The objectives of the study are to investigate the Intelligent Decision Support Systems (IDSS) for Strategic Educational Resource Allocation in Public Secondary Schools in the Central Geopolitical Zone of Nigeria. The specific objectives are to:

1. examine the existing educational resource allocation Patterns using available policy and statistical reports in public secondary schools in North Central Geopolitical Zone of Nigeria.
2. assess the level of awareness and integration of Intelligent Decision Support Systems in educational planning documents and frameworks of the zone.

### **Research Questions**

The following research questions guides the study:

1. what are the existing educational resource allocation Patterns using available policy and statistical reports in public secondary schools in North Central Geopolitical Zone of Nigeria?
2. What is the level of Awareness and Integration of Intelligent Decision Support Systems in Educational Planning Documents and Frameworks of North Central Geopolitical Zone of Nigeria?

### **Literature Review**

#### **Conceptual Review**

Intelligent Decision Support Systems (IDSS) are advanced computer-based systems designed to aid human decision-making in complex and uncertain environments. They combine traditional decision support tools with artificial intelligence (AI) capabilities such as machine learning, data mining, and natural language processing to provide adaptive, data-driven insights (Turban, Sharda, Delen, & King, 2022). IDSS differ from conventional systems by learning from historical data and evolving over time without the need for reprogramming. In the context of education, IDSS can assist policymakers in identifying resource gaps, forecasting demands, and evaluating the impact of funding or policy changes on school outcomes (Olumide & Ibrahim, 2024). These systems enhance transparency and objectivity in planning, especially in regions with significant disparities in educational resources.

Educational resource allocation refers to the strategic distribution of available resources human, physical, and financial across schools to maximize educational outcomes. This process typically involves decisions about teacher deployment, classroom construction, textbook provision, and funding allocation. In many low- and middle-income countries, including Nigeria, resource

allocation remains plagued by inefficiencies due to political interference, lack of data, and limited use of analytical tools (Adebayo & Omotayo, 2023). A strategic approach informed by real-time data and forecasting is necessary to achieve equity and efficiency. IDSS can support this shift by enabling planners to identify priority areas and simulate different policy scenarios before implementation.

### **Empirical Review**

A study conducted by Azeez, Ibrahim, and Yusuf (2022) assessed the adoption of IDSS in selected Nigerian secondary schools and found that while awareness was growing among top-level policymakers, implementation at the state and local levels remained limited. Their analysis, based on interviews and document reviews, revealed that only a few institutions had integrated digital decision tools into planning processes, with most still relying on spreadsheets and manual data compilation. The study concluded that IDSS integration was hindered by inadequate infrastructure, low technical capacity, and weak institutional support. This highlights a significant gap between policy intention and operational readiness.

In a recent analysis of resource distribution patterns, Ololube (2021) investigated disparities in educational infrastructure and teacher deployment across Nigerian states. The findings showed that resource allocation did not correlate with school needs or population demands, especially in underserved regions. Schools in urban centers were better equipped and staffed than those in rural areas, perpetuating educational inequality. The study emphasized the need for data-informed strategies and technological innovations like IDSS to address these challenges. The evidence supports the current study's focus on evaluating IDSS as a tool for improving the equity and effectiveness of educational planning.

### **Theoretical Review**

The Systems Theory, developed by Bertalanffy, provides a useful lens for understanding how educational institutions function as interconnected units within a broader system. It emphasizes that schools, teachers, administrators, and policy frameworks are not isolated components but interact dynamically (Bertalanffy, 1968). When applied to educational planning, the theory implies that changes or inefficiencies in one component such as misallocated resources or delayed data reporting can disrupt the performance of the entire system. IDSS operationalizes

this theory by integrating various data points into a unified platform, allowing for coordinated and informed decision-making across sectors (Nwakpa& Omole, 2023).

Rogers' (2003) Diffusion of Innovation Theory explains how new ideas and technologies spread within a social system. The theory identifies five adopter categories: innovators, early adopters, early majority, late majority, and laggards. In the context of IDSS integration, this theory helps explain the uneven levels of awareness and use across different states and administrative tiers in Nigeria. FCT (Abuja), for instance, may be viewed as an early adopter due to its advanced infrastructure and training initiatives, while rural states remain in the late majority or laggard stages due to systemic barriers (Olawale & Musa, 2023). Understanding these dynamics is crucial for designing targeted interventions and capacity-building strategies.

## **Methodology**

This study adopted a qualitative documentary research design, relying exclusively on the systematic analysis of existing official documents related to public secondary education in Nigeria. Documentary analysis was considered appropriate because it allows for an in-depth examination of policy intentions, planning priorities, and patterns of educational resource allocation, particularly where administrative data and policy frameworks are central to the study. The population of the study comprised official educational planning documents, statistical bulletins, policy reports, and published datasets relevant to public secondary education. Using a purposive sampling technique, a total of 18 key documents published between 2020 and 2024 were selected based on their relevance, credibility, and alignment with the themes of educational resource allocation and the integration of Intelligent Decision Support Systems (IDSS). These documents included six annual reports from the Universal Basic Education Commission (UBEC), four statistical bulletins from the National Educational Management Information System (NEMIS), three State Education Sector Plans (ESPs) from selected Ministries of Education in the North Central Zone, two policy briefs from the Federal Ministry of Education (FME), and three international reports from organisations such as UNESCO and the World Bank.

Data were collected using a Document Review Checklist developed by the researcher to guide the systematic extraction and organisation of relevant information. The checklist facilitated the categorisation of data under specific analytical themes, including indicators of resource distribution (such as pupil–teacher ratios and infrastructure status), references to IDSS and data-driven decision-making, trends in allocation practices, and measures of equity and efficiency in educational resource management. Data analysis was conducted using thematic content analysis. Extracted information was coded, compared, and synthesised to identify recurring patterns,

policy gaps, and emerging trends related to educational resource allocation and the potential role of IDSS in enhancing evidence-based planning and decision-making.

### Profile of Reviewed Documents

A total of eighteen (18) key documents published between 2020 and 2024 were reviewed, including six (6) UBEC annual reports, four (4) NEMIS statistical bulletins, three (3) State Education Sector Plans (ESPs), two (2) Federal Ministry of Education policy briefs, and three (3) international reports from UNESCO, UNICEF, and the World Bank. These documents were selected to capture both quantitative data such as pupil-teacher ratios, enrollment trends, and budget allocations and qualitative insights on educational planning frameworks and IDSS integration across the North Central Geopolitical Zone of Nigeria.

**Figure 1: the Bar Chart showing Profile of Reviewed Documents (2020–2024)**

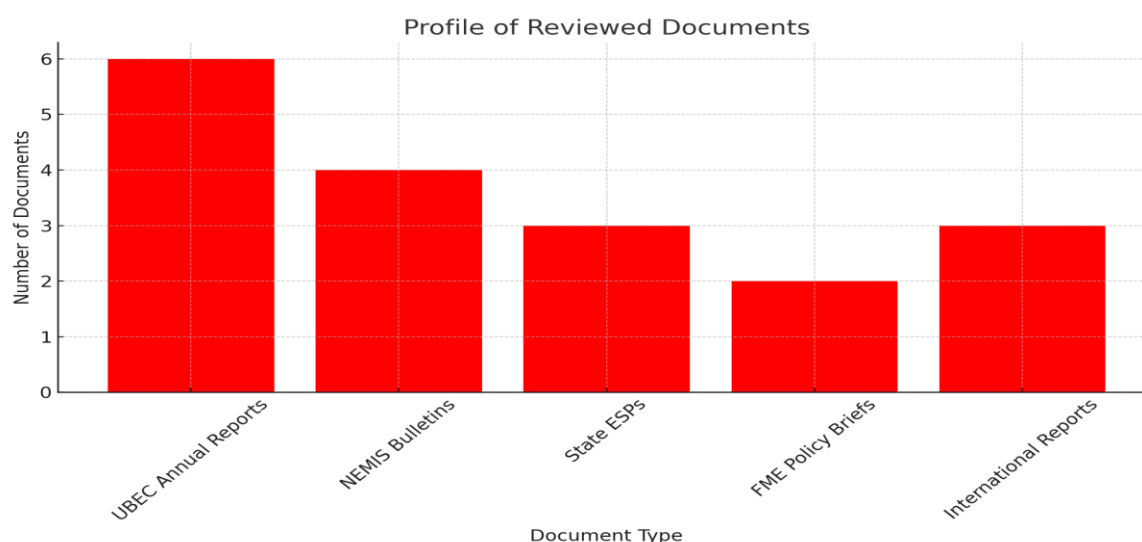


Figure 1: bar chart titled “*Profile of Reviewed Documents (2020–2024)*” presents the distribution of the eighteen (18) documents analyzed in this study. The highest number of documents reviewed were UBEC annual reports, totaling six (6), followed by four (4) statistical bulletins from NEMIS. Three (3) State Education Sector Plans (ESPs) and three (3) international reports from agencies such as UNESCO, UNICEF, and the World Bank were also included. The least represented were two (2) policy briefs from the Federal Ministry of Education. This distribution reflects a deliberate focus on national data sources supplemented with global insights, ensuring a balanced review of both quantitative indicators and qualitative planning frameworks relevant to educational resource allocation and Intelligent Decision Support System (IDSS) integration in the North Central Geopolitical Zone of Nigeria.

### Result

The results are presented based on the two research questions guiding this study. Analysis was conducted using qualitative content analysis for textual data and descriptive statistics (frequencies and percentages)

for numerical indicators. Data were organized under thematic categories aligned with resource allocation patterns and IDSS integration.

**Research Question One:** What do existing Educational Resource Allocation Patterns in Public Secondary Schools within the North Central Geopolitical Zone of Nigeria reveal, based on available policy and statistical reports? This research question was addressed by analyzing eighteen (18) planning documents and statistical bulletins published between 2020 and 2024. These included UBEC reports, NEMIS bulletins, state education sector plans, and international monitoring documents. Key indicators assessed include pupil-teacher ratios, library availability, teacher qualification rates, average class sizes, and classroom-to-student ratios. The summary is presented in Table 1 below.

**Table 1:**

**Key Indicators of Educational Resource Allocation in North Central Nigeria (2020–2024)**

| State                | Avg. Pupil-Teacher Ratio | % of Schools with Libraries | % of Qualified Teachers | Avg. Class Size | Classroom-to-Student Ratio |
|----------------------|--------------------------|-----------------------------|-------------------------|-----------------|----------------------------|
| Benue                | 45.0                     | 38.0%                       | 62.0%                   | 55.0            | 0.018                      |
| Kogi                 | 50.0                     | 32.0%                       | 58.0%                   | 60.0            | 0.017                      |
| Kwara                | 35.0                     | 54.0%                       | 73.0%                   | 40.0            | 0.025                      |
| Nasarawa             | 52.0                     | 30.0%                       | 55.0%                   | 62.0            | 0.016                      |
| Plateau              | 40.0                     | 41.0%                       | 68.0%                   | 50.0            | 0.020                      |
| Niger                | 47.0                     | 36.0%                       | 60.0%                   | 57.0            | 0.018                      |
| FCT (Abuja)          | 30.0                     | 65.0%                       | 80.0%                   | 35.0            | 0.029                      |
| <b>Total Average</b> | <b>42.7</b>              | <b>42.3%</b>                | <b>65.1%</b>            | <b>51.3</b>     | <b>0.020</b>               |

Table 1 reveals notable disparities in educational resource allocation across public secondary schools in the North Central Geopolitical Zone of Nigeria. States like FCT (Abuja) and Kwara show relatively favorable conditions, with low pupil-teacher ratios (30 and 35 respectively), high percentages of qualified teachers (80% and 73%), and better access to library facilities (65% and 54%). In contrast, states such as Nasarawa and Kogi exhibit the most strained resources, with high pupil-teacher ratios (52 and 50), large average class sizes (62 and 60), and low percentages of schools with libraries (30% and 32%). The average classroom-to-student ratio across the zone stands at 0.020, indicating generally overcrowded learning environments. These findings align with Systems Theory, which emphasizes the interdependence of educational components such as teachers, infrastructure, and learning resources and how inefficiencies in one area can affect the performance of the entire system (Bertalanffy, 1968; Nwakpa & Omole, 2023). Additionally, the uneven distribution of IDSS awareness and infrastructure across states supports Rogers' Diffusion of Innovation Theory, which explains how innovations like IDSS are adopted at varying rates depending on readiness, capacity, and environmental support (Rogers, 2003; Olawale & Musa, 2023). These systemic gaps underscore the urgent need for data-driven planning tools such as Intelligent Decision Support Systems (IDSS) to promote equity, efficiency, and strategic resource management in public education.

**Research Question Two:** What is the level of Awareness and Integration of Intelligent Decision Support Systems (IDSS) in Educational Planning Documents and Frameworks of the North Central Geopolitical Zone of Nigeria? To address this research question, content from reviewed planning documents was analyzed for explicit mentions of IDSS, presence of related policy frameworks, and any evidence of practical application in educational planning. Table 2 summarizes the results across the seven states in the zone.

**Table 2:**Level of Awareness and Integration of IDSS in Educational Planning Documents (2020–2024)

| State       | IDSS Mentions | IDSS Policy Presence | Evidence of Application | ICT/AI Strategy in ESP | Docs Reviewed | Training Mentioned | Analytics Tools Used | Most Recent IDSS Year |
|-------------|---------------|----------------------|-------------------------|------------------------|---------------|--------------------|----------------------|-----------------------|
| Benue       | 1             | No                   | Low                     | No                     | 2             | No                 | EMIS                 | 2022                  |
| Kogi        | 0             | No                   | None                    | No                     | 2             | No                 | None                 | —                     |
| Kwara       | 2             | Yes                  | Moderate                | Yes                    | 3             | Yes                | EMIS, Excel          | 2023                  |
| Nasarawa    | 0             | No                   | None                    | No                     | 2             | No                 | None                 | —                     |
| Plateau     | 1             | Yes                  | Low                     | Yes                    | 3             | Yes                | Excel                | 2022                  |
| Niger       | 1             | No                   | Low                     | No                     | 2             | No                 | EMIS                 | 2022                  |
| FCT (Abuja) | 3             | Yes (2)              | High                    | Yes                    | 4             | Yes                | EMIS, AI Dashboards  | 2024                  |

The expanded Table 2 provides a comprehensive view of the level of awareness and integration of Intelligent Decision Support Systems (IDSS) in educational planning across the North Central Geopolitical Zone of Nigeria. The data reveal that FCT (Abuja) is the most advanced, with three IDSS mentions, two related policies, active application through AI dashboards, and consistent references to training initiatives indicating a high level of institutional and digital readiness. Kwara and Plateau show moderate progress, featuring policy inclusion and ICT strategies in their education sector plans, though with limited application. In contrast, Kogi and Nasarawa significantly lag behind, exhibiting no mentions of IDSS, no formal policies, and no evidence of practical integration. Benue and Niger demonstrate minimal IDSS activity but reflect some engagement through basic EMIS tools. These variations are best understood through Diffusion of Innovation Theory, which explains that technological adoption occurs at different rates across populations, influenced by institutional culture, infrastructure, and leadership (Rogers, 2003; Olawale & Musa, 2023). Similarly, the fragmented integration of IDSS across the region supports the Systems Theory perspective, which asserts that a disruption or deficiency in one subsystem (e.g., digital planning) can weaken the entire educational management structure (Bertalanffy, 1968; Nwakpa & Omole, 2023). These findings highlight the urgent need for targeted capacity building, digital policy reforms, and the structured integration of IDSS to drive equity and efficiency in education planning across all states in the zone.

## Discussion of Findings

The findings of this study provide critical insights into the state of educational resource allocation and the level of awareness and integration of Intelligent Decision Support Systems (IDSS) in the North Central Geopolitical Zone of Nigeria. The analysis, guided by two research questions, reveals notable disparities across the region in both infrastructure availability and digital readiness.

The first research question examined existing patterns of educational resource allocation in public secondary schools. The findings, as presented in Table 1, indicate significant inequality in how resources such as qualified teachers, classroom space, and libraries are distributed across the states. For example, while FCT (Abuja) and Kwara demonstrate favorable conditions with lower pupil-teacher ratios and better library access, states like Kogi and Nasarawa are under-resourced, with overcrowded classrooms and limited access to qualified personnel and educational facilities. These patterns support the assertion by Adebayo and Omotayo (2023) that political and manual planning practices often result in unequal distribution of resources in Nigerian education. From a theoretical standpoint, these disparities align with Systems Theory, which emphasizes the interconnectedness of components within an educational system such that inefficiencies in one area, like teacher deployment, can disrupt overall institutional performance (Bertalanffy, 1968; Nwakpa & Omole, 2023). The absence of integrated tools to evaluate needs and guide allocation underlines the inefficiency of current planning models.

The second research question focused on the level of awareness and integration of IDSS in educational planning across the region. The results, detailed in Table 2, show that awareness and integration of IDSS remain low in most states, with the notable exception of FCT (Abuja), which exhibited clear policy references, training efforts, and application of AI-driven dashboards. Kwara and Plateau show moderate levels of integration, while states like Kogi and Nasarawa lack any mention of IDSS or related digital strategies. These findings reinforce the conclusions of Azeez, Ibrahim, and Yusuf (2022), who noted that IDSS is still in its early stages of adoption in Nigerian educational institutions due to infrastructural and human capacity limitations. The observed pattern also supports Diffusion of Innovation Theory, which explains that technological adoption varies across regions and institutions depending on internal factors such as leadership, readiness, and perceived value (Rogers, 2003; Olawale & Musa, 2023). FCT's progress suggests it functions as an “early adopter,” while most other states remain in the “late majority” or “laggard” categories. Taken together, these findings reveal a dual challenge in the region: persistent inequalities in resource allocation and a lack of strategic adoption of decision-support technologies. The intersection of these issues weakens institutional responsiveness and obstructs the realization of inclusive and equitable education goals. Therefore, for IDSS to drive real transformation, there must be concerted efforts to invest in digital infrastructure, build the capacity of planners, and incorporate data-driven strategies into the core of educational decision-making processes.

## **Conclusion**

This study concludes that educational resource allocation in North Central Nigeria remains uneven, with rural states facing significant deficits in infrastructure and qualified personnel. Additionally, awareness and integration of Intelligent Decision Support Systems (IDSS) are limited, except in more digitally prepared areas like FCT (Abuja). These findings highlight the need for institutionalizing IDSS, building planner capacity, and adopting data-driven strategies to promote equitable, efficient, and evidence-based educational planning across the region.

## **Recommendations**

1. To ensure equitable and efficient resource allocation, state Ministries of Education should formally incorporate IDSS into their planning, budgeting, and monitoring processes. This integration can be achieved through updates to education sector plans and operational frameworks that mandate the use of data-driven tools in decision-making.
2. There is an urgent need for targeted training and professional development programs focused on the use of IDSS and data analytics. Educational planners, administrators, and policymakers at all levels should be equipped with both the technical and analytical skills necessary to apply IDSS effectively in their planning and evaluation functions.
3. The Federal Ministry of Education should develop a national policy framework that mandates and guides the integration of IDSS into education planning across all states. This policy should include minimum digital infrastructure requirements, implementation timelines, and support mechanisms for capacity development and system maintenance.
4. Government and donor agencies should design incentive schemes to encourage state-level adoption of digital planning tools. These could include grants, special intervention funds, or technical support for states that demonstrate progress in IDSS implementation, particularly in resource-constrained or rural areas.

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