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The Impact of Technological Infrastructure on Information Security Compliance Practices among Public University Library Staff in North-East Nigeria

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Abstract
Background: *The primary purpose of information security compliance in academic libraries is to ensure enhanced organizational security to achieve appropriate confidentiality, integrity, and continuous availability of library resources. This study investigated the roles of technological infrastructure on information security compliance in public university libraries in North-East, Nigeria.*
Method: *The study employed a survey research design with a sample of 237 out of the population of 618 library personnel across the 14 public universities' libraries in North-East, Nigeria. The Cronbach's alpha reliability coefficient was between 0.72 - 0.98. Regression analysis was used for data analysis.*
Findings/results: *The findings reveal that technological infrastructure in terms of CCTV cameras, Radio frequency identification, and systematic library systems has a significant influence on information security compliance among library personnel in public university libraries in North-East, Nigeria (Adj.R^2 = 0.13, F (3, 176) = 9.78, $p < 0.05$*
Implications: *It is proven satisfactorily by our study that surveillance CCTV was highly used among the three major technological infrastructures employed by this study. Followed by Camera, Radio frequency identification, and systematic library systems. Some recommendations were made based on the findings of the study.*

Keywords: Information security compliance, North–East, Nigeria, public university libraries, technological infrastructure

Introduction

The aim of information security is to ensure that library materials are fully restricted and protected against unauthorized access and security threats. Mabawonku and Madukoma

(2022) affirmed that to tackle unauthorized access, appropriate strategies that guarantee the protection of available information resources in the libraries must be adopted and complied with. This called for the implementation of relevant security policies. According to Abubakar et al. (2019), the proactive method, which is generally used for information security, is complying with the necessary information security policies. Abubakar et al. (2019) added to describe information security policy as one of the important documents required for managing the implementation of effective information security in a given organization.

AlKalbani et al. (2017) maintained that the launch of information security policies was due to increased recognition of information security in organizations worldwide. Flowerday and Tuyikeze (2016). Defined information security policy as a document that separates permitted and prohibited employee behaviors and provides directives and support to tackle information security problems. Höne and Eloff (2002) viewed information security policy as one of the most important documents required for managing the implementation of effective information security in organizations.

Alotaibi et al. (2016) reported that the majority of organizations recognized the importance of an information security policy. Alotaibi et al. (2016) added that 98% and 60% of large and small organizations have information security policies. Mabawonku and Madukoma (2022) described security compliance as a behavior that aligns the organization's security policies, takes necessary security precautions, and reports any possible security incidents that may exist within the library. Similarly, Humaidi and Balakrishnan (2015) believe that if employees exhibit appropriate behavior towards security policy compliance, security issues can be reduced and information security effectiveness can be improved. Security compliance behavior refers to the actions that adhere to information security standards.

Safa, Von Solms, and Furnell (2016) published that personnel with a strong bond to their organization are less likely to diverge from security policies and participate in delinquent behavior. Harris and Martin (2019) maintained that appropriate information security policy compliance from the library personnel ensured absolute information security in the library. However, Alotaibi et al. (2016) argued that despite organizations acquiring information security policies, the major issue is still complying with the acquired information security policies. For example, Yerby and Floyd (2018) affirmed that many library personnel are unaware of existing information security policies and lack the training necessary to comply effectively.

Nevertheless, previous studies reported that appropriate technological infrastructure may improve information security compliance. The Encyclopedia of Information Systems (2003) defined technology Infrastructure as the hardware and software machinery supporting the applications and information management of business needs. Williams et al. (2019) found that many information users believe technology offers comprehensive solutions to information security challenges. According to Purnomo (2024), technological infrastructures can facilitate the measurement process and enhance the effectiveness of information security practices. Similarly, Afolabi et al. (2024) revealed that technological infrastructures like RFID technology can be extensively used to enhance library circulation and information security in

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libraries. This study, therefore, focused on the technological infrastructure, such as CCTV Cameras, Radio Frequency Identification (RFID), and integrated library system (ILS), that are commonly used for information security in Nigerian academic libraries to measure the influence of technological infrastructure on information security compliance to address the existing security issues in public libraries in North-east Nigeria.

Statement of the Problem

Technological infrastructure plays a crucial role in safeguarding library resources and ensuring secure library operations. As university libraries continue to digitize their resources and services, the need for secure technological frameworks for improved security in libraries becomes more critical. Despite increased efforts to improve information security in Nigerian public university libraries, literature and observation show that one of the major challenges of information security is poor security compliance. AlKalbani et al. (2017) defined information security compliance as adhering to specific laws, polices, regulations, and standards developed to help organizations, effectively protect their information. Sulaiman et al. (2025) are of the view that the lack of compliance with security policies, regulations, or procedures led to financial losses, reputation damage, and even legal action. This presumes that a person with low or no policy compliance becomes a victim of information in higher institutions

Nevertheless, Mabawonku and Madukoma (2022). Published that the adoption of appropriate technology for information security made libraries vulnerable to security threats. Existing studies have explored information security challenges in Nigerian university libraries; most studies tend to focus on user behavior, security awareness, and technical aspects of library security, often overlooking the critical roles of technological infrastructure in information security compliance. There is limited research on the role of technological infrastructure in information security compliance, particularly in public universities in the North-East, Nigeria. This study aims to bridge these gaps by investigating the influence of technological infrastructure on information security compliance in public university libraries in the North-East, Nigeria.

Research Questions

This study formulated the following research questions to investigate the influence of leadership styles and technological infrastructure on information security compliance in public university libraries in North-East, Nigeria:

1 What is the extent of information security compliance among personnel in public university libraries in North-East Nigeria?
2 What is the level of technological infrastructure implemented to enhance information security compliance in public university libraries in North-East, Nigeria?

Hypotheses

The following hypotheses were formulated and tested at a 0.05 level of significance:

Ho1: Technological infrastructure has no significant influence on information security compliance in public university libraries in North-East, Nigeria.

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Literature Review

Information Security Compliance in University Libraries

Information security compliance in a library is defined as the process by which library personnels adheres to specific standards, and policies to protect library resources from any threat. Ismail and Ismail and Zainab (2013) buttressed that libraries must put in place a thorough security plan backed by appropriate staff understanding in order to lower the risk of security breaches. Mabawonku and Madukoma (2022) described information security policy as a structured set of procedures, responsibilities, and roles that guide employee conduct in safeguarding organizational information systems. Ahmad et al**.** (2015) emphasized the need for university libraries to prioritize the development of a conducive work environment that aligns organizational goals with information security practices, while ensuring that librarians have access to necessary information and appropriate tools to comply with security protocols. Omotayo and Haliru's (2020) provide insights into the challenges of information security compliance in the academic context, underscoring the need for a supportive work environment that addresses factors such as leader behavior, access to necessary information, and the availability of relevant materials and tools to enhance information security practices.

Igbinovia and Ishola (2023) published that university libraries were exposed to various cyber threats, with cyber security/guideline been one of the critical measures to combat cybercrime. In addition, librarians displayed high level of adherence to cyber ethics. Ekere and Akor (2019) found that maximum security in the libraries will prevent theft and mutilation. Also acclaims that a video surveillance system working in conjunction with a barcode and magnetic book control system could help prevent book theft and monitor the movement of books and other resources as they move from one user to another. Donalds and Osei-Bryson (2020) advised library employees to follow information security policies in order to protect their collections from security threats, suggesting that information security is maintained overall when library employees closely follow information security policies.

Technological infrastructure and Information Security Compliance

Information security compliance is the process whereby personnels to adhere to laws, rules, standards, and best practices intended to safeguard information systems and data against unauthorized access, use, disclosure, disruption, modification, or destruction. Song et al. (2018) investigated electronic security systems and the challenges of theft and mutilation in two academic libraries in Jigawa state to determine the types of security systems used and challenges of theft and mutilation. The study revealed that the two libraries under study have adopted and implemented electronic security systems of CCTV Electronic Security System, Network and Server Security System, and RFID Transponder and Reader System to address the issues associated with theft and mutilation. Farancisca (2018) investigated the technological and infrastructural challenges of institutional repositories in university libraries in Nigeria. The findings revealed that low bandwidth, inadequate and obsolete hardware and software components coupled with low server configuration, and erratic power supply, occasioned by poor funding are among the technological and infrastructural problems affecting institutional repositories in university libraries in Nigeria.

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In the other hand, Manuwa et al. (2023) assessed the use of Radio Frequency Identification (RFID) in Some Selected university libraries in Nigeria. The findings of the study revealed; majority of the respondents strongly agreed that they have good perception on the effectiveness of RFID implementation in the management of library resources, secondly, the study strongly agreed that RFID can be applied or use for the management of library resources as well as provides users with all their seamless services. Furthermore, the study also strongly agreed that FRID implementation has positive influences in the management of library resources. pai et al. (2014) investigated technologies for library Security and found the major technologies adopted by modern libraries for the protection of their resources (print and online) like RFID technology, CCTV, EM tapes and biometrics technology, etc. similarly, Yahaya et al. (2023) investigated the adoption of RFID technology in transport logistics in Nigeria. They found that 80 and 60 percent of the retailing and manufacturing sectors were using RFID technology for operations. Also, the main benefit of using RFID is to enhance security. Moreso, Gupta and Margam (2020) evaluated the adoption and use of CCTVs for information security in 24 Indian academic libraries. The findings revealed that most of the libraries used CCTV cameras mainly for securing library materials. Also, the inclusion of CCTV brings security improvement in the libraries under study.

Method

This study used a descriptive survey research design. This design was chosen to ensure efficiency and determine the influence of technological infrastructure on information security compliance in public university libraries in the North-East, Nigeria. The population for the study was 618 library personnel around the 14 public university libraries in North-East, Nigeria:

Table 1: Population Distribution of Library Personnels from the 14 public University Libraries in North-East, Nigeria

S/N	Federal Universities	Library personnel		Total
		Professional	Non-professional	
1	Army University Library, Bi'u	22	10	32
2	Federal University Library, Bauchi (ATBU)	33	49	82
3	Federal University Library, Gashua	10	16	26
4	Federal University library, Kashere,	07	35	43
5	Federal University of Health Science Library, Azare	03	09	12
6	University of Maiduguri Library	60	49	109
7	Federal University Library, Wukari	19	23	42
8	Federal University Library, Yola	07	36	43

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	Total	**161**	**227**	**388**
	State Universities			
9	Adamawa State University Library	10	37	47
10	Borno State University Library	14	12	26
11	Gombe State University Library	15	37	52
12	Taraba State University Library	04	56	60
13	Bauchi State University Library	08	18	26
14	Yobe State University Library	13	06	19
	Total	**64**	**166**	**230**
	Overall Grand Total	**225**	**393**	**618**

Source: Universities websites and offices of the university librarians, 2024

The study utilized a simple random sampling technique to ensure unbiased sampling. Sampling is defined as the process of selecting a sample from the entire population, enabling generalizations about the population to be made based on the sample. The sample size for the study was 237, determined by the Krejcie and Morgan (1970). The data were collected using a structured questionnaire titled Questionnaire on technological infrastructure and information security compliance in Public University libraries in Northeast, Nigeria was used for data collection. The instrument has nine (9) items for the three (3) indicators such as surveillance CCTV, RFID and ILS. It uses a 4-point Likert-type scale, ranging from 4= Very High level, 3= High level, 2= Low level, 1= Very Low level. (Mabawonku & Madukoma, 2022) The questionnaire items were subjected to content validity through expert review, and the reliability was confirmed via Cronbach's alpha of a pilot study (n = 15) (Cronbach, 1951). For ethical consideration, an official letter was sent to each of the institutions for approval. The researcher dispersed questionnaires in person to ensure clear instructions. The data collection was completed over 6 weeks across the 14 universities. Descriptive statistics (frequencies, means, and standard deviations) were used for data analysis and presentation to determine the influence of technological infrastructure and information security compliance. The data was analyzed using SPSS version 27.

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Results

Research Question One: What is the extent of information security compliance among personnel in public university libraries in North-East, Nigeria?

Table 2: Level of Information Security Compliance

Information Security Compliance	Very High Extent	High Extent	Low Extent	Very Low Extent	Mean	Std.
Confidentiality					**3.42**	**0.12**
I ensure that the security personnel are always present at strategic areas for appropriate access control to a…	103 (57.2%)	61 (33.9%)	11 (6.1%)	5 (2.8%)	3.43	0.82
I ensure library materials and facilities are well stamped and encrypted to a…	117 (65.0%)	52 (28.9%)	9 (5.0%)	2 (1.1%)	3.57	0.69
I always ensure that sensitive data/ objects or systems are separated and isolated from the general network to a…	76 (42.2%)	82 (45.6%)	20 (11.1%)	2 (1.1%)	3.28	0.75
I ensure that information resources in my library are safeguarded, window locks are always fixed to increase access control to a…	94 (52.2%)	66 (36.7%)	15 (8.3%)	5 (2.8%)	3.38	0.80
Integrity					**3.53**	**0.11**
I ensure that shelves are visibly arranged to appropriately monitor library collection to a…	125 (69.4%)	45 (25.0%)	7 (3.9%)	3 (1.7%)	3.61	0.70
I always ensure library security clearance procedure for graduating students are duly followed to a…	104 (57.8%)	63 (63.35%)	8 (4.4%)	5 (2.8%)	3.45	0.82
Availability					**3.22**	**0.35**
I ensure that library users present their I.D card to prevent unauthorized access to information resources for authentication to a…	126 (70.0%)	42 (23.3%)	8 (4.4%)	4 (2.2%)	3.59	0.75
I ensure that photocopying services are used to reduce book theft and ensure redundancy to a…	69 (38.3%)	83 (46.1%)	22 (12.2%)	6 (3.3%)	3.17	0.87
I ensure that bindery unit of library is working all the time to ensure quality maintenance to a…	70 (38.9%)	57 (31.7%)	33 (18.3%)	19 (10.6%)	2.90	1.07
Grand Mean					**3.38**	**0.53**

Source: Researcher's Field Survey, 2025

Decision Rule: *if mean is 1.00 - 1.74 = Very low extent, 1.75 - 2.49 = Low extent, 2.50 - 3.24 = High extent, 3.25 - 4.0 = Very high extent. Criteria mean of 2.5 is calculated as follows: 4+3+2+1 = 10/4 = 2.5.*

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Table 4.3 presents the finding of the level of information security compliance among personnel in public university libraries in North-East, Nigeria. The result shows that information security compliance is generally high among library personnel, with ($\bar{x}$ = 3.38) and (SD = 0.53) on a 4-point Likert-type scale. Among the three components of information security compliance, integrity recorded the highest mean score of ($\bar{x}$ = 3.53), indicating a very high extent of compliance. Confidentiality followed with a mean score of ($\bar{x}$ = 3.42), On the other hand, availability recorded the lowest mean score of ($\bar{x}$ = 3.22)

Research Question Two: What is the level of technological infrastructure in place to enhance information security in public university libraries in North-East, Nigeria?

Table 3: Level of technological infrastructure

Technological Infrastructure	Very High Level	High Level	Low Level	Very Low Level	Mean	Std.
Radio Frequency Identification					**2.69**	**0.20**
I use **radio frequency identification (RFID) solutions** to detect information breaches to a…	31 (17.2%)	58 (32.2%)	66 (36.7%)	25 (13.9%)	2.51	0.9
I use **electronic access control** to ensure appropriate information security to a…	31 (17.2%)	81 (45.0%)	44 (24.4%)	24 (13.3%)	2.65	0.94
I use **biometric technology** to prevent unauthorized access to information to a…	57 (31.7%)	68 (37.8%)	37 (20.6%)	18 (10.0%)	2.90	0.99
Surveillance (CCTV)					**2.76**	**0.10**
I use **video content from surveillance, such as CCTV cameras,** for information security to a…	40 (22.2%)	99 (55.0%)	22 (12.2%)	19 (10.6%)	2.87	0.92
I ensure **alarm systems are in use** to detect unauthorized removal of library materials to a**…**	45 (25.0%)	63 (35.0%)	41 (22.8%)	31 (17.2%)	2.67	1.06
My library **is integrated to prevent information security breaches to a…**	40 (22.2%)	82 (45.6%)	33 (18.3%)	25 (13.9%)	2.73	1.03
Integrated Library Systems (ILS)					**2.58**	**0.06**
I use a **book theft sensor system** to prevent information breaches in the library to a…	33 (18.3%)	66 (36.7%)	59 (32.8%)	22 (12.2%)	2.59	0.97
I use **anti-theft door technology** to prevent unauthorized removal of materials from the library to a…	32 (17.8%)	62 (34.4%)	57 (31.7%)	29 (16.1%)	2.52	1.00
I ensure **Care Labels are available** to protect CDs, DVDs, and Blu-ray collections to a…	41 (22.8%)	61 (33.9%)	53 (29.4%)	25 (13.9%)	2.63	1.03
Grand Mean					**2.68**	**0.90**

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Sources: Researcher's Field Survey, 2025
Decision Rule: *if mean is 1.00 - 1.74 = Very low extent, 1.75 - 2.49 = Low extent, 2.50 - 3.24 = High extent, 3.25 - 4.0 = Very high extent. Criteria mean of 2.5 is calculated as follows: 4+3+2+1 = 10/4 = 2.5.*

Table 4.5 presents the results of the level of technological infrastructure available for enhancing information security in public university libraries in North-East, Nigeria. The result shows that that the technological infrastructure is generally high, with a grand mean score of ($\bar{x}$ = 2.68) and (SD = 0.90) on a 4-point Likert-type scale. The findings also revealed that surveillance component recorded the highest mean score of ($\bar{x}$ = 2.76). CCTV systems ($\bar{x}$ = 2.87) are the most commonly used, followed by RFID ($\bar{x}$ = 2.67) and integrated security systems ($\bar{x}$ = 2.73).

Hypothesis: Technological infrastructure has no significant influence on information security compliance in public university libraries in North-East, Nigeria.

Table 4: Simple Regression between Technological Infrastructure and Information Security Compliance in public university libraries in north-east, Nigeria

Variable	B	β	T	Sig.	R^2	Adj. R^2	F	ANOVA(Sig.)
(Constant)	2.636		18.296	.000	.143	.128	9.778	0.000
RFID	.059	.086	.814	.417				
Surveillance (CCTV)	.190	.284	2.581	.011				
Integrated Library Sys.	.023	.037	.335	.738				
DF (F-Statistic) = 3, 176								
DF (T-Statistic) = 176								
P < 0.05								
a. Dependent Variable: Information Security Compliance								
b. Predictors: (Constant), Surveillance (CCTV), RFID, integrated library systems								

Source: Researcher's Field Survey, 2025

Table 4.5 shows the simple regression analysis result for technological infrastructure and information security compliance in public university libraries in north-east, Nigeria. The result shows that technological infrastructure ($Adj.R^2$ = 0.13 F (3, 176) = 9.78, $p < 0.05$). has a strong positive and significant relationship on information security compliance in public university libraries in North-east, Nigeria. The $Adj.R^2$ (0.13) shows that technological infrastructure has a strong positive relationship with information security compliance. and the indicates 13% variation that in the level of security compliances among library personnel in public university libraries North-east, Nigeria can be explained by the predictors in the model: surveillance CCTV, RFID and ILS. Among the predictors, surveillance had the strongest and only statistically significant influence on information security compliance CCTV (β = 0.28, t(176) = 2.58, $p < 0.05$). Also, RFID (β = 0.09, t(176) = 0.81, $p > 0.05$) and integrated library

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system ($\beta = 0.04$, $t(176) = 0.34$, $p > 0.05$) both showed weak and statistically insignificant effects. Based on these results, the null hypothesis was rejected.

Discussion of Findings

The research question one sought to determine the extent of information security compliance among library personnel in public university libraries in North-East, Nigeria. Findings revealed high extent of information security compliance among public university library personnel. This finding aligns with the study of Amini et al. (2021) who investigated the influence of human factors on information security compliance in Iranian libraries. Their findings revealed that personnel with higher levels of experience and professional self-esteem were more compliant with information security protocols, particularly those related to maintaining data integrity and confidentiality.

In contrast, Oluwabunmi and Madukoma (2022) examined information security compliance in South-West, Nigerian university libraries and found a low level of information security compliance among library personnel, which was attributed to inadequate awareness of information security practices. Likewise, Yusuf et al. (2021) assessed the state of information security in Federal University Libraries in Nigeria and identified multiple threats to compliance, including employee misconduct, unauthorized software changes, and hardware failures. These issues were found to affect the availability and reliability of library systems, contrasting with the relatively strong compliance recorded in the current study.

The second research question examined the level of technological infrastructure implemented to enhance information security compliance in public university libraries in North-East, Nigeria. The study revealed a high level of technological infrastructure in these institutions. This finding aligns with the study of Owate (2022), who examined information security management for sustainable learning among information professionals in public universities in Rivers State, Nigeria. The study found that adequate technological infrastructure was pivotal for effective information security management. This result aligns with the findings of Kavak and Odabaş (2023) who assessed the adequacy of technological and corporate information security measures in university libraries in Turkey. The study concluded that while measures are generally implemented above average, they are not at sufficient levels in terms of information security management, highlighting the need for improved technological infrastructure and corporate awareness.

Similarly, Anike and Otubelu (2025) investigated the application of cloud computing services in public university libraries in South-East Nigeria. Their study revealed that the adoption of cloud computing significantly enhanced library service delivery. They recommended the provision of more IT infrastructure to further strengthen service quality and security, thereby highlighting the critical role of technological infrastructure in fostering effective information security compliance.

Furthermore, Sanni et al. (2023) explored the use of emerging technologies in securing library resources at the Bayelsa State Library Board. Their study found that while technologies such as Radio Frequency Identification (RFID), barcodes, and CCTV were not fully adopted, they

had a significant relationship with the security of library resources. This indicates that enhanced adoption of such technologies can positively influence information security compliance. Similarly, Gupta and Margam (2020) evaluated the adoption and use of CCTVs for information security in 24 Indian academic libraries. The findings revealed that most of the libraries used CCTV cameras mainly for securing library materials. Also, the inclusion of CCTV brings security improvement in the libraries under study.

Conclusion

This study investigated the influence of technological infrastructure on information security compliance among library personnel in public university libraries in North-East, Nigeria. The findings revealed that information security compliance in public university libraries in North-East, Nigeria is generally high, driven largely by effective technological infrastructure. However, CCTV making a significant impact, although other components like RFID and ILS are less effective.

Recommendations

i. University administrators should invest in upgrading technological infrastructure, with special focus on acquiring advanced tools and systems to ensure more robust security capabilities.
ii. While enhancing surveillance technology, public university libraries in North-East should also review and improve the design, implementation, and usage of RFID and ILS to maximize their effectiveness.
iii. Library management should invest more to acquire more sophisticated technological infrastructure.

Reference

Abubakar, A. M., Elrehail, H., Alatailat, M. A., & Elçi, A. (2019). *Knowledge management, decision-making style and organizational performance*. *Journal of Innovation and Knowledge, 4*(2), 104–114. https://doi.org/10.1016/j.jik.2017.07.003

AlKalbani, A., Deng, H., Kam, B., & Zhang, X. (2017). *Information security compliance in organizations: An institutional perspective*. Data and Information Management, **1**(1), 61–72. https://doi.org/10.1515/dim-2017-0006

Ahmad, A., Maynard, S.B. and Shanks, G. (2015) A Case Analysis of Information Systems and Security Incident Responses. *International Journal of Information Management*, 35, 717-723. https://doi.org/10.1016/j.ijinfomgt.2015.08.001

AlKalbani, A., Deng, H., Kam, B., & Zhang, X. (2017). Information security compliance in organizations: An institutional perspective. *Data and Information Management, 1*(2), 104–114. https://doi.org/10.1515/dim-2017-0006

Alotaibi, M., Furnell, S. and Clarke, N.L. (2016) Information Security Policies: A Review of Challenges and Influencing Factors. 2016 11th International Conference for Internet Technology and Secured Transactions, Barcelona, 5-7 December 2016, 352-358. https://doi.org/10.1109/ICITST.2016.7856729

Amini, M., Vakilimofrad, H., & Saberi, M. K. (2021). Human factors affecting information security in libraries. *The Bottom Line, 34*(1), 45-67.

Anike, A. N., & Otubelu, B. N. (2024). Application of cloud computing in public university libraries in South-East, Nigeria for effective service delivery. *UNIZIK Journal of Research in Library and Information Science, 8*(1&2), 73-85.

Bidgoli, H. (Ed.). (2003). *Encyclopedia of information systems* (Vol. 3). Academic Press.

Cronbach, L. J. (1951). *Coefficient Alpha and the Internal Structure of Tests.* Psychometrika, 16, 297-334. https://doi.org/10.1007/BF02310555

Donalds, C., & Osei-Bryson, K. M. (2019). Toward a cybersecurity risk assessment framework for Caribbean small and medium-sized enterprises (SMEs). *International Journal of Information Management, 46*, 1-20.

Ekere, J. N., & Akor, P. U. (2019). The use of ICT for security and theft prevention in two university libraries in Nigeria. *Library Philosophy and Practice,* 1-40.

Flowerday, S. V., & Tuyikeze, T. (2016). Information security policy development and implementation: The what, how and who. *Computers & Security, 61*, 169–183. https://doi.org/10.1016/j.cose.2016.06.002

Francisca N. Okoroma (2019): Technological and Infrastructural Issues of Institutional Repositories in University Libraries in Nigeria: And the Way Forward, International Information & Library Review, DOI: 10.1080/10572317.2018.1491710

Gupta, P., & Margam, M. (2020, August). *CCTV as an efficient surveillance system? An assessment from twenty-four academic libraries of India*. *Global Knowledge, Memory and Communication, 70*(4/5), 355–376.

Harris, M. A., & Martin, R. (2019). Promoting cybersecurity compliance. In Cybersecurity education for awareness and compliance (54-71)

Höne, K., & Eloff, J. H. P. (2002). Information security policy — What do international information security standards say? *Computers & Security, 21*(5), 402–409. https://doi.org/10.1016/S0167-4048(02)00504-7

Humaidi, N., & Balakrishnan, V. (2015). Leadership styles and information security compliance behavior: The mediator effect of information security awareness. *International Journal of Information and Education Technology, 5*(4), 311–316. https://doi.org/10.7763/IJIET.2015.V5.522

Ismail, R., & Zainab, A. N. (2013). Information systems security in special and public libraries: An assessment of status, 1301.5386. https://doi.org/10.48550/arXiv

Kavak, A., & Odabaş, H. (2023). The impact of information security management guide utilization on technological and institutional information security measures in university libraries in Türkiye. *The Journal of Academic Librarianship, 49*(6), 102800.

Krejcie, R. V., & Morgan, D. W. (1970). Determining sample size for research activities. Educational and Psychological Measurement, 30 (3), 607–610.

Mabawonku, T. O., & Madukoma, E. (2022). Information security awareness and information security compliance in university libraries in South-West, Nigeria. *Library Philosophy and Practice (e-journal)*. 7212. https://digitalcommons.unl.edu/libphilprac/7212

Manuwa, A., Abdulsalam, Z., & Dawha, E. M. (2023). Assessment of use of radio frequency identification in some selected university libraries in Nigeria. *Samaru Journal of Information Studies, 23*(2), 132-146.

Omotayo, F. O., & Haliru, A. (2020). Perception of task-technology fit of digital library among undergraduates in selected universities in Nigeria. *The Journal of Academic Librarianship, 46*(1), 102097. https://doi.org/10.1016/j.acalib.2019.102097

Owate CN. (2022). Information Security Management for Sustainable Learning among Information Professionals in Public Universities in Rivers State, Nigeria. *Library Progress International,* 42(1), 36-47.

Pai, R. D., Gowda, M., & Parmar, S. S. (2014). *Technologies for library security*.

Purnomo, Y. J. (2024). Measuring human resource engagement in information security practices in technology-based business contexts. *Technology and Society Perspectives (TACIT), 2*(1), 201–207. https://doi.org/10.61100/tacit.v2i1.152

Sanni, V., Oloniruha, E. A., Braide, D., & Atule, J. (2023). Emerging technologies and security of library resources at Bayelsa State Library Board. *Southern African Journal of Security, 1*, 12 pages.

Safa, N. S., Von Solms, R., & Furnell, S. (2016). Information security policy compliance model in organizations. *Computers & Security, 56*, 70–82. https://doi.org/10.1016/j.cose.2015.10.006

Song, U. M., Yusuf, Z. M., & Mairiga, H. M. (2018). Library electronic security systems and the challenges of theft and mutilation of library resources in academic libraries in Nigeria: A survey of academic libraries in Jigawa State. *International Journal of Applied Technologies in Library & Information Management* 4 (1) 96-110, 2018

Sulaiman, K. A., Akanbi, M. L., Babatunde, I. A., Babatunde, R. A., Gbemisola, B. H., Olubukola, B. P., & Christianah, O. O. (2025). Awareness, perception, and compliance as determinants of information security among Library and Information Science undergraduates in universities in Nigeria. *Journal of Science and Technology*, *30*(4), Article 2785. https://doi.org/10.20428/jst.v30i4.2785

Williams, A. S., Maharaj, M. S., & Ojo, A. I. (2019). Employee behavioural factors and information security standard compliance in Nigerian banks. *International Journal of Computing and Digital Systems*, *8*(4), Article 407. https://doi.org/10.12785/ijcds/080407

Yahaya, I., Saidu, I., Suleiman, S., Muhammad-Jamil, A., Leje, M. I., & Aiyu, B. A. (2023, February). *Assessment of radio frequency identification (RFID) technology in transport logistics in Nigeria*. *Environmental Technology and Science Journal, 13*(2), 36–42. https://doi.org/10.4314/etsj.v13i2.4

Yerby, J., & Floyd, K. (2018). Faculty and staff information security awareness and behaviors. *Journal of The Colloquium for Information Systems Security Education, 6(1),23.*

Yusuf, A., Yusuf, S., & Zayyana, H. M. (2021). Assessment of information security threats to information systems in federal university libraries, Nigeria. *Samaru Journal of Information Studies, 21*(1)