STREAMLINING THE USE OF DIGITAL TECHNOLOGIES FOR PERSONNEL MANAGEMENT IN PUBLIC AND PRIVATE UNIVERSITIES IN ENUGU STATE, NIGERIA

BY

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ABSTRACT

The study determined the use of digital technologies for personnel management in public and private universities in Enugu State, Nigeria. Two research questions guided the study while two null hypotheses were tested at 0.05 level of significance. A descriptive survey research design was adopted for the study. The population consisted of 862 respondents comprising 101 Deans and 761 Heads of Departments (HoDs) in public and private universities in Enugu State, Nigeria. From this population, a sample size of 172 respondents was drawn, consisting of 20 Deans and 152 HoDs, using a proportionate random sampling technique. Data were collected using a researcher-developed questionnaire titled "Use of Digital Technologies for Personnel Management in Public and Private Universities Questionnaire (UDTPMPPUQ)". The instrument contained 13 items structured around the two research questions of the study. To ensure validity, the instrument was reviewed by three experts from the Faculty of Education, Enugu State University of Science and Technology. Reliability was established using the Cronbach Alpha method, which produced reliability coefficients of 0.79 for cluster one and 0.81 for cluster two, with an overall reliability index of 0.80. These values confirmed that the instrument was reliable for data collection. Mean scores and standard deviation were used to answer the research questions, while t-test statistic was used to test the hypotheses. The findings of the study revealed that cloud-based document management systems and learning management systems (LMS) were utilized to a very low extent for personnel management in public and private universities in Enugu State, Nigeria. In line with the findings, the study recommended among others that public and private universities should allocate more funds for acquiring and maintaining cloud-based document management systems and LMS platforms to improve personnel management processes.

Keywords: Digital Technologies, Personnel Management, Public and Private Universities, cloud-based document management systems, learning management systems (LMS)

Introduction

Education is the systematic process of transmitting knowledge, skills, values, and attitudes that enable individuals to develop intellectually, morally, and socially for meaningful participation in society. Education all over the world is considered as an instrument for acquisition of skills and knowledge necessary for national development and requires effective administration especially in the areas of human and material resources of the school (Uzogor & Nwankwo, 2020). University education, as the highest level of formal learning, focuses on advanced teaching, research, and community service aimed at producing skilled manpower for socio-economic and technological progress (Okebukola, 2015). In Nigeria, public universities are funded and managed by government at federal or state levels, while private universities are established by individuals, religious organizations, or corporate bodies with regulatory approval from the National Universities Commission (NUC). Both types of universities are expected to uphold quality standards in teaching, research, and administration to fulfill their mandate of human capital development. Despite their different ownership structures, both public and private universities face common challenges such as funding, infrastructure, staff development, and governance. Addressing these challenges requires effective personnel management in universities.

Personnel management refers to the strategic process of planning, organizing, and supervising the recruitment, development, motivation, and retention of employees to achieve organizational goals. It involves key functions such as staff welfare, performance appraisal, training, and maintaining harmonious employer–employee relations. In public and private universities, personnel management plays a critical role in ensuring that academic and non-academic staff are effectively supported to deliver quality education and research outcomes. According to Armstrong and Taylor (2020), efficient personnel management in higher education enhances productivity, accountability, and institutional effectiveness, while Nwankwo (2014) emphasized its importance in fostering staff development and institutional growth in Nigerian universities. In the modern context, both public and private universities are increasingly required to adopt innovative approaches such as digital record systems, cloud platforms, and Learning Management Systems to achieve effective technology integration.

Technology integration in universities involves the systematic adoption of digital tools to improve teaching, learning, research, and administrative processes. In the area of personnel management, technology supports efficient record keeping, performance appraisal, staff training, and decision-making. According to Goyal and Purohit (2021), integrating technology into higher education administration enhances transparency, reduces reliance on paper-based systems, and strengthens institutional efficiency. Similarly, Al-Kahtani, Al-Fraihat, and Joy (2022), Okechukwu and Ukeh (2022), Ukeh, and Nwankwo (2023), noted that successful integration requires adequate infrastructure, supportive policies, and staff capacity building, all of which are essential for maximizing the benefits of digital technologies.

Digital technologies refer to electronic tools, systems, devices, and resources that generate, process, and store data, enabling more efficient communication, management, and service delivery. They play a central role in transforming education, business, and governance by improving access to information and enhancing productivity. According to Bharadwaj, El Sawy, Pavlou, and

Venkatraman (2016), digital technologies serve as enablers of organizational innovation and agility in a rapidly changing environment. Similarly, Yoo, Henfridsson, and Lyytinen (2017) emphasized that digital technologies reshape traditional processes by creating new possibilities for interaction, collaboration, and value creation. Examples of digital technologies in the context of university administration include cloud-based document management systems and Learning Management Systems (LMS).

Cloud-based document management systems (DMS) are digital platforms that enable the storage, organization, retrieval, and sharing of documents through internet-based cloud services rather than on local servers. They improve accessibility, security, and collaboration by allowing authorized users to manage records remotely in real time. According to Chigada and Madzinga (2021), cloud-based DMS enhance efficiency in institutions by reducing reliance on paper records and providing scalable solutions for effective information management. Studies have shown that cloud-based document management systems are utilized to a very low extent for personnel management in both public and private universities in Enugu State. This finding aligns with Mosweu, Luthuli, and Mosweu (2019), who reported that the adoption of cloud services for records management in African institutions is constrained by infrastructural weaknesses, inadequate data protection frameworks, and a shortage of skilled personnel. Similarly, Okafor and Ile (2021) observed that Nigerian higher education institutions often lack the technical competencies required to effectively deploy and sustain cloud-based administrative systems. Both cloud-based document management systems and digital platforms aimed at improving administrative efficiency share similar challenges of infrastructure, policy, and user adoption, which also extend to Learning Management Systems (LMS).

Learning Management Systems (LMS) are software applications designed to deliver, track, and manage educational and training content in both academic and organizational settings. They support teaching, learning, and administrative functions by providing tools for content delivery, assessment, communication, and performance monitoring. As noted by Al-Fraihat, Joy, Masa'deh, and Sinclair (2020), LMS play a critical role in enhancing learning experiences and institutional effectiveness through technology-enabled management of education. The study revealed that Learning Management Systems (LMS) were utilized to a very low extent for personnel management purposes. This result is consistent with the findings of Mahali, Changilwa, and Anyona (2021), who reported that inadequate training is a significant barrier to LMS adoption in Tanzanian universities. In addition, Lavidas, Komis, and Achriani (2022) highlighted that institutional support, perceived usefulness, and ease of use strongly influence faculty willingness to adopt LMS.

In the case of Enugu State, LMS platforms are still predominantly regarded as tools for teaching and learning, with limited recognition of their potential for administrative purposes such as personnel management. This narrow perception represents a missed opportunity, since LMS could be harnessed for staff training, professional development, performance appraisal, and other human resource management functions, just as cloud-based document management systems could improve record keeping, data accuracy, and transparency. The absence of institutional policies mandating the integration of both LMS and cloud-based document management systems into administrative practices may partly explain their underutilization. These findings support the view that the

successful adoption of digital technologies requires not only adequate infrastructure but also supportive policies and cultural acceptance. Expanding the role of LMS and cloud-based document management systems beyond their conventional uses into administrative functions is therefore essential for modernizing personnel management practices and improving administrative efficiency in universities.

The concern of the researcher in this study is that public and private universities in Enugu State have not fully embraced the use of digital technologies for personnel management. Ideally, cloud-based document management systems and learning management systems (LMS) should simplify storage, retrieval, and updating of personnel records, while enhancing efficiency, accountability, and transparency. In advanced educational systems, these tools reduce paperwork, eliminate duplication of records, and improve institutional decision-making. Unfortunately, many universities in Enugu State still rely on manual methods, resulting in delays, errors, and lack of accountability in administrative functions. Limited digital infrastructure and inadequate staff capacity further hinder the effective use of cloud-based systems and LMS. These persistent challenges undermine efficiency, transparency, and competitiveness in university personnel management.

Statement of the Problem

Ideally, universities are expected to embrace digital technologies in managing personnel to enhance efficiency, accountability, and transparency in administrative processes. With the availability of cloud-based document management systems and learning management systems (LMS), personnel records can be easily stored, retrieved, and updated in real time. These technologies ensure that tasks such as recruitment, promotion, workload allocation, and performance evaluation are carried out with speed and accuracy. In advanced educational systems, such digital solutions reduce paperwork, eliminate duplication of records, and improve institutional decision-making. Public and private universities in Enugu State, Nigeria, should not be an exception in adopting these technologies. The integration of cloud-based document management systems and LMS into personnel management ought to support strategic planning and foster institutional growth. Such an ideal situation would place universities in Enugu State at par with global best practices in higher education administration.

However, the reality in many universities in Enugu State shows that the use of cloud-based document management systems and learning management systems (LMS) for personnel management is still very low. Personnel information is often handled manually, leading to delays, errors, and lack of accountability in administrative functions. The absence of adequate digital infrastructure and insufficient technical skills among staff members further hampers effective utilization of these technologies. This results in reduced efficiency, poor monitoring of staff performance, and persistent challenges in maintaining accurate and up-to-date personnel records. Without urgent intervention, universities in Enugu State may continue to experience setbacks in administrative transparency and global competitiveness. Stakeholders may eventually lose trust in the system due to recurring inefficiencies in personnel management. If these challenges remain unresolved, how can public and private universities in Enugu State realize the goal of streamlined, technology-driven personnel management through cloud-based systems and LMS?

Purpose of the Study

The general purpose of this study examined the use of digital technologies for personnel management in public and private universities in Enugu State, Nigeria. Specifically, the study sought to:

1. determine the extent of utilization of cloud-based document management systems for personnel management in public and private universities in Enugu State.
2. ascertain the extent of utilization of learning management systems (LMS) for personnel management in public and private universities in Enugu State.

Research Questions

The following research questions guided the study:

1. What is the extent of utilization of cloud-based document management systems for personnel management in public and private universities in Enugu State?
2. What is the extent of utilization of learning management systems (LMS) for personnel management in public and private universities in Enugu State?

Hypotheses

The following hypotheses were formulated and tested at .05 alpha level:

1. There is no significant difference between the mean ratings of Deans and Heads of Departments in public and private universities in the extent of utilization of cloud-based document management systems for personnel management in Enugu State.
2. There is no significant difference between the mean ratings of Deans and Heads of Departments in public and private universities in the extent of utilization of learning management systems (LMS) for personnel management in Enugu State.

Research Method

A descriptive survey research design was adopted for the study. Nworgu (2018) defined descriptive survey research design as a design in which a group of people or items is studied by collecting and analyzing data from a subset of people or items that are regarded as representative of the entire population. The population consisted of 862 respondents comprising 101 Deans and 761 Heads of Departments (HoDs) in public and private universities in Enugu State, Nigeria. From this population, a sample size of 172 respondents was drawn, consisting of 20 Deans and 152 HoDs, using a proportionate random sampling technique. Data were collected using a researcher-developed questionnaire titled “Use of Digital Technologies for Personnel Management in Public and Private Universities Questionnaire (UDTPMPPUQ)”. The instrument contained 13 items structured around the two research questions of the study. To ensure validity, the instrument was reviewed by three experts from the Faculty of Education, Enugu State University of Science and Technology. Reliability was established using the Cronbach Alpha method, which produced reliability coefficients of 0.79 for cluster one and 0.81 for cluster two, with an overall reliability index of 0.80. These values confirmed that the instrument was reliable for data collection. However,

out of the 172 copies of questionnaire administered, the researcher and her research assistants retrieved 163 (16 Deans and 147 HoDs) copies which was a 94.77% retrieval rate.

Mean scores and standard deviations were used to answer the research questions, while the t-test statistic was applied to test the hypotheses. For rating the mean, each response option was assigned a numerical value based on the real limits of numbers: Very Great Extent (VGE) = 3.50–4.00; Great Extent (GE) = 2.50–3.49; Low Extent (LE) = 1.50–2.49; Very Low Extent (VLE) = 0.00–1.49. The interpretation of the test of hypotheses relied on the significance (sig.) values produced by the SPSS output. The null hypothesis was rejected when the p-value was less than or equal to the chosen significance level ($\alpha = 0.05$), which indicated sufficient evidence to support the alternative hypothesis. Conversely, the null hypothesis was not rejected when the p-value was greater than the significance level ($\alpha = 0.05$), suggesting that there was not enough evidence to accept the alternative hypothesis. This method provided a systematic and reliable basis for analyzing the data and drawing valid conclusions.

Results

Research Question 1: What is the extent of utilization of cloud-based document management systems for personnel management in public and private universities in Enugu State?

Table 1: Mean ratings of Dean and HoDs on the extent of utilization of cloud-based document management systems for personnel management in public and private universities

S/N	Cloud-based document management systems are utilized for personnel management in public and private universities by:	Deans (n=16) $\bar{x}$	SD	HoDs (n=147) $\bar{x}$	SD	Overall (N=163) $\bar{x}$	SD	Dec
1	Storing personnel records (e.g., biodata, employment history) in cloud-based systems for easy retrieval	1.38	.81	1.42	.84	1.41	.83	VLE
2	Updating staff information in real time through cloud systems	1.44	.87	1.46	.86	1.45	.86	VLE
3	Managing recruitment and appointment processes through cloud-based platforms	1.36	.78	1.41	.85	1.40	.83	VLE
4	Maintaining promotion and appraisal records digitally using cloud storage	1.39	.80	1.42	.85	1.41	.84	VLE
5	Securing and backing up confidential staff records using cloud technologies	1.45	.85	1.47	.86	1.47	.85	VLE
6	Reducing paperwork and duplication of records through cloud-based systems	1.42	.83	1.43	.84	1.43	.84	VLE
	Cluster Mean/SD	**1.41**	**.83**	**1.43**	**.85**	**1.42**	**.84**	VLE

Table 1 presents the mean ratings of Deans and Heads of Departments on the extent of utilization of cloud-based document management systems for personnel management in public and private universities in Enugu State. The results indicate that the overall cluster mean (1.42) falls within the "Very Low Extent" (VLE) range. Across all six items covering storage of personnel records, real-time updates, recruitment processes, promotion records, data security, and reduction of paperwork mean scores remained below 1.50, reflecting minimal adoption. The highest level of use was reported for securing and backing up confidential staff records (overall mean = 1.47), while the lowest was for managing recruitment and appointment processes (overall mean = 1.40). Overall, the findings show that cloud-based document management systems are utilized to a very low extent for personnel management in universities in Enugu State.

Research Question 2: What is the extent of utilization of learning management systems (LMS) for personnel management in public and private universities in Enugu State?

Table 2: Mean ratings of Dean and HoDs on the extent of utilization of learning management systems (LMS) for personnel management in public and private universities

S/N	Learning Management Systems (LMS) are utilized for personnel management in public and private universities by:	Deans (n=16) $\bar{x}$	SD	HoDs (n=147) $\bar{x}$	SD	Overall (N=163) $\bar{x}$	SD	Dec
7	Tracking staff training and professional development through LMS	1.34	.89	1.31	.91	1.32	.90	VLE
8	Monitoring teaching workload allocation using LMS	1.39	.92	1.35	.90	1.36	.91	VLE
9	Recording staff attendance in seminars and workshops via LMS tools	1.36	.90	1.33	.89	1.34	.89	VLE
10	Monitoring and evaluating staff teaching performance through LMS	1.38	.91	1.34	.89	1.35	.90	VLE
11	Using online communication tools in LMS for staff coordination and supervision	1.37	.92	1.32	.90	1.34	.91	VLE
12	Generating reports on staff participation in academic activities via LMS	1.35	.93	1.33	.90	1.34	.91	VLE
13	Supporting decision-making in personnel management with LMS data	1.34	.90	1.32	.91	1.33	.90	VLE
	Cluster Mean/SD	**1.36**	**.91**	**1.33**	**.90**	**1.35**	**.91**	**VLE**

Table 2 presents the mean ratings of Deans and Heads of Departments on the extent of utilization of learning management systems (LMS) for personnel management in public and private universities in Enugu State. The results show that the overall cluster mean (1.35) falls within the "Very Low Extent" (VLE) range. All seven items including tracking staff training, monitoring

workload, recording attendance, evaluating teaching performance, staff communication, generating activity reports, and decision-making recorded mean scores below 1.40, indicating minimal adoption. The highest rating was given to monitoring teaching workload allocation (overall mean = 1.36), while the lowest was supporting decision-making with LMS data (overall mean = 1.33). The findings reveal that learning management systems are utilized to a very low extent for personnel management in universities in Enugu State.

Hypotheses

1. There is no significant difference between the mean ratings of Deans and Heads of Departments in public and private universities in the extent of utilization of cloud-based document management systems for personnel management in Enugu State.

Table 3: t-test on the mean ratings of Deans and Heads of Departments in public and private universities in the extent of utilization of cloud-based document management systems for personnel management in Enugu State

Group	n	$\bar{x}$	SD	df	p-value	Decision
Deans	16	1.41	.83			
				161	0.93	$H0_1$ not rejected
HoDs	147	1.43	.85			

The result of the analysis shows that Deans had a mean rating of 1.41 with a standard deviation of 0.83, while Heads of Departments (HoDs) had a mean rating of 1.43 with a standard deviation of 0.85. The calculated p-value of 0.93 is greater than the significance level of 0.05. This indicates that there is no statistically significant difference between the mean ratings of Deans and HoDs on the extent of utilization of cloud-based document management systems for personnel management in public and private universities in Enugu State. Therefore, the null hypothesis which stated that there is no significant difference between the groups was not rejected. This implies that both Deans and HoDs share the same view that cloud-based document management systems are utilized to a very low extent in personnel management.

2. There is no significant difference between the mean ratings of Deans and Heads of Departments in public and private universities in the extent of utilization of learning management systems (LMS) for personnel management in Enugu State.

Table 4: t-test on the mean ratings of Deans and Heads of Departments in public and private universities in the extent of utilization of Learning Management Systems (LMS) for personnel management in Enugu State

Group	n	$\bar{x}$	SD	df	p-value	Decision
Deans	16	1.36	.91			
				161	0.90	$H0_2$ not rejected
HoDs	147	1.33	.90			

The table compared the mean ratings of Deans and Heads of Departments (HoDs) on the extent of utilization of Learning Management Systems (LMS) for personnel management in universities. Deans had a mean score of 1.36 **(**SD = 0.91**)**, while HoDs recorded a mean score of 1.33 (SD = 0.90), showing a very close agreement in their responses. The p-value of 0.90 is far greater than the 0.05 significance level, indicating that the difference in mean ratings is not statistically significant. With df = 161, the analysis provides enough evidence to conclude that both groups rated the utilization of LMS for personnel management to a low and similar extent. Therefore, the null hypothesis (H02) was not rejected, meaning Deans and HoDs share the same view on the limited use of LMS in personnel management across the universities studied.

Discussion of Findings

The findings of this study revealed that cloud-based document management systems were utilized to a very low extent for personnel management in both public and private universities in Enugu State. This result aligns with Mosweu, Luthuli, and Mosweu (2019), who observed that the adoption of cloud services for records management in African institutions is hampered by infrastructural weaknesses, inadequate data protection frameworks, and a shortage of skilled personnel. Similarly, Okafor and Ile (2021) reported that Nigerian higher education institutions often lack the competencies required to effectively deploy and manage cloud-based administrative systems. These consistencies suggest that the challenges identified in Enugu State reflect broader systemic issues across developing countries. The low adoption rate indicates continued dependence on traditional paper-based systems, which are inefficient, prone to inaccuracies, and vulnerable to loss of critical staff records. Such reliance has significant implications for decision-making, transparency, and accountability in personnel management. Addressing these challenges requires universities to strengthen digital infrastructure, invest in staff training, and establish clear institutional policies for cloud-based operations.

The study further revealed that Learning Management Systems (LMS) were also utilized to a very low extent for personnel management purposes. This outcome is supported by Mahali, Changilwa, and Anyona (2021), who demonstrated that lack of adequate training remains a key barrier to LMS adoption in Tanzanian universities. In the same vein, Lavidas, Komis, and Achriani (2022) found that institutional support, perceived usefulness, and ease of use strongly influence

faculty willingness to adopt LMS. Within the Enugu State context, LMS platforms are still largely perceived as tools for teaching and learning rather than as administrative resources for managing personnel. This limited view represents a missed opportunity, as LMS could be harnessed for staff training, professional development, performance evaluation, and other HR-related functions. The absence of institutional policies mandating LMS integration into personnel management likely contributes to the observed underutilization. These findings reinforce the position that digital technologies require not only infrastructure but also supportive policy environments and cultural acceptance for successful adoption. Therefore, expanding the role of LMS beyond instructional delivery into administrative functions is essential for modernizing personnel management practices in universities.

Conclusion

The study concluded that the utilization of cloud-based document management systems and learning management systems (LMS) for personnel management in public and private universities in Enugu State is very low. This indicates a gap in the adoption of digital technologies that could enhance efficiency, transparency, and accessibility in managing academic and non-academic staff records. The limited use of these systems suggests that universities still rely heavily on traditional methods, which are often time-consuming and prone to errors. Strengthening the integration of cloud-based solutions and LMS would improve workflow, decision-making, and overall institutional performance. Therefore, universities should prioritize investments in digital infrastructure, capacity building, and policy frameworks to promote the effective use of these technologies for personnel management.

Recommendations

Based on the findings, the researcher recommended that:

1. Public and private universities should allocate more funds for acquiring and maintaining cloud-based document management systems and LMS platforms to improve personnel management processes.
2. Organize regular workshops for Deans, Heads of Departments, and administrative staff to enhance their skills and confidence in using cloud-based systems and LMS effectively.
3. Universities should create policies that mandate and guide the use of digital technologies for record-keeping, staff development, and performance management, with ICT support teams available to troubleshoot and assist users.

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