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ABSTRACT

This study investigated Librarian's awareness of, and attitude towards deployment of cloud computing technologies in university libraries in South-South Nigeria. The study employed the descriptive survey research design with the study population of 246 Librarians in South-South Nigeria. The 246 librarians were enumerated with a response rate of 190 (77%). The instrument for the collection of data was the questionnaire titled "Librarians Awareness of, and Attitude towards Deployment of Cloud Computing Technologies Questionnaire" (LAATDCCTQ). The data was analyzed using mean and standard deviation. The result revealed that, librarians in university libraries in South-South Nigeria have low level of awareness of cloud computing technology. Librarians attitude towards deployment of cloud computing technologies in university libraries in South-South Nigeria is high respectively. The study recommended that librarians should organize workshops on the awareness of cloud computing technology in application to library services for library professionals. Also, sufficient funding, training and re-training of librarians should be made available by the appropriate authorities' development and application of technology services in university libraries.

Keywords: Librarians Awareness, Librarians Attitude, Cloud Computing Technology

INTRODUCTION

Libraries are undergoing a transition from traditional library operations to digital resource centers giving information in various formats namely, text, image, video and audio. Information communication technologies have made significant progress in the access and distribution of information to users. Advancement in technology has led to a new concept known as cloud computing.

Microsoft (2021), is the delivery of computing services over the internet encompassing servers, space, databases, networks software and intelligence, order to enable faster innovation, highly adaptable resources, and scale economies. Cloud computing enables the use of a network

of remote servers hosted on the internet to store, manage and process data rather than a local server or a personal computer. Shifting to cloud solutions give libraries the opportunity to save time and resources. Seena and Sudhier, (2013) state that cloud computing enables the migration of the desktop application to web-based applications such as communication tools (Gmail, Google Calendar, and Google Talk) and productivity tools (Google Docs: text files, spreadsheets, and presentations) Yuvaraj and Singh, (2013) define cloud computing as "a style of computing in which massively scalable and elastic information technology-enabled capabilities are delivered as a service to external customers using Internet technologies." Cloud computing is considered as the fifth generation of computing after Mainframe, Personal Computers, Client-Server Computing, and the web. In a cloud computing environment, the organization running an application does not typically own the physical hardware used for the applications, instead, a subscriber copies files to the server over the Internet. Kalapatapu and Sarkar, (2017) also define cloud computing as a technology that allow users to use computation, storage and data access services. Cloud computing is about moving services, computation and data for cost and business advantage. By making data available in the cloud, it can be more easily accessed often and at a much lower cost, increasing its value by enabling opportunities for enhanced collaboration, integration, and analysis on a shared common platform.

Since cloud computing can fulfil virtually an information technology needs there is need of identifying four different types of cloud computing, namely: Infrastructure, Platform, Applications and Services. These classifications are necessary to indicate the role which a particular cloud service offers and how the services perform its role. Infrastructure is buying Space/ time on external servers; examples are Amazon, A3, and Bungee. A Platform on the other hand, is an existing software on which one can build its own application on, such as Facebook, while Application is a software accessed with a Web browser, examples are Google Docs Service is ready to use services accessed with a Web browser. Mell and Gance, (2011) define each of the services models thus: Software as a Service (SaaS) allows users to use the provider's applications on a cloud through a web browser, while Platform as a Service (PaaS) allows users to deploy the Cloud computing own applications on the provider's cloud infrastructure. Infrastructure as a Service (IaaS) allows users to control and manage computing resources.

Cloud computing can transform the way information systems are built and services delivered. This provides a library with an opportunity to extend its impact to its users anywhere, anytime. Anyone connected to the internet is probably using some type of cloud computing on a regular basis. Whether they are using Google's Gmail, organizing photos on Flickr or searching the Web with Bing, they are engaged in cloud computing environment. As Geoffery, (2013) points out, the interesting thing about cloud computing is that it did not start as a technology for the business enterprise but was driven by the public with services like Facebook and Flickr. Education today is becoming completely associated with Information Technology (IT) on content delivery, communication, and collaboration. The need for server, storage and software are highly demanding in the Universities and libraries. Whong, (2014) remarks that the primary purpose of university libraries is to support university functions of teaching, learning, research, and community services in ways consistent with and supportive of the institution's mission and goals. According to Tuncay, (2010) a library can benefit from using cloud computing technology by increasing computing performance, storage capacity, universal accessibility, and cost reduction. This can help the library in terms of fixed and maintenance cost reduction in the IT investment of both hardware and software as well as computer services. With cloud computing, libraries may prevent financial waste, better track staff activities and avert technological headaches such as computer viruses,

system crashes, and loss of data. When cloud computing is used in the library, this will likely have a significant impact on library services.

Many authors have defined awareness, Penfield and Yoon, (2012) define awareness as the knowledge and understanding of something, especially as it relates to its development and its uses among people. It is the ability to be conscious of something new around someone. Awareness is a pre-requisite to subsequent deployment and usage of cloud computing technology unless an individual uses it unknowingly. Awareness in this study has to do with librarian's knowledge and understanding towards cloud computing technology in the library. Afolabi, (2011) identifies lack of awareness as one of the issues which adversely militate against the deployment of cloud computing technologies in Nigeria. He indicates that lack of awareness of cloud computing among librarians and other library staff is high in Nigeria. Afolabi, (2011) further notes that more than 80% of the respondents surveyed during his research are completely unfamiliar with cloud computing. This implies that knowledge of cloud computing is very low among librarians in developing region like Nigeria. Alemayehu, (2010) indicates that regardless of librarians' years of practice, 31 out of 45 respondents have said that they didn't have any pre-knowledge of cloud computing. Therefore, awareness of cloud computing among librarians seems to be one major issue affecting the deployment of cloud computing in university libraries in South-south Nigeria. It is only when awareness is tackled in an empirical study that deployment may be enhanced. Oluwadamilare, (2012) identifies librarian's awareness as a factor that can affect the attitude towards deployment of cloud computing technologies in libraries. He illustrates that librarian's attitude towards deployment of cloud computing technology in the library depends on their awareness of cloud computing technology.

Attitudes are "inclinations and feelings, prejudices or bias, preconceived notions, ideas, fears and convictions about any specific topic" Erhahor, (2012). Popoola, (2008) states that an attitude "is a mental and neutral state of readiness organized through experience exerting a directive or dynamic influence upon individual's response to all objects or situations with which it is associated." Attitude, according to Lahey, (2011) is a belief that predisposes us to act and feel in certain ways. Kavanaugh and Solomon, (2013) agreed that attitudes are the positive or negative evaluation of people, objects, ideas or events. Attitudes are made up of emotional reactions, effective thoughts, beliefs (cognitive) and actions (behavioural). A person's attitude towards an issue or object can be judged from his behavior in a situation involving that object or issue. When a person has a positive attitude, the expected outcome is a pleasant feeling or result and vice versa. It may also be inferred from his agreement or disagreement with statements expressing beliefs, or feelings about objects. Attitude in this study has to do with librarian's reaction and behavior towards deployment of cloud computing technology in the library. According to Kim, (2007) librarians' disciplines, professional rank, gender and knowledge of the use of information technology may be a motivating or impeding factor affecting their contribution to cloud computing.

Furthermore, Erhahor (2012) opines that librarians' attitude towards a particular technology can determine the acceptance or rejection of such technology. This therefore explains that librarians' awareness and attitude may influence the deployment of cloud computing technologies in university libraries. This research consequently intends to contribute to remedying this observed knowledge gap through investigation, analyses, and documentation of the awareness and attitude of librarians towards the deployment of cloud computing technologies in university libraries in South-South Nigeria.

Statement of the Problem

The 21st century is experiencing a great revolution in terms of technological advancement. This has led to different institutions such as libraries adopting the use of modern technologies in carrying out library services. The numerous benefits associated with the use of such technologies have led to its widespread usage among librarians in different libraries. Cloud computing technology has been highly embraced by librarians in the Western world for rendering services. From the researcher's observation, there is a paucity of studies on librarians awareness and attitude towards the deployment of cloud computing technologies in university libraries. however, it has also shown that the deployment and utilization of cloud facilities are very low in the libraries understudy. This may be because of librarians' inadequate awareness and attitude towards the deployment of cloud computing technology. These observations are not final hence, this study was carried out to understand the actual situation and to proffer solutions where possible.

Objective of the Study

The main objective of this study is to investigate the awareness of, and attitude of librarians towards deployment of cloud computing technologies in university libraries in South-South Nigeria. However, the specific purpose is to:

1. find out whether librarians in university libraries in South-South Nigeria are aware of cloud computing in libraries.
2. determine the attitude of librarians towards deployment of cloud computing technologies in university libraries in South-South Nigeria.

LITERATURE REVIEW

Librarians' Awareness of Cloud Computing Technologies in Libraries

Awareness is a pre-requisite to deployment of cloud computing technologies in university libraries. Few research studies have been done on cloud computing. Abidi (2012) made a survey in four different universities of Faisalabad, Pakistan to find out the awareness and deployment level of cloud computing technologies in libraries. The Findings show that most of the participants are familiar with cloud computing but unfortunately some of them are not clear due to lack of resources. 91% of participants replied that they are aware of the different cloud computing technologies. In Dar es Salaam, Idhalama and Fidelis (2020) investigated librarians perspectives on cloud computing. The results revealed that librarians are enthusiastic about the usage of cloud computing solutions.

Sudhier, and Seena, (2018) carried out a survey to ascertain the awareness and use of cloud computing technologies among library professionals in the Kerala university library system in India. The survey was conducted using a questionnaire among 102 libraries professional employed in the central and departmental libraries of the University of Kerala. The study reveals that 42.16% of the library professionals did not have much idea about cloud computing technology. Analysis shows that Facebook and google apps like Gmail, Google Docs are the cloud computing technology used by the majority of the respondents. It is also worthy to note that the library professionals in Kerala University library are using cloud computing technology without being aware of using it. Awareness of cloud service models is relatively low among library professionals.

Web, OPAC, and journal discovery services are the area known to the respondents in applying cloud computing technology in library out of 102 respondents 14.71% of the library, 2 professionals in University of Kerala have average skill in using these technologies. The findings of the study show the need of providing training for the library professionals in handling technology in enhancing library services to its users.

However, some studies suggest evidence of poor level of awareness among librarians on the deployment of cloud computing technologies in libraries. Alemayehu, (2010) notes that it has been found that the level of awareness of librarians on the use of cloud computing in general in university libraries in Nigeria is very low. His findings reveal that librarians in university libraries in South-South Nigeria have a very confused understanding of 'cloud computing' concept. As such librarians have not fully engaged in using the cloud to perform some library services. Adewara, (2014) found that 82% of the librarians sampled knew 'nothing at all' or 'a little' about cloud computing.

Attitude of Librarians towards Deployment of Cloud Computing Technologies in Libraries

Attitudes are "inclinations and feelings, prejudices or bias, preconceived notions, ideas, fears and convictions about any specific topic" (Taiwo, 2008). As cited by Alemayehu, (2010) that "an attitude is a mental and neutral state of readiness organized through experience exerting a directive or dynamic influences upon individual's response to all objects or situations with which it is associated." This study explores the response and readiness of librarians to the deployment of cloud computing technologies. Attitudes represent the conceptual value of these technologies in the minds of the librarians, not the values of the technologies themselves. According to Spacey, (2013) positive attitudes are fundamental in deploying new technologies. The Technology Acceptance Model (TAM) is another way of looking at the relationship between attitude and behavior. Cherry (2021) describes attitude as a set of thoughts, beliefs, and behaviors directed toward a physical item, people, and object. Cherry also mentioned that the manifestation of attitudes might be positive, negative or ambiguous depending on the instance. Annie, (2014) also reports the finding of a study on librarian's attitude and perception of cloud computing technology in central university libraries of India using diffusion of innovation theory. The findings reveal that many librarians have a positive attitude towards the deployment and use of cloud computing technologies in the discharge of library services. Yuvaraj and Singh (2013) explain that librarians possess different attitudes towards the various open source cloud-based operating systems when using the various computing activities that are installed or downloaded on traditional computers. Attitude is a key driver to the deployment of technologies in libraries. (A-I-M-Jakaria, 2010; Omosor, 2014).

Johnson, (2011) observe that a major reason for the failure of the deployment of cloud computing technologies in libraries in developing countries is that librarians plan without sufficient knowledge of the purchase of hardware, software, and power supply requirements. Finlay, (2016) sought to establish a connection between current knowledge and personality types in measuring librarians' attitude toward the Internet services. The researchers hypothesized that those with more knowledge and more innovative personalities were likely to have a more positive attitude toward innovation such as the use of cloud computing technologies. The hypotheses about knowledge were supported, but the hypothesis regarding innovativeness was not supported. Janes, (2012) found that reference librarians with digital reference experience had more positive attitudes towards cloud computing usage than those who had no experience. Yaacob, (2012) investigated

the attitudes of librarians in government-supported special libraries in Malaysia and examined the relationship between the librarians' attitudes toward cloud computing and other variables. A significant relationship was found between attitudes and awareness of the potential of cloud technology, regency of attaining professional qualifications, and knowledge of information technologies. Librarians' level of knowledge of technology was a good predictor of attitudes toward the deployment of cloud computing technology in Libraries. Alzahrani, (2013) investigate the perceptions of 147 library professional and paraprofessional staff concerning information technology innovations such as cloud computing in university libraries in Saudi Arabia. He found a significant relationship among respondents' educational background, experience in using information technology, and their perceptions about cloud computing.

Benefits of Using Cloud Computing Technologies in Libraries

Libraries today have discovered the need to migrate from the print or paper form to a digital or web-based environment because of the numerous benefits associated with the used of cloud or web-based technologies. Reid, (2007) notes that the broad network access is a major benefit that libraries derived from using cloud computing technologies. Cloud Capabilities are available over the network and accessed through standard mechanisms that promote use by heterogeneous thin or thick client platforms such as mobile phones, laptops, and PDAs. Similarly, according to Kroski (2009), cloud services enable cheaper linkup since services may be retrieved from any device, at any time, regardless of location. Srivastava and Verma (2015), studied cloud computing for libraries. The findings reveal that security of library files, ease of access to file less security concern, efficiency as a virtual workspace, fast and efficient services require less investment, helps in the information storage and retrieval are among the gains of cloud services for libraries. Olson, (2014) identified resource pooling as one benefit libraries enjoy while using cloud computing technologies. The provider's computing resources are pooled together to serve multiple consumers using multiple-tenant model, with different physical and virtual resources dynamically assigned and reassigned according to consumer demand. The resources include among others storage, processing, memory, network bandwidth, virtual machines, and email services. The pooling together of the resource builds economies to scale. The use of cloud computing technologies in libraries leads to rapid elasticity. Cloud services can be rapidly and elastically provisioned, in some cases automatically, to quickly scale out and rapidly released to quickly scale in. To the consumer, the capabilities available for provisioning often appear to be unlimited and can be purchased in any quantity at any time (Onuoha, 2012). Gartner (2015), opined that cloud services is enables the reuse, preserve resources, and maximize utility by lowering cost and reinvesting available funds into efficient service delivery. Libraries can obtain measured services when using cloud computing technologies. The more you utilize the higher the bill. Just as utility companies sell power to subscribers, and telephone companies sell voice and data services, IT services such as network security management, data centre hosting or even departmental billing can now be easily delivered as a contractual service. In addition, the use of cloud computing technologies in libraries is advocated by the Cloud Security Alliance. It refers to the need for policy-driven enforcement, segmentation, isolation, governance, service levels, and chargeback/billing models for different consumer constituencies.

Krosk, (2009) notes that a major benefit in the deployment of cloud computing technologies in libraries is relatively low cost when compared to its functionality. Cloud computing reduces paperwork, lowers transaction costs, and minimizes investment in hardware

(and the resources to manage it). And as your business grows, you can accommodate by adding more server space. Cloud computing providers offer small and mid-size businesses access to more sophisticated technology at lower prices. Sharing IT resources with other companies reduces the cost of licensing software and buying servers. Yaacob, M. (2012). states that the use of cloud computing technologies facilitates easier collaboration. Since services in the cloud can be accessed anytime from any computer, it's easy to collaborate with employees in distant locations. Cloud computing enables the scale up or down of IT requirements of organizations quickly and efficiently, without hampering productivity. It cuts down the time involved in buying and setting up additional hardware, software & other necessary resources every time a new service is required. A lot of cost related affairs like administration and maintenance can be reduced when using cloud computing technologies in libraries. It also helps cut down unnecessary capital expenditure as one has to pay only for the duration the service was used for. This also ensures effective utilization. As in cloud computing the total IT infrastructure is as a pool of resources, it reduces wastage of resources to a great extent and improves utilization.

Beyond the basic components of hosted email services that have a strong consumer base, cloud computing can be utilized to address needs which are specific to libraries. This can be broken down into the three types of cloud services, replacing a library's onsite technology environment with an online version, and then situations where a library can create its own cloud infrastructure. These areas offer "benefits to information professionals: outsourced infrastructure, greater flexibility, reduced barriers to innovation, and lower start-up investments". The three main types of cloud services are Software as a Service (SaaS), Platform as a Service (PaaS), and Infrastructure as a Service (IaaS) (Kroski, 2009). First, cloud computing offers the ability of libraries to use online software to handle a task like a video chat through either Gmail video chat or through Skype. Both are free services though there is "little customization or control available with these applications" Libraries can create applications in an online environment. These environments allow a library to build, test, and deploy Web-based applications (Kroski, 2009). PaaS gives the library the freedom to explore development options without having to purchase and maintain the required infrastructure. This way, if a particular program turns out to not be popular or the best fit for a library, they are not stuck with unwanted hardware and software which they could not recoup the costs from. Third, a library no longer must purchase their own servers to host their content. By using IaaS, a library can purchase server space and computing power. One of the major players in this arena is Amazon which offers the Elastic Compute Cloud (EC2), which provides computing resources and Simple Storage Services (S3) for data storage.

Challenges Associated with Deployment of Cloud Computing Technology

There are numerous challenges associated with cloud computing, Shen and Tong (2010), feel that during the course of the deployment of cloud computing technology, security is a big concern due to the availability of different systems that maybe be working in multiple environments. Catteddu and Hoboken (2012), state that integrity, trust, privacy, expectations, control, regulations intellectual property management has put three issues that are critical which include technical, legal, and organizational policy.

Some challenges will be addressed if the benefit must be achieved:

- inadequate Power supply

- Data Privacy: sensitive and personal information are not be shared with third parties.
- Service Provider Reliability: this must be available at all time. The provider must be of high reputation.
- Poor internet connectivity

METHODOLOGY

The descriptive research method of the survey design was used in this study. There are 246 librarians in the study. This consists of librarians from universities across Nigeria six southern states. There are 246 libraries in the sample. The total enumeration sampling techniques was used by the researcher to survey all 246 librarians. Because the population is small and there is ample time and money to conduct the research, the entire population was chosen to be investigated. The questionnaire was used to collect information. Because of the descriptive nature of the research, the research questions were answered using frequencies. Also, statistical mean was used to answer some of the research questions and criterion mean is set at 2.50.

The researcher distributed 246 copies of the instrument and 190 (77%) copies were returned. The return rate of 77% is considered adequate for the research because the standard and the accepted response rate for most studies is 60% in social science and education (Dulle, Minish-Majanja, & Cloete, 2010).

Research Question One: To what extent are librarians in university libraries in South-South Nigeria aware of cloud computing technologies?

Table 1. Librarians' Awareness of Cloud Computing Technologies

Level of Librarians' Awareness	Mean
Cloud computing can be used to serve multiple users at the same time.	1.03
Cloud computing technology is used for storing information over a network.	1.02
Cloud computing can be accessed by any device connected to the internet e.g. mobile phones, laptops, and tablets.	1.05
It does not involve human interaction with the service provider.	1.35
Cloud computing technologies enables librarians to share information with other libraries over a network.	1.02
Information stored with cloud computing technologies can be accessed in any part of the world.	1.04
Cloud computing service is on demand service.	1.18

Cloud computing minimize investment in hardware.	1.15
Cloud computing facilitates collaboration among librarians.	1.03
Aggregate Mean	**1.09**
Criterion Mean	**1.50**

Table 1 shows that with an aggregate mean of 1.09 which is less than the criterion mean of 1.50, it can be concluded that the extent of awareness of cloud computing technologies among librarians in university libraries in South-South Nigeria is low.

Research Question Two: What is the attitude of librarians towards the deployment of cloud computing technologies in university libraries?

Table 2. Attitude of Librarians Towards Deployment Cloud Computing Technologies

Attitude statement	Mean	Remarks
I will deploy cloud because of its ease of use.	3.35	Positive
I like to use cloud computing because it will enable the Storage and preservation of information materials.	3.37	Positive
I feel that librarians with digital reference experience may have good attitude towards the deployment of cloud services.	3.37	Positive
I perceive that librarians knowledge of technology can be a good predictor of incorporating cloud service.	3.37	Positive
I feel I do not possess enough skills required for the development and maintenance of cloud computing.	2.46	Negative
I feel that cloud computing is beyond the financial reach of most libraries, hence no need to deploy it.	2.41	Negative
I feel that deployment of cloud computing services in libraries will make certain services easy.	3.42	Positive

Table 2 shows that with an aggregate mean of 3.11, is greater than the criterion mean of 2.50, demonstrating that librarians have a positive attitude towards the deployment of cloud computing technologies in university libraries. This is so because almost all constructs statistical mean as well as the aggregate mean were above 2.50 except for lack the necessary expertise for the development and upkeep of cloud service (=2.46) and cloud is above the financial reach pf most libraries hence it cannot be considered (mean=2.41).

Research Question Three: What is the perceived benefits of using cloud computing technologies in university libraries in South-South Nigeria?

Table 3. Benefits of Deploying Cloud Services in Libraries

Benefits of Cloud Computing	Agree No.	%	Disagree No.	%	Total No.	%
It facilitates easy retrieval of information.	188	98.9	2	1.1	190	100
It facilitates wider access to information.	186	97.6	4	2.1	190	100
Usage of cloud services and enables the high the high storage of library materials.	187	98.4	3	1.6	190	100
It facilitates easy migration from one software to another.	162	85.3	28	14.7	190	100
It facilitates interlibrary loan and resource sharing.	177	93.2	13	6.8	190	100
It increases efficiency.	175	92.1	15	7.9	190	100
Reduces the quality of work of the information professionals	159	83.7	31	16.3	190	100
Provides keywords and easy search for information	176	92.6	14	7.4	190	100

Table 3 shows that easy retrieval of information 188(98.9%), high storage of library materials 187(98.4%), wider information accessibility 186(97.6%), interlibrary loan and resources sharing 177(93.2%), and provision of keyword easy search for information 176(92.6%) are some of the perceived benefits of using cloud services. Therefore, it can be decided that the benefits of utilizing cloud tools amongst the librarians in university libraries in South-South Nigeria are to

facilitate easy retrieval of information, to enable high storage of library materials, to facilitate wider information accessibility, facilitate interlibrary loan and resource sharing and to the provision of keyword and easy search for information.

Table 4

Challenges Encountered the Use of Cloud Computing Technologies by Librarians

Challenge	Agree No.	%	Disagree No.	%	Total No.	%
Poor internet connectivity is a limitation in using cloud services.	164	86.3	26	13.7	190	100
Intellectual property mismanagement	141	74.2	49	25.8	190	100
Inadequate power supply	162	85.3	28	14.7	190	100
Data integrity	152	80	38	20	190	100

Table 4: reveals that internet connectivity 164(86.3%), power failure 162(85.3%), data integrity 152(80.0%), intellectual property mismanagement 142(74.2%). Conclusively, the drawbacks faced are internet connectivity, power failure, and data integrity.

DISCUSSION

From the analysis collected for this study, the first findings of the study showed that librarians' awareness of cloud computing technology among librarians in university libraries in South-South Nigeria is low. This may be because of technological advancement presently influencing librarians as a profession. This finding is in line with Swan & Brown (2015) found that many academic librarians are not aware of the concept of cloud computing technologies in university libraries.

The second finding of this study shows that librarians' attitude towards deployment of cloud computing technology is high. This finding is in line with Annie, (2014) who found that many librarians have positive attitude towards the deployment and use of cloud computing technologies in the discharge of library services.

CONCLUSION

In the era of technology, it is inevitable for libraries to keep pace with the changing need of users and provide them with the best service using information communication technology (ICT). Cloud

computing is relatively new in the field of librarianship in South-South Nigeria and enough awareness is still absent. As such it is time for librarians to concentrate on providing proactive services and move from the general traditional service to personalize information services to users for the benefits of university community. For effective and efficient deployment of cloud computing, there is need for advanced training for librarians in university libraries in South-South Nigeria. Hopefully, libraries could focus more directly on services and materials for patrons if their computer hardware and software are handled by information technology (IT) companies of cloud. One-way university libraries can respond and benefit to this emerging trend is to make the libraries easily accessible via-web enabled devices. University libraries should make conscious choices about what they want to offer and by this, university can become round the-clock service.

RECOMMENDATION

The Researcher recommends that:

1. University/Library management should ensure there is swift internet access and constant power supply in university libraries to enhance the deployment of cloud computing services. This will attract more patrons the library.
2. University Library management should organize workshops on the awareness of cloud computing and its application to library services.
3. Sufficient fund, training and re-training of librarians should be made available by the appropriate authorities for the development and application of technology services in university libraries.

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