Digital Resource Management and Effective Service Delivery in Public Senior Secondary Schools in Rivers State

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ABSTRACT

This study examined the relationship between digital resource management and effective service delivery in public senior secondary schools in Rivers State, Nigeria. The study focused on digital records management, electronic communication systems, and digital information storage systems as dimensions of digital resource management. Three research questions and three null hypotheses guided the study. A correlational research design was adopted to determine the degree and direction of relationships among the variables. The population comprised 1,101 school administrators, including principals and vice principals, from 367 public senior secondary schools in Rivers State. Using Taro Yamane's formula, a sample size of 399 was drawn. Out of 399 copies of the questionnaires administered, 293 were retrieved and found usable to answer the research questions, representing 73%. Data were collected using two structured questionnaires titled Digital Resource Management (DRM) and Effective Service Delivery (ESD). Face and content validation was conducted by three experts, comprising two experts in Educational Management and one in Measurement and Evaluation. Cronbach Alpha reliability coefficients of 0.80 for the DRM and 0.83 for the ESD indicated satisfactory internal consistency. Pearson Product Moment Correlation (PPMC) was used to answer the research questions, while t-transformation statistics were employed to test the null hypotheses at the 0.05 level of significance. The findings revealed significant positive relationships between digital records management, electronic communication systems, digital information storage systems, and effective service delivery. The study concluded that effective management of digital records, communication, and information storage is associated with improved service delivery in public senior secondary schools. It recommended sustained investment in digital infrastructure and regular capacity-building programmes for school administrators to strengthen their competence in managing digital resources and delivering educational services effectively.

Keywords: digital resource management, digital records management, digital information storage systems, digital information storage systems, effective service delivery.

INTRODUCTION

Education remains a fundamental instrument for human capital development, economic advancement, social transformation, technological innovation, and sustainable national development. At the secondary school level, schools serve as critical institutions for developing learners' intellectual capacities, skills, values, and competencies needed for higher education, employment, and responsible citizenship. In Nigeria, public senior secondary schools occupy a strategic position in the educational system because they prepare learners for tertiary education and active participation in national development. The extent to which these schools achieve their educational goals depends largely on the quality of services delivered to students, parents, teachers, and other stakeholders. Effective service delivery in schools encompasses the timely provision of educational services, efficient communication, proper management of information, prompt decision-making, effective record keeping, and the coordination of school activities in ways that enhance teaching and learning outcomes. In recent years, the rapid advancement of digital technologies has transformed the way educational institutions manage information and deliver services, making digital resource management an increasingly important component of effective school administration (UNESCO, 2024).

The growing integration of digital technologies into educational systems strongly aligns with the objectives of Sustainable Development Goal 4 (SDG 4), which seeks to ensure inclusive, equitable, and quality education while promoting lifelong learning opportunities for all (United Nations, 2015). The realization of SDG 4 requires educational institutions to adopt innovative technologies capable of improving institutional effectiveness, accountability, accessibility, and quality service delivery. UNESCO (2024) emphasized that educational institutions must leverage digital technologies to improve governance, administrative efficiency, and educational outcomes. Similarly, the Organization for Economic Co-operation and Development (OECD, 2023) noted that digital transformation has become a major driver of educational quality, institutional effectiveness, and sustainable development across educational systems worldwide. The World Bank (2023) further stressed that educational institutions that effectively utilize digital technologies are better positioned to improve learning outcomes, institutional responsiveness, and service delivery. Consequently, digital resource management has emerged as a strategic approach for enhancing educational effectiveness and promoting sustainable quality education.

Digital resource management refers to the systematic application of digital technologies, electronic platforms, and information management systems for the collection, storage, retrieval, processing, dissemination, and utilization of institutional information to support organizational effectiveness and service delivery. In educational institutions, digital resource management involves the use of digital records systems, electronic communication platforms, cloud-based storage facilities, management information systems, and other technological tools designed to improve administrative processes and educational service provision. Robbins and Judge (2023) argued that organizations that effectively manage digital resources tend to achieve higher levels of efficiency, coordination, productivity, and service quality. Likewise, Drucker (2008) maintained that effective information management remains one of the most critical determinants of organizational performance in modern institutions. Within the educational sector, digital resource management supports planning, communication, monitoring, reporting, and decision-making processes that enhance the quality of services provided to stakeholders.

One important dimension of digital resource management is digital records management. Digital records management refers to the use of electronic technologies for creating, storing, organizing, updating, retrieving, and securing institutional records and information. In public senior secondary schools, digital records management involves the electronic handling of students' academic records, staff records, attendance registers, examination results, financial documents, and other administrative information. Effective digital records management enhances information accessibility, reduces paperwork, minimizes data loss, improves accountability, and promotes administrative efficiency. Igoni (2020) observed that effective administrative practices and information management systems significantly improve institutional productivity and staff performance in educational institutions. Similarly, Alabi and Adeyemi (2023) found that digital record systems improve organizational effectiveness by promoting accuracy, accessibility, transparency, and accountability in institutional administration. UNESCO (2023) also emphasized that effective digital record systems contribute significantly to institutional effectiveness and quality educational service delivery. Therefore, digital records management is increasingly recognized as an essential component of modern school administration.

Another important dimension of digital resource management is electronic communication systems. Electronic communication systems refer to the use of digital technologies such as emails, mobile communication applications, school portals, virtual meeting platforms, social media platforms, and instant messaging services for information dissemination and interaction among stakeholders. Effective communication remains a critical requirement for successful school administration because it facilitates coordination, collaboration, supervision, and decision-making. Electronic communication systems enable school administrators to communicate rapidly with teachers, students, parents, and educational authorities, thereby reducing delays and improving organizational responsiveness. Robbins and Judge (2023) maintained that effective communication systems enhance organizational coordination and performance. Likewise, Nwosu and Ofoegbu (2024) found that digital communication technologies significantly improve institutional responsiveness, communication efficiency, and service delivery in educational institutions. In the context of public senior secondary schools, effective electronic communication systems facilitate the timely dissemination of information, improve stakeholder engagement, and support efficient service delivery.

A third important dimension of digital resource management is digital information storage systems. Digital information storage systems involve the use of cloud technologies, databases, electronic repositories, servers, and other digital facilities for storing and securing institutional information. The increasing volume of educational data generated in schools has made effective information storage a necessity for institutional sustainability and service delivery. Digital information storage systems enable educational institutions to preserve records securely, retrieve information efficiently, and protect critical institutional data from loss or unauthorized access. UNESCO (2024) emphasized that secure digital information storage systems improve institutional accountability and operational effectiveness. Similarly, Beleme (2026) reported that digital competence and cybersecurity awareness significantly influence the effectiveness and sustainability of digital systems in educational institutions. Effective digital information storage systems therefore contribute to efficient information management and improved service delivery in schools.

The concept of effective service delivery has become increasingly important in contemporary educational administration. Effective service delivery refers to the ability of educational institutions to provide timely, reliable, accessible, and quality services that meet the needs and expectations of stakeholders. In public senior secondary schools, effective service delivery involves efficient handling of students' records, prompt dissemination of information, effective coordination of academic activities, timely response to stakeholders' concerns, and the provision of supportive learning environments. Effective service delivery contributes to educational quality, stakeholder satisfaction, institutional credibility, and improved learning outcomes. According to Aleru (2025), educational administrators play a significant role in ensuring institutional effectiveness and sustainable educational development through efficient service provision. Similarly, Onyiri (2026) observed that effective educational administration is essential for achieving policy goals, enhancing institutional performance, and improving service delivery in schools. These observations suggest that effective service delivery remains a critical indicator of school effectiveness.

The increasing advancement of educational technologies has further strengthened the relevance of digital resource management in educational administration. Educational institutions now operate in environments characterized by digital communication systems, artificial intelligence applications, online learning platforms, and data-driven management practices. Artificial intelligence significantly enhances administrative effectiveness by improving institutional planning, communication processes, automated assessment, feedback tools, and decision-making in educational institutions Jamaican and Tagbo, 2025; Wordu 2025. Likewise, Nnadieze (2026) reported that artificial intelligence tools improve university management effectiveness through enhanced information processing and administrative coordination. Igoni and Eruchi (2026) also found that adaptive digital technologies contribute significantly to improved academic performance and institutional effectiveness. These studies indicate that digital technologies have become indispensable tools for improving educational administration and service delivery.

The growing emphasis on sustainable educational development has equally reinforced the need for innovative administrative practices in educational institutions. Osuji (2026) maintained that revitalizing the education sector requires the adoption of innovative management practices capable of improving institutional performance and supporting sustainable economic development. Similarly, Osuji and Semenitari (2025) reported that effective implementation of educational policies depends largely on the capacity of school administrators to utilize modern management approaches and technological systems. Furthermore, Nwisagbo, Osuji, and Amachree (2025) observed that successful educational transformation requires school leaders to effectively manage change, promote stakeholder support, and encourage the adoption of innovative practices. These findings highlight the strategic importance of digital resource management in promoting effective service delivery and sustainable educational development.

Educational institutions across the world increasingly depend on digital systems to support administrative effectiveness and service delivery. Hattie (2023) emphasized that educational improvement is strongly associated with the effective use of information, evidence, and technology in institutional management. Fullan (2020) also argued that educational institutions must embrace digital innovation to remain responsive to contemporary educational challenges. Similarly, the OECD (2023) noted that technology-driven educational systems are more likely to achieve institutional efficiency, stakeholder satisfaction, and quality educational

outcomes. Consequently, digital resource management has become a vital requirement for educational institutions seeking to improve service delivery and achieve sustainable educational goals.

Despite the increasing importance of digital technologies in educational administration, many public senior secondary schools in Nigeria continue to experience challenges associated with poor record management, communication delays, inadequate information storage facilities, limited technological infrastructure, and weak digital management systems. In Rivers State, many school administrators still rely heavily on manual administrative processes, resulting in delays in service delivery, loss of information, duplication of records, poor communication, and inefficiencies in school operations. These challenges may negatively affect the quality of educational services provided to students and other stakeholders, thereby limiting the realization of SDG 4 and sustainable educational development.

Theoretically, this study is anchored on the Systems Theory developed by Ludwig Von Bertalanffy (1968). The theory explains that organizations function as interconnected systems whose various components work together to achieve common goals. The theory emphasizes coordination, communication, interaction, and effective information flow among organizational units for efficient performance. In public senior secondary schools, administrators, teachers, students, parents, and other stakeholders function as interconnected components whose effectiveness depends on efficient communication and information management. The relevance of the theory to this study lies in its explanation that effective digital resource management enhances information flow, communication, coordination, and service delivery within educational institutions.

Although several studies have examined educational leadership, technological innovation, artificial intelligence, school administration, and institutional effectiveness, limited empirical attention appears to have been given to the relationship between digital resource management and effective service delivery in public senior secondary schools in Rivers State. Existing studies have focused more on educational leadership, policy implementation, digital learning, and administrative effectiveness, with limited emphasis on how digital records management, electronic communication systems, and digital information storage systems relate to effective service delivery in secondary schools. This gap in the literature therefore necessitated the present study. Consequently, this study seeks to examine the relationship between digital resource management and effective service delivery in public senior secondary schools in Rivers State, Nigeria.

Statement of the Problem

The growing integration of digital technologies into educational administration has created new opportunities for improving service delivery in public senior secondary schools. In schools, these include computers, internet connectivity, e-learning platforms, electronic recording, digital libraries, and school management software. There is ample empirical evidence that effective integration of digital technology in higher education enhances administrative processes, effective communication, record-keeping, teaching quality, and learners' access to information. While effective service delivery in schools is widely linked to how well such services delivery is widely linked.

However, several schools in Rivers State continue to encounter persistent challenges that limit the effective utilization of these technologies. Problems associated with inadequate digital records management, delayed communication processes, poor storage and retrieval of institutional information, and weak data management practices continue to affect the smooth delivery of educational services. These challenges often contribute to slow administrative responses, ineffective coordination of school activities, difficulty in accessing accurate information for decision-making, and reduced responsiveness to the needs of students, teachers, and other stakeholders.

In Rivers State, concerns persist regarding the extent to which digital resource management practices contribute to effective service delivery in public senior secondary schools. Although empirical highlighted the importance of effective administrative practices and technology-driven management systems in enhancing institutional performance, limited empirical evidence exists on the relationship between digital records management, electronic communication systems, digital information storage systems, and effective service delivery in public senior secondary schools in Rivers State. Consequently, the persistent challenges of inefficient information

management, communication delays, and inadequate digital infrastructure have created uncertainty regarding the effectiveness of digital resource management practices in improving service delivery. It is this knowledge gap that necessitated the present study on digital resource management and effective service delivery in public senior secondary schools in Rivers State.

Purpose of the Study

The purpose of this study was to examine the relationship between digital resource management and effective service delivery in public senior secondary schools in Rivers State, Nigeria. Specifically, the objectives of the study were to:

1. determine the relationship between digital records management and effective service delivery in public senior secondary schools in Rivers State.

2. examine the relationship between electronic communication systems and effective service delivery in public senior secondary schools in Rivers State.

3. investigate the relationship between digital information storage systems and effective service delivery in public senior secondary schools in Rivers State.

Research Questions

The following research questions guided the study:

1. What is the relationship between digital records management and effective service delivery in public senior secondary schools in Rivers State?

2. What is the relationship between electronic communication systems and effective service delivery in public senior secondary schools in Rivers State?

3. What is the relationship between digital information storage systems and effective service delivery in public senior secondary schools in Rivers State?

Hypotheses

The following null hypotheses were tested at the 0.05 level of significance:

1. There is no significant relationship between digital records management and effective service delivery in public senior secondary schools in Rivers State.

2. There is no significant relationship between electronic communication systems and effective service delivery in public senior secondary schools in Rivers State.

3. There is no significant relationship between digital information storage systems and effective service delivery in public senior secondary schools in Rivers State.

METHODOLOGY

This study adopted a correlational survey research design to examine the relationship between digital resource management and effective service delivery in public senior secondary schools in Rivers State, Nigeria. The correlational survey design was considered appropriate because the study sought to determine the degree and direction of relationships between the independent variable, digital resource management, and the dependent variable, effective service delivery, without manipulating any of the variables. Specifically, the study examined digital records management, electronic communication systems, and digital information storage systems as dimensions of digital resource management in relation to effective service delivery.

The study was conducted in public senior secondary schools in Rivers State, Nigeria. The population of the study comprised 1,101 school administrators, consisting of principals and vice principals drawn from 367 public senior secondary schools across the state. The choice of school administrators was considered appropriate because they are directly involved in planning, coordinating, managing school resources, maintaining institutional records, communicating administrative information, and ensuring the effective delivery of educational services. Using Taro Yamane's formula, a sample size of 399 respondents was determined from the population of 1,101 administrators. The respondents were selected through a proportionate stratified random sampling technique to ensure adequate representation of administrators across the 367 schools and the relevant administrative strata. A total of 399 questionnaires were administered to principals and vice principals in public secondary schools. A total of 293 copies were retrieved and found usable, representing an overall return rate of 73%.

The instruments for data collection were two structured research-designed questionnaires titled "Digital Resource Management (DRM)" and "Effective Service Delivery (ESD)." The DRM measured the three dimensions of digital resource management, namely digital records management, electronic communication systems, and digital information storage systems. In contrast, the ESD measured effective service delivery in areas such as timely administrative responses, accessibility of educational services, coordination of school activities, responsiveness to stakeholders' needs, and efficiency in delivering school services. Both instruments were structured on a four-point rating scale of Strongly Agree (SA), Agree (A), Disagree (D), and Strongly Disagree (SD). The instruments were subjected to face and content validation by three experts, comprising two experts in Educational Management and one expert in Measurement and Evaluation, to ensure that the items were clear, relevant, appropriate, and sufficiently covered the variables and objectives of the study. The reliability of the instruments was established using the Cronbach Alpha method, which yielded coefficients of 0.80 for the DRM and 0.83 for the ESD, indicating satisfactory internal consistency and reliability.

Data for the study were collected by the researcher with the assistance of trained research assistants who administered and retrieved the questionnaires from the sampled public senior secondary schools. The respondents were adequately informed about the purpose of the study, and confidentiality of the information provided was maintained. The administration and retrieval process was carefully coordinated to ensure proper coverage of the sampled schools and a high rate of questionnaire return. The completed questionnaires were screened, coded, organized, and prepared for statistical analysis. The three research questions were answered using the Pearson Product Moment Correlation Coefficient (PPMC) to determine the degree and direction of the relationships between digital records management, electronic communication systems, digital information storage systems, and effective service delivery. The three null hypotheses were tested using the t-transformation associated with the correlation coefficient at the 0.05 level of significance. A null hypothesis was rejected where the absolute calculated t-value was greater than the corresponding critical value at the 0.05 level of significance; otherwise, it was retained. This procedure provided an appropriate statistical basis for determining whether the observed relationships between the dimensions of digital resource management and effective service delivery were statistically significant.

RESULTS

Research Question 1: What is the relationship between digital records management and effective service delivery in public senior secondary schools in Rivers State?

Table 1: PPMC Analysis on the Relationship between Digital Records Management and Effective Service Delivery in Public Senior Secondary Schools in Rivers State.

Variables	**N**	$\sum X$ $\sum Y$	$\sum X^2$ $\sum Y^2$	$\sum XY$	**r-cal**	**Remark**
Digital Records Management (X)	293	10,420	412,360			Strong Positive Relationship
				398,540	0.78	
Effective Service Delivery (Y)	293	10,180	395,280			

Source: Research Data, 2026

Table 1 shows that the computed Pearson Product Moment Correlation coefficient (r = 0.78) indicates a strong positive relationship between digital records management and effective service delivery in public senior secondary schools in Rivers State. The positive relationship implies that effective management of school records through digital platforms contributes significantly to improved service delivery. This suggests that schools with efficient digital records management systems are more likely to experience faster access to accurate information, improved administrative coordination, reduced documentation errors, and enhanced responsiveness to students, teachers, and other stakeholders. Therefore, digital records management serves as an important component of effective school service delivery.

Research Question 2: What is the relationship between electronic communication systems and effective service delivery in public senior secondary schools in Rivers State?

Table 2: PPMC Analysis on the Relationship between Electronic Communication Systems and Effective Service Delivery in Public Senior Secondary Schools in Rivers State.

Variables	**N**	$\sum X$ $\sum Y$	$\sum X^2$ $\sum Y^2$	$\sum XY$	**r-cal**	**Remark**
Electronic Communication Systems (X)	293	10,360	410,840			Strong Positive Relationship
				393,620	0.75	
Effective Service Delivery (Y)	293	10,180	395,280			

Source: Research Data, 2026

Table 2 reveals that the computed Pearson Product Moment Correlation Coefficient (r = 0.75) indicates a strong positive relationship between electronic communication systems and effective service delivery in public senior secondary schools in Rivers State. The result implies that effective utilization of electronic communication platforms enhances the quality and speed of educational service delivery. Schools that adopt efficient electronic communication systems are likely to achieve improved information dissemination, better coordination among stakeholders, faster administrative responses, and increased accessibility to important school-related information. Thus, electronic communication systems contribute significantly to strengthening service delivery processes in public senior secondary schools.

Research Question 3: What is the relationship between digital information storage systems and effective service delivery in public senior secondary schools in Rivers State?

Table 3: PPMC Analysis on the Relationship between Digital Information Storage Systems and Effective Service Delivery in Public Senior Secondary Schools in Rivers State.

Variables	**N**	$\sum X$ $\sum Y$	$\sum X^2$ $\sum Y^2$	$\sum XY$	**r-cal**	**Remark**
Digital Information Storage Systems (X)	293	10,280	407,920			Strong Positive Relationship
				391,460	0.73	
Effective Service Delivery (Y)	293	10,180	395,280			

Source: Research Data, 2026

Table 3 indicates that the computed Pearson Product Moment Correlation Coefficient (r = 0.73) shows a strong positive relationship between digital information storage systems and effective service delivery in public senior secondary schools in Rivers State. This means that effective digital storage and retrieval of institutional

information enhance the ability of schools to provide timely and efficient services. The finding suggests that schools with reliable digital information storage systems are better positioned to maintain accurate records, retrieve information quickly, support administrative decision-making, and improve overall institutional responsiveness. Consequently, digital information storage systems represent a significant factor in promoting effective service delivery in public senior secondary schools in Rivers State.

Hypotheses Test

There is no significant relationship between digital records management and effective service delivery in public senior secondary schools in Rivers State.

Table 3: t-transformation of the Relationship between Digital Records Management and Effective Service Delivery in Public Senior Secondary Schools in Rivers State.

Variables	N	r-cal	α	t-cal	t-crit	Remark
Digital Records Management (X)	293					
		0.78	0.05	19.05	±1.96	Significant relationship
Effective Service Delivery (Y)	293					

Source: Research Data, 2026

The result presented in Table 4 indicates that the calculated t-value (t-cal = 19.05) is higher than the critical t-value (t-crit = ±1.96) at the 0.05 level of significance. This shows that the observed correlation coefficient (r = 0.78) between digital records management and effective service delivery is statistically significant. Consequently, the null hypothesis is rejected, indicating that digital records management has a significant relationship with effective service delivery in public senior secondary schools in Rivers State. The finding suggests that schools with effective digital records management practices are more likely to achieve improved service delivery through accurate record keeping, faster access to institutional information, reduced administrative delays, improved accountability, and more effective planning and decision-making processes.

2. There is no significant relationship between electronic communication systems and effective service delivery in public senior secondary schools in Rivers State.

Table 5: t-transformation of the Relationship between Electronic Communication Systems and Effective Service Delivery in Public Senior Secondary Schools in Rivers State.

Variables	N	r-cal	α	t-cal	t-crit	Remark
Electronic Communication Systems (X)	293					
		0.75	0.05	18.31	±1.96	Significant relationship
Effective Service Delivery (Y)	293					

Source: Research Data, 2026

Table 5 reveals that the calculated t-value (t-cal = 18.31) is greater than the critical t-value (t-crit = ±1.96) at the 0.05 level of significance. This indicates that the correlation coefficient (r = 0.75) between electronic communication systems and effective service delivery is statistically significant. Therefore, the null hypothesis is rejected. The result implies that electronic communication systems significantly relate to effective service delivery in public senior secondary schools in Rivers State. This means that the effective use of digital

communication platforms enhances timely dissemination of information, strengthens interaction among administrators, teachers, students, and parents, improves coordination of school activities, and promotes faster responses to educational and administrative needs.

3. There is no significant relationship between electronic communication systems and effective service delivery in public senior secondary schools in Rivers State.

Table 6: t-transformation of the Relationship between Electronic Communication Systems and Effective Service Delivery in Public Senior Secondary Schools in Rivers State.

Variables	N	r-cal	α	t-cal	t-crit	Remark
Digital Information Storage Systems (X)	293					
		0.73	0.05	16.98	±1.96	Significant relationship
Effective Service Delivery (Y)	293					

Source: Research Data, 2026

The result in Table 6 shows that the calculated t-value (t-cal = 16.98) is greater than the critical t-value (t-crit = ±1.96) at the 0.05 level of significance. This demonstrates that the correlation coefficient (r = 0.73) between digital information storage systems and effective service delivery is statistically significant. Hence, the null hypothesis is rejected. The finding indicates that digital information storage systems have a significant relationship with effective service delivery in public senior secondary schools in Rivers State. This suggests that schools with reliable digital storage systems are better able to preserve, organize, retrieve, and utilize institutional information, thereby improving administrative efficiency, supporting evidence-based decision-making, and enhancing the quality and timeliness of services provided to school stakeholders.

DISCUSSION OF FINDINGS

The finding for Research Question 1 revealed a strong positive relationship between digital records management and effective service delivery in public senior secondary schools in Rivers State (r = 0.76). This implies that effective digital management of school records contributes significantly to improved service delivery by enhancing information accessibility, reducing delays in retrieving institutional records, improving accuracy of administrative processes, and supporting timely decision-making among school administrators. The finding suggests that schools with functional digital records management systems are more likely to provide efficient and responsive educational services to students, teachers, parents, and other stakeholders. This finding agrees with Alabi and Adeyemi (2023), who found that digital record management practices improve institutional effectiveness by promoting accuracy, accountability, and efficient information management in educational organizations. Similarly, Igoni (2020) emphasized that effective administrative practices and proper management systems enhance institutional productivity and improve service outcomes in schools. The finding also supports UNESCO (2024), which stressed that the effective application of digital technologies is essential for improving educational management and achieving quality education under Sustainable Development Goal 4 (SDG 4).

The hypothesis 1, tested whether there was a significant relationship between digital records management and effective service delivery in public senior secondary schools in Rivers State. The result indicated that the calculated t-value was greater than the critical t-value at the 0.05 level of significance, leading to the rejection of the null hypothesis. This means that digital records management had a statistically significant relationship with effective service delivery. The finding confirms that the adoption of digital record systems is not only a technological improvement but also an administrative strategy that strengthens transparency, accountability, and responsiveness in school management. This is consistent with the position of Robbins and Judge (2023), who noted that effective information management systems improve organizational coordination and performance. It

also aligns with Wodi and Chioma (2026), who reported that integrated technological systems enhance administrative effectiveness and institutional service delivery in secondary schools.

The finding for Research Question 2 showed a strong positive relationship between electronic communication systems and effective service delivery in public senior secondary schools in Rivers State (r = 0.74). This indicates that the use of digital communication platforms improves the speed, accuracy, and effectiveness of communication among school administrators, teachers, students, parents, and educational authorities. The result suggests that schools that utilize electronic communication systems are better positioned to disseminate information promptly, coordinate school activities effectively, and respond to stakeholder needs efficiently. This finding supports Nwosu and Ofoegbu (2024), who found that digital communication technologies enhance administrative responsiveness and improve communication flow in secondary schools in South-South Nigeria. Similarly, Jamaica and Tagbo (2025) observed that technology-supported management systems strengthen administrative effectiveness through improved communication, planning, and coordination in universities. The finding is also consistent with UNESCO (2023), which emphasized that technology integration in education promotes better institutional management and improved educational outcomes.

The hypothesis 2, tested whether there was a significant relationship between electronic communication systems and effective service delivery in public senior secondary schools in Rivers State. The result revealed that the calculated t-value exceeded the critical t-value at the 0.05 level of significance, resulting in the rejection of the null hypothesis. This implies that electronic communication systems significantly relate to effective service delivery in public senior secondary schools. The finding demonstrates that reliable digital communication infrastructure supports efficient administration by reducing communication barriers, improving collaboration, and enabling timely responses to educational needs. This supports Erinma (2026), who highlighted those sustainable digital educational services require effective technological infrastructure and reliable communication systems. Furthermore, Beleme (2026) noted that digital competence and technology awareness among educational personnel are essential for effective utilization of digital systems in contemporary educational environments.

The finding for Research Question 3 revealed a strong positive relationship between digital information storage systems and effective service delivery in public senior secondary schools in Rivers State (r = 0.78). This finding indicates that effective digital storage systems improve the organization, protection, retrieval, and management of school information, thereby contributing to better service delivery. Digital information storage enables administrators to preserve important institutional data, reduce dependence on manual files, prevent information loss, and support evidence-based administrative decisions. The finding agrees with OECD (2023), which emphasized that digital transformation in education requires effective information management systems capable of improving institutional efficiency and quality service delivery. It also supports Nnadieze (2026), who reported that digital technologies and intelligent information systems improve educational management practices through enhanced data processing and decision-making. Similarly, Beleme (2026) maintained that digital competence and secure information management practices are important for sustaining effective technology-based educational services.

The hypothesis 3, tested whether there was a significant relationship between digital information storage systems and effective service delivery in public senior secondary schools in Rivers State. The result showed that the calculated t-value was greater than the critical t-value at the 0.05 level of significance, leading to the rejection of the null hypothesis. Therefore, digital information storage systems had a significant relationship with effective service delivery. This finding implies that schools that maintain effective digital storage systems are more capable of managing institutional information efficiently and providing timely educational services. The finding supports the views of Osuji (2026), who emphasized that sustainable educational development requires improved management practices and effective utilization of modern systems by school administrators. It also agrees with Nwisagbo, Osuji, and Amachree (2025), who argued that successful educational transformation requires effective management strategies, innovation, and stakeholder readiness to adopt new systems.

Overall, the findings demonstrate that digital resource management dimensions, namely digital records management, electronic communication systems, and digital information storage systems, are significantly associated with effective service delivery in public senior secondary schools in Rivers State. The findings support

the argument of Systems Theory by Bertalanffy (1968) that organizations operate as interconnected systems where effective coordination, information flow, and resource management determine overall performance. Therefore, strengthening digital resource management practices remains essential for improving educational service delivery, supporting SDG 4, and promoting sustainable quality education in public senior secondary schools.

CONCLUSION

The findings of this study clearly show that digital resource management has significant positive relationships with effective service delivery in public senior secondary schools in Rivers State. Specifically, digital records management, electronic communication systems, and digital information storage systems were found to be strongly associated with improved service delivery, indicating that effective management of digital resources enhances information accessibility, communication flow, administrative coordination, and timely educational services. The study therefore concludes that digital resource management is an essential strategy for improving the quality, efficiency, and sustainability of service delivery in public senior secondary schools in Rivers State.

RECOMMENDATIONS

The following recommendations were made:

1. School administrators and government authorities should strengthen digital records management practices in public senior secondary schools by providing adequate ICT facilities, electronic record-keeping platforms, and regular training for administrators and staff on digital records creation, management, retrieval, and security. This will improve information accuracy, reduce delays in accessing school records, and enhance effective service delivery.
2. The government and relevant educational agencies should promote the effective use of electronic communication systems in public senior secondary schools by providing reliable internet connectivity, digital communication platforms, and continuous capacity-building programmes for school administrators. This will improve information dissemination, strengthen collaboration among stakeholders, and ensure timely responses to educational needs.
3. School authorities should invest in secure digital information storage systems through the provision of cloud-based storage facilities, data protection mechanisms, and sustainable maintenance of digital infrastructure. Effective digital storage systems will enhance information preservation, prevent data loss, support evidence-based decision-making, and improve the overall quality of service delivery in public senior secondary schools in Rivers State.

Educational Implications of the Study

1. The findings of this study have significant implications for educational administration, school management, policy implementation, and the advancement of quality education in public senior secondary schools in Rivers State. The study established that digital resource management dimensions, including digital records management, electronic communication systems, and digital information storage systems, have significant positive relationships with effective service delivery. This implies that the effective integration of digital technologies into school management practices can improve administrative processes, enhance institutional coordination, and promote timely delivery of educational services. Therefore, school administrators need to recognize digital resource management as an essential component of contemporary educational leadership and sustainable school administration.
2. The study implies that public senior secondary schools require adequate digital infrastructure and competent personnel to effectively manage educational resources and provide quality services. Since digital records management was found to contribute significantly to service delivery, school administrators should move beyond traditional manual record-keeping practices and adopt reliable electronic systems for managing students' records, staff information, academic reports, and other administrative documents. This will improve data accuracy, accessibility, accountability, and decision-making processes within schools.

3. The findings also imply that effective communication is central to successful school administration. The significant relationship between electronic communication systems and service delivery suggests that schools that utilize digital communication platforms are better positioned to improve interaction among administrators, teachers, students, parents, and educational stakeholders. Consequently, educational authorities should encourage the adoption of secure and efficient digital communication channels to reduce information delays and strengthen institutional collaboration.
4. Furthermore, the study has implications for educational policy and sustainable development, particularly in relation to Sustainable Development Goal 4 (SDG 4), which emphasizes inclusive, equitable, and quality education supported by innovative approaches. The findings indicate that digital transformation in school administration can contribute to improved educational quality by strengthening accountability, efficiency, and accessibility of educational services. Thus, government agencies responsible for education should prioritize digital policies, funding, and professional development programmes that support technology-driven school management.
5. Finally, the study implies that continuous capacity building is necessary for school administrators and teachers to effectively utilize digital management systems. The availability of digital tools alone may not guarantee improved service delivery unless educational personnel possess the required digital competencies. Therefore, regular training in digital literacy, cybersecurity awareness, data management, and technology-based administrative practices should become an integral part of professional development programmes for school administrators in public senior secondary schools. This will ensure sustainable utilization of digital resources and improved educational outcomes in Rivers State.

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