NAU Journal of Technology & Vocational Education, Vol. 8, No. 1, August 2023

CLOUD COMPUTING COMPETENCIES REQUIRED OF OFFICE TECHNOLOGY AND MANAGEMENT GRADUATES OF POLYTECHNICS IN NORTH EAST, NIGERIA FOR ELECTRONIC RECORDS MANAGEMENT

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Abstract

The need to improve electronic records management in polytechnics necessitated this study. The study ascertained cloud computing competencies required of polytechnic OTM graduates in North East Nigeria for electronic records management. One research question and two null hypotheses guided the study. The study adopted descriptive survey research design. Three hundred and seventy-three (373) administrative supervisors were studied without sampling. Self-developed questionnaire with 12 items which was face validated by experts in Business Education and Measurement and Evaluation was used for data collection. The reliability of the instrument was determined using pilot testing and data generated analyzed using Cronbach Alpha formula which yielded a correlation value of .86. Mean, standard deviation, ANOVA and t-test were used for data analysis. Findings showed that cloud computing competencies were highly required of OTM graduates of polytechnics in North East Nigeria for electronic records management. Years of experience and educational attainment were not significant factors affecting on the extent cloud computing competencies were required of OTM graduates of polytechnics for electronic records management. Based on the findings of the study, the researcher concluded that; OTM graduates in polytechnics in North East, Nigeria highly require cloud computing competencies for effective management of records in the educational. institutions. It was recommended among others that; Office Technology and Management (OTM) graduates working in polytechnics in Nigeria should be constantly retrained through in-service training, workshops, seminars and conferences to enable them up-date their cloud computing competencies for effective records management.

Keywords. *Records, electronic records management, cloud computing, OTM*.

Introduction

The introduction of new technologies into the office environment of many organizations has led to the use of modern equipment in bringing innovativeness in office tasks. In order to make the work of office workers easier and more effective, organizations in Nigeria are integrating new technologies into their operations especially in records management. Records are assets produced, saved, retrieved, and disposed of by an organization. Ovbiagele, Mgbonyebi, and Olaniye (2019) defined records as documents/information produced or received by an individual or organization in the course of business and kept in accordance with legal duties. Records can take the shape of physical objects (certificates and official documents), digital data (email), original or copies of

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registers and reports that have been received and preserved. These records must be managed properly to avoid serious legal, operational and public relation risk.

Records management focuses on the preservation of an organization's records from creation until disposal. Records management is the intentional management of an organization's documents during the length of its existence (National Archives of Scotland, 2013). Records can be managed traditionally or electronically. Traditional records management involves storing a lot of large hard copies of documents in filing cabinets. This system is no longer effective due to enormous volume of records being created every day as a result of increased organizations' activities. In the light of this deficiency, Bello (2013) observed that many Nigerian organizations are increasingly adopting electronic records management systems. Types of electronic records are e-mail, voicemail, Geographic Information System (GIS), word-processed document, spread sheets, database, digital image, audio files, records stored on storage media, in-house, or in the cloud (New York State Archives, 2012, p.28; Ukatu & Wechie, 2019). These electronic records require a range of competencies to manage effectively.

Graduates of the Office Technology and Management (OTM) programme might need a variety of skills to manage electronic records in their organizations, including physical filling competencies, record life cycle competencies and Computer Assisted Retrieval (CAR) competencies. Kibe (2016) stated that most public and private organisations in Africa are adopting cloud-based records management system to cut cost, eradicate redundancies and pool resources, while Ovbiagele, Mgbonyebi, and Olaniye (2019) listed word processing competencies and database management competencies as required electronic records management competencies. Cloud computing is a form of computing resources that facilitates sharing of data or information over the internet, rather than having them on local servers or personal devices (Uzuagu, Paul-Mgbeafuluike & Joseph, 2020).

Cloud computing can be referred as the ability to access a network of computing resources that are owned and maintained by a third party via an internet connection. The use of cloud computing services is becoming more widespread in tertiary institutions (Yuvara, 2016). Polytechnics can access the cloud services in a cost efficient manner via an internet connection on demand and on a subscription basis without having to invest in their own IT infrastructure. Yuvara noted that cloud computing is the answer to modern record keeping in tertiary institutions as it makes it possible for institutions to reduce the need to manage large amounts of data on expensive, aging, energy-inefficient, on premise servers. Shum (2013) posited that the adoption of cloud computing in records management can allow polytechnics to manage, secure, and provide access to digital documents. In view of this, Berg (2011) stated that public organizations (polytechnics inclusive) should start transitioning to cloud computing in order to reap the benefits it offers.

Cloud computing is very challenging to use and records managers need special competencies to use it for records management (Yordanov, Yordanova & Yordanova, 2015). Cloud computing competencies are abilities to create data using Google docs, save data using Google docs, store data using dropBox and Google drive, mark data for destruction in the cloud. Others include ability to work with remote services in internet; co-work with different types of documents, share data and files, share screen, knowledge and skill in using digital repositories, and understand main terms and concepts of cloud computing (Yordanov et al. (2015). Records stored on cloud are secured and can be easily retrieved when needed.

Office Technology and Management (OTM) is an academic programme that was created to replace the previous secretarial studies/programme in Nigerian tertiary institutions, particularly polytechnics. The new OTM programme was created to fill competency gaps in the old secretarial

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studies curriculum that prevented graduates from functioning effectively in contemporary workplaces (National Board of Technical Education, (NBTE), 2009). The programme is ICT-based and is designed to train students in in-depth knowledge of records management information systems. Employers expect OTM graduates to evolve in tandem with changes in electronic management competencies. Crowne (2019) noted that employers in Nigeria are concerned about the type of skills OTM graduates are exposed to while in school given the high unemployment rate among them. Ogungboyega (2019) posited that OTM graduates are unemployed due to their lack of employable skills.

There is a large number of polytechnics in Nigeria with the aim of training students in skills. This means that in terms of employment chances, polytechnic OTM graduates should be at a competitive edge over their colleagues from other tertiary institutions. However, Okolocha and Baba (2017) found that majority of OTM graduate employees cannot efficiently manage records using the electronic system. In Nigerian polytechnics, this scenario might also be of concern to administrators and administrative supervisors. Senior employees or higher officers who direct, manage and oversee the activities of younger staff members in order to fulfill organizational objectives are referred to as administrative supervisors (Gude, 2020). These expertise and roles make administrative supervisors qualified to evaluate electronic records management competencies required of polytechnic OTM graduates.

Work experience may be crucial in the management of electronic records in the 21st century organizations. Administrative managers may use work experience to evaluate the finest electronic records management competencies needed of OTM graduates. It is likely that administrative supervisors with above 10 years' experience will have different perspectives on electronic records management skills required of polytechnic OTM graduates than administrative supervisors with less years of experience, as a result of variations in training and other experiences that might result in the acquisition of various skills. Gude (2012) supported this idea by stating that people gain necessary competencies toward high performance when they work constantly for a long time on specific activities.

In addition to experience, level of education is also critical. Administrative supervisors may have different perspectives on the electronic records administration skills expected of OTM graduates. Administrative supervisors with PhD/M.Sc. degrees may have different perspectives on electronic records management competencies required of polytechnic OTM graduates than those with lower degrees (B.Sc./B.Ed/HND). This might be explained by the exposure to various electronic records management competencies during the learning process. In support, Amesi (2014) argued that having a degree causes successful managers and administrators to develop their competencies. According to Yordanov, Yordanova and Yordanova (2015), in this digital era, students of higher education need to possess cloud computing competencies in order to performance records management jobs upon graduation. It is against this background that this study ascertained cloud computing competencies required of polytechnic OTM graduates in North East Nigeria for electronic records management.

Statement of the Problem

Cloud computing simply refers to services in the cloud that provides computation, software, data access and storage. The current OTM programme has incorporated courses that emphasize records management and information systems in its curriculum in order to equip students with competences in records management. Every OTM graduate is consequently expected to possess necessary competencies for efficient records management. Graduates of OTM would probably be unqualified

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for management and other administrative jobs in contemporary organizations if they have not acquired the necessary electronic records administration competencies. The researcher's observations show that some OTM graduates from polytechnics face prejudice in the labour market when applying for administrative positions, and some of those who succeed in finding work fall short of expectations of their employers. Employers of labour are also voicing discontent regarding the caliber of OTM graduates, who they claim struggle to maintain data efficiently utilizing the electronic management system. This situation can be caused by a discrepancy between the records management competencies the OTM graduates were exposed to and the competencies the organizations want from OTM graduates in the digital age. Because of this, it appears that the OTM programme falls short in preparing students for jobs in office technology and management after graduation. Specifically, this study ascertained the extent cloud computing competencies are required of OTM graduates of polytechnics in North East, Nigeria for electronic records management.

Research Questions

The following research questions guided this study.

To what extent are cloud computing competencies required of OTM graduates of polytechnics in North East Nigeria for electronic records management?

Research Hypotheses

The following corresponding hypotheses were also tested at .05 level of significant.

1. There is no significant difference in the mean ratings of administrative supervisors on the extent cloud computing competencies are required of OTM graduates of polytechnic in North East, Nigeria for electronic records management based on years of working experience (1-5years, 6-10 years and above 10 years).
2. Administrative supervisors do not differ significantly in their mean ratings on the extent cloud computing competencies are required of OTM graduates of polytechnics in North East Nigeria for records management based on educational attainment (PhD/M.Sc./M.Ed. and B.Sc/B.Ed/HND).

Methods

This study adopted descriptive survey research design. The study was conducted in North-East Nigeria. The population of this study consisted of 373 administrative supervisors in the 12 public polytechnics in North East, Nigeria. (Source: Academic Planning Units of the Polytechnics as at 25th March, 2022). The reason for choosing administrative supervisors was that they are senior employees or higher officers that guide, direct and manage the job tasks of OTM graduates working under them in the work place. Therefore, they are in a better position to assess competencies required of OTM graduates for electronic records management. There was no sampling since the population was manageable. Structured questionnaire titled "Cloud Computing Competencies Required for Electronic Records Management Questionnaire (CCCRERMQ)" was used for data collection. The instrument was structured on a five-point rating scale of Very Highly Required (VHR), Highly Required (HR), Required (D), Lowly Required (LR), and Not Required.

The face validity of the instrument was established using the opinions of three experts, two experts from Business Education and one expert from Measurement and Evaluation. Reliability of the instrument was established using trial-testing method and data collected were analyzed using Cronbach Alpha formula, and Coefficient value of .86 was achieved in the analysis. The researcher

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with the help of five research assistants administered copies of the questionnaire to the respondents in their offices. Out of 373 copies of the questionnaire distributed, 366 (98%) were correctly filled and returned and used for data analysis.

Mean and standard deviation were used to answer the research questions and determine how homogeneous or heterogeneous the respondents' opinions. Analysis of Variance (ANOVA) and independent t-test were used to test the hypotheses at.05 level of significance using Statistical Package for Social Sciences (SPSS) version 23.0. The decision rule was that a null hypothesis was rejected where the p- value was less than or equal to the significant value of .05; otherwise, the null hypothesis was accepted.

Results

The results are presented in the order of the research questions and the corresponding hypothesis.

***Research Question 1*:** To what extent are cloud computing competencies required of OTM graduates of polytechnics in North East Nigeria for electronic records management?

Table 1

Respondents' mean ratings on extent cloud computing competencies are required of OTM graduates for electronic records management N = 366

S/N	Cloud Computing Competencies	$\bar{X}$	SD	Remarks
1	Work with remote services on the Internet	3.69	.60	Highly Required
2	Co-work with different types of documents	3.51	.56	Highly Required
3	Share files using instant messaging services	3.43	.58	Required
4	Lock files for viewing only	3.64	.59	Highly Required
5	Create files using Google docs	3.88	.57	Highly Required
6	Safely and securely store files using Mimecast cloud archiving	3.62	.53	Highly Required
7	Use digital repositories	3.79	.50	Highly Required
8	Share data files and screen	3.65	.58	Highly Required
9	Use Google Docs as a cloud computing service	3.80	.55	Highly Required
10	Conduct an organizational assessment to identify which records are candidates for migration to the cloud environment	3.91	.54	Highly Required
11	Process records and data for migration to the cloud environment	4.54	.58	Very Highly Required
12	Move identified records, applications and processes to the cloud environment	4.70	.61	Very Highly Required
	Cluster Mean	3.85		Highly Required

Data in Table 1 show that out of 12 cloud computing competencies listed for electronic records management, respondents indicate that items 11 and 12 are very highly required of OTM graduates with mean scores of 4.54 and 4.70. Items 1, 2, 4, 5, 6,7,8,9 and 10 are highly required of OTM graduates with mean scores ranging between 3.51 to 3.91 while the remaining item (item 3) is rated required with mean score of 3.43. The cluster mean score of 3.85 shows that on the whole, cloud computing competencies are highly required of OTM graduates of polytechnics in North East Nigeria

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for electronic records management. Standard deviations for all the items are within the same range showing that the respondents are not wide apart in their ratings.

***Hypothesis 1*:** There is no significant difference in the mean ratings of administrative supervisors on the extent cloud computing competencies are required of OTM graduates of polytechnic in North East, Nigeria for electronic records management based on years of working experience (1-5 years, 6-10 years and above 10 years).

Table 2
Summary of ANOVA on the ratings of administrative supervisors on cloud computing competencies based on years of experience

Source of Variance	Sum of Squares	Df	Mean Square	F	p-value	Decision
Between Groups	31.68	2	15.84	1.19	.31	Not Significant
Within Groups	1293.16	363	13.33			
Total	1324.84	366				

Table 2 shows f-ratio of 1.19 at 2 and 363 degrees of freedom with a p-value of .31 is greater than the p-value of .05 (.31 >.05). This means that there is no significant difference in the mean ratings of administrative supervisors on the extent cloud computing competencies are required of OTM graduates of polytechnic in North East, Nigeria for electronic records management based on years of working experience. Therefore, the null hypothesis is accepted.

***Hypothesis 2*:** Administrative supervisors do not differ significantly in their mean ratings on the extent cloud computing competencies are required of OTM graduates of polytechnics in North East Nigeria for electronic records management based on educational attainment (PhD/M.Sc./M.Ed. and B.Sc/B.Ed/HND).

Table 3
Summary of t-test analysis of administrative supervisors rating on the cloud computing competencies based on educational attainment

Educational Attainment	N	$\bar{X}$	SD	df	t-value	P-value	Decision
PhD/M.Sc./M.Ed.	115	44.57	3.80	364	.12	.91	Not Significant
B.Sc/B.Ed/HND	251	44.48	3.49				

Table 3 shows that t - value of .12 at 364 degrees of freedom with p-value of .91 is greater than the significant value of .05 (.91 >.05). The null hypothesis of no significant difference between the two groups is therefore accepted. This means that administrative supervisors do not differ significantly in their mean ratings on the extent cloud computing competencies are required of OTM graduates of polytechnics in North East Nigeria for electronic records management based on their educational attainment.

Discussion of Findings

Findings of the study revealed that cloud computing competencies are highly required of OTM graduates of polytechnics in North East Nigeria for electronic records management.

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Specifically, administrative supervisors indicated that OTM graduates of polytechnics very highly require ability to process records and data for migration to the cloud environment, and move identified records, applications and processes to the cloud environment. Additionally, the respondents found that OTM graduates highly require ability to; work with remote services on the Internet, co-work with different types of document, lock files for viewing only, create files using Google docs, Safely and securely store files using Mimecast cloud archiving, and use digital repositories among others. This could be attributed to the importance of cloud computing competencies in enhancing the efficiency of organizational or institutional records management. The findings agree with Don-Solomon and Ayawei (2020) who stated that graduates of tertiary institutions need cloud computing competencies for efficient records management in the digital office. Kibe (2016) noted that the ability to use cloud-based application by graduates increase their efficiency and effectiveness in records management. This supports the earlier report of Yordanov, Yordanova and Yordanova (2015) that university students need to be equipped with core cloud computing competencies such as ability to use Mimecast cloud archiving, use Microsoft exchange online platform to secure stored files, lock down files for viewing only and create files using Google docs for personal and office digital records keeping.

Findings of the study also indicated that there was no significant difference in the mean ratings of administrative supervisors on the extent cloud computing competencies were required of OTM graduates of polytechnic in North East, Nigeria for electronic records management based on years of working experience. It was also revealed that administrative supervisors did not differ significantly in their mean ratings on the extent cloud computing competencies were required of OTM graduates of polytechnics in North East Nigeria for electronic records management based on educational attainment. Administrative supervisors irrespective of their years of working experience and educational attainment all indicated that OTM graduates require cloud computing competencies to perform their records management electronically. In agreement, Ogundionye (2021) found that educational attainment was not a significant factor affecting cloud computing competencies OTM graduates should possess for effective records management. This finding could be due to the fact that administrative supervisors may be using cloud computing services in records management, and therefore recognize their importance to every OTM graduate that wants to succeed in records management jobs in the digital offices.

Conclusion

Based on the findings of the study the researchers conclude that office technology and management graduates in polytechnics in Nigeria highly require cloud computing competencies for effective management of the institutions' records.

Recommendations

Based on the findings of this study, the following recommendations are made:

1. Office Technology and Management lecturers in polytechnics in Nigeria should be continuously retrained through in-service training, workshops, seminars and conferences in order to update their knowledge regarding competencies in cloud computing in line with the advent of digitalization in modern offices. This is because, the OTM lecturers cannot teach the competencies they do not possess.

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2. Office Technology and Management (OTM) graduates working in polytechnics in Nigeria should be constantly retrained through in-service training, workshops, seminars and conferences to enable them up-date their cloud computing competencies for effective records management.
3. Curriculum planners of OTM programme in Nigeria should review its contents to incorporate cloud computing competencies identified in this study for a better performance.

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