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ADOPTION OF CLOUD COMPUTING IN HIGHER EDUCATION INSTITUTION IN NIGERIA

Jibril Sahban Ibrahim
(PhD student)
Othman Yeop Abdullah Graduate School of Business,
Universiti Utara Malaysia 06010 UUM Sintok
Kedah Darnl Aman

Dr. Arafan Shahzad
Othman Yeop Abdullah Graduate School of Business,
Universiti Utara Malaysia 06010 UUM Sintok
Kedah Darnl Aman

ABSTRACT

The study is to examine the adoption of cloud in the higher educational institution in Nigeria. The nine variants were used to investigate the adoption of cloud computing in order to make a decision by HEIs management in Nigeria to perceive the usefulness to adopt cloud as well as the benefit and significance on cloud computing. The nine factors were examined in this study there are: relative advantage, compatibility, complexity, trailibility, top management, firm size, amount of information, pressure coercive and quality of internet connection. This study was adopted innovation diffusion theory. Technological, organizational and environmental (TOE) to explain the adoption of cloud computing in HEIs in Nigeria. Quantitative method was used to collect data by distributing the questionnaire to 127 people from higher educational institutions in Nigeria. The finding in this study was used smartPLS to analyze the date which seven variables were supported and the three were not support to explain the adoption of cloud computing in higher education in Nigeria.
Keyword: cloud computing, Technological, organizational and environmental (TOE), innovation diffusion theory (IDT)

INTRODUCTION

Technology is everywhere in today's life, world is changing and transform with new development and innovation of technology. Our life is used to technology to perceive new thing. There is a new technology innovation, which is going on around the world which can make changes to your life and feel comfortable with it. Among of new innovative technology that is increasing in use around the world is cloud computing. Cloud computing is a metaphor used to describe networks (Vouk 2008). The term used to explain cloud computing means host everything that relating to delivery service over the internet. It is among the future generation which categorized into three platforms they are serviced of network, software and hardware that

can spread out its usefulness to the user in anywhere they demand to (Masud, Yong, & Huang 2012).

In this study, cloud computing will adopt to a higher educational institution in Nigeria, to explore how it will bring changes to some problem that were faced in Nigeria higher institution which can transform the way education instructs in Nigeria (Ogbu & Lawal, 2013). Federal ministry of education was implemented any course that relate to ICT should be taken by every student in Higher Education Institutions (HEIs) in Nigeria. Also, most of Nigeria HEIs has data center or computer center that they are store information such as information about student, staff and others. Adoption of cloud computing in HEIs in Nigeria can reduce cost of ICT infrastructures and power supply issue that they are facing in Nigeria due to that, HEIs they can use the cloud as their ICT infrastructure which they can benefit fast accessibility of the cloud (Mircea & Andreescu, 2011).

Adoption of cloud computing is the way of change educational dimension system and service delivered to the student (Matt, 2010). HEIs can decrease the cost of infrastructures, updating of application and equipment, pay for services and training and hiring staff for new equipment which they are running it by themselves. Cloud computing adoption is a new innovation of every user to use and pay for what you used only. Cloud computing can integrate all the department and unit in HEIs together as one platform which they don't need to send or transfer date or information from one place to another. All the department and unit can access every information either from their personal computer, mobile phone and other equipments as integrate them on the cloud (Rupesh & Gaurav, 2011).

The federal government of Nigeria creates a division on technology, which is under National Information Technology Agency (NITDA) with the goal "*to make Nigeria an Information Technology capable country in Africa and a key player in the Information society of the year 2005, using IT as the engine for sustainable development and global competitiveness*" this is used for educational competition. NITDA explain the barriers and obstacles which HEIs were faced as listed, inadequate ICT policy, lack of equipment and good infrastructure and services. National Information Technology Agency (NITDA) also states that national Internet backbone to secure a date, lack of good education over the internet, the lack of updates software and services, low-performance servers, storage and power. Indicate of good infrastructure can lead to lack to access of information and student to gain more knowledge, lack of fund and full support from the government is the threat to HEIs to provide good service and facility to student and lecturer to do more research the purpose of NITDA was to transform the HEIs in term of ICT in every institution in Nigeria, from their outcome they want Nigeria to have better technology which can provide solution to ICT issue that they are facing in HEIs in Nigeria. Cloud computing adoption as new technological innovation to Nigeria content would provide a solution to every single problem that HEIs were faced in term of ICT or technology infrastructures, application, low cost and avoidance fees for services and facilities (Akin, Matthew, & Comfort, 2014).

This study will focus on what need to be done on cloud computing to HEIs in Nigeria need to do more research and explore more about cloud computing. There is a need to do about cloud computing in HEIS on management's intention to adopt cloud computing, competitor pressure from other institutions or from student and staff, to make move to adopt cloud computing in any institution in Nigeria, management and governing cancel cloud accept the idea of cloud, are they willing to give trial to use it and also to accept the level of trust in cloud computing. Do they

have enough of information and knowledge they have on adoption of cloud computing these are among area that need to do research on HEIs in Nigeria.

This study will try to carry out in some area which is new to what has been done, but it will focus on what need to be done on adoption of cloud computing in HEIs in Nigeria. In this study some theory and model will adopted to explore the adoption of cloud in Nigeria such as technology, organization environment (TOE) theory adopt to this study. Technology adoption may beyond individual as it needs more resources to explore and test before adoption can be done. However, investigation can be made by management in HEIs to make the decision to adopt cloud computing services into their system.

REVIEWS OF CLOUD COMPUTING

Cloud is a comparatively new innovation, technology deemed to have revolutionized technological service provisioning in the last years. The National Institute of Standards and Technology (NIST) states, three service models: Infrastructure-As-A-Service (IaaS), Platform-As-A-Service (PaaS) and Software-As-A-Service (SaaS) and capturing five essential characteristics; on-demand self-service, broad network access, resource pooling, rapid elasticity, measured service (Liu, et al., 2011).

As such, adoption research on cloud computing has been some degree tested by the scholars, researchers and academic community. Introductory experimental efforts to comprehend cloud computing have concentrated mainly on the advantages and the disadvantages of the technology as such (Janssen and Joha, 2011; Köhler, et al., 2010; Khajeh-Hosseini, et al., 2010). Recently, some observational studies attempted to comprehend adoption of cloud by considering outside influence and their effect on the adoption (Morgan & Conboy, 2013; Alshamaila, et al., 2013)

Companies of various sizes, areas, and businesses move to cloud as an approach to lessen irregularity and expenses connected with traditional IT approaches, 72 percent of administrators in the IBM overview showed their organizations had embraced or considerably actualized of cloud and 90 percent would receive cloud computing in the following three years (Berman et al., 2011). More than 31 percent of respondents reviewed referred to the cloud's capacity to lessen altered IT expenses and movement to a "pay as you go" expense structure as a top advantage. Furthermore, North Bridge Venture Partners that surveyed 785 individuals or respondents at 39 prominent undertaking innovation technologies discovered 40 percent of respondents were conveying open cloud and 36 percent were running with a cross variety of methodologies (Nusca, 2012).

Berman et al., (2011) highlighted that cloud along with the ability to drive business advancement can engage six conceivably, amusing, and changing the business empowering such as: cost, adaptability, business flexibility, market feasibility, covered irregularity, connection driven variability, and lastly environment integration. Organizations or companies are recommended to decide on how they can utilize cloud services in order to advance reasonable and favorable circumstances with a specific goal that will change their operations, quality chains, and client connections (Voas & Zang, 2009).

According to Ross (2010) demonstrates early hesitance or minimal investment and swift regarding the issue of Cloud Computing in decision making period, with the development of large portions of the fundamental innovations toward cloud computing, it has shown the increase

to growth in use by the client. Various firms were set up or move with changes to the new technology wave. Later on when the standard of cloud computing is no longer met with their users or client, organizations, scholastic associations are meeting up in characterizing norms (Sultan, 2011). The measures will cover territories, for example, security, interoperability, administration and checking (Mell and Grance, 2011)

Day of Day, cloud computing adoption is increases. Multitudes of scholars in academia as well as organizations are bringing to cloud computing innovations to the education as a new technology system, guaranteeing and carrying more adaptable and dependable to institution system. Numerous educational institutions has been recognized the potential advantages of adoption of cloud computing for financial reasons, and in addition new way to perceive new knowledge sharing and information delivery (Mircea and Andreescu 2011). Various studies were directed to research the profits of utilizing cloud computing in higher education institution have great impact to perceived to use it (Pocatilu, Alecu and Vetrici, 2009: Bora and Ahmed, 2013) and to propose answers for cloud computing based educational service.

Amrit Shankar Dutta has given educational cloud construction modeling and utilization of cloud computing in education. Researcher has additionally given numerous samples through the world where instructive establishments have taken activities in cloud computing to better serve their faculties, students and researchers. Researcher has likewise recommended the advantages of cloud usage in education. Change the procedure till higher technical Education accomplished their objective.

Noor et, al (2010) has designed a proposal for Bangladesh education system on cloud computing architecture they have examined the effect of their proposed construction modeling on current education system of Bangladesh.

Saju (2012) has been completed an essential research to indicate cloud computing can be introduced in the education with enhanced instructing, deftness and have a cost-effective infrastructure which can acquire a revolution the field of education. It additionally tries to draw out its advantages and limitations.

Abdulsalam et al., (2011) state the cloud computing is an answer of ICT in higher education and revel higher institutions may advantage enormously by harnessing the cloud computing, including expense cutting and additionally all the above sorts of cloud. They additionally investigate the utilization of cloud computing in education in Nigeria, issues with ICT in Nigeria and touches upon some aimed advantages and also expected restrictions of cloud computing. On-interest administrations can resonate emphatically with the present college tight spending plans across the country over and different parts of the world.

Pushparani Devi et. al. (2014) has considered on present situation of ICT in instructor education for cloud computing. They have added to a proposed theoretical system model of cloud computing for higher educator preparing establishment in Indian environment and talked about the implementation processed.

1 Theoretical Background

As indicated by the theory of diffusion of innovation, is to see an idea as innovation, or organization perceived innovation as is new to an which is considering its adoption technology (Rogers, 1995). Diffusion of innovation happens when the organization is perceived idea is spread through specific channels (e.g. broad communications or mass-media) after some time. In

the wake of getting to be mindful of the advancement and increasing beginning information about it, organizations are relied upon to build up an attitude towards it (great or unfavorable) and to decide whether to adopt or reject it (Rogers, 1995). At this stage, leaders are searching for reasons why the innovation needs to be adopted. As an adoption technology as it includes an abnormal state of instability, chiefs look for data or implies that could help them in assessing the innovation which increase their comprehension knowledge about the technology's potential outcomes.

According Rogers (1995)'s definition of DOI as any thought, practice, which perceived as seen as new to us either an individual or other unit of organization, association or group. Very nearly the majority of the new ideas is technology innovations, and technology development changes are regularly utilized as equivalent words. The utilization of new innovation of technology is the process of forming the instrumental activity that decreases the doubt in the reason impact connections included in accomplishing a real result.

Rogers (1995) recognized five imperative levels of development that impact the choice to make decisions. The following are five properties are legitimate for individuals as well as groups, organization, education, health care the appropriation of innovation. The five qualities of innovations are relative advantage, compatibility, complexity, trialability, and observability.

1) Relative playing point: the degree to which a development is seen as better than its ancestor;
2) Compatibility - the degree to which a development is seen steady with the current values, needs and encounters of potential adopters;
3) Complexity - the degree to which advancement is seen as being hard to utilize or get it;
4) Trialability - the degree to which advancement may be tried different things with before the potential reception;
5) Observability - the degree to which the consequences of a development are unmistakable to other individuals. As indicated by Rogers, there are distinctive achievement rates of reception. Reception is a choice to make full utilization of a development as the best approach accessible.

3 TEO THEORY

Tornatzky and Fleischer (1990) were designed and introduced TEO theory which is Technology-Organizational-Environment (TOE) framework in order to expand THE diffusion of innovation model further than the technological context by introduce the organizational and environmental contexts of the innovation adoption (Tornatzky & Fleischer, 1990).

Tornatzky and Fleischer (1990) is an analysis of the adoption inside organizations, to decode the choice of managing perception to move to cloud computing, the Technology, Organizational and Environmental (TEO) outline selection model is continuously considered. The model was initially created any new product or items which perceived as new innovation or which can be adopted to any organization as well as institutions (Tornatzky et al, 1990). Various and series of studies has been done by adopting the innovation in information technology, which has been explained by expertise, academician and professional to investigate the adoption of cloud computing in a various aspect that can be valuable to any organization system.

A percentage of the studies which has been perceived and utilized as well as advanced studies on the TOE model by Oliveira & Martin (2011). Many studies have developed change to suit the connection of the particular study to the transformation to adopt the new technology. Tomatzky and Fleischer (1990) propose that the innovation which move at the basic management level

may be affected by components that relate to those connections in making decision to adopt cloud computing.

As indicated by (Low & Chen, 2011; Jianyuan & Zhaofang, 2009: TOE structure has three setting gatherings on, which researches have done on cloud computing in educational institution.

The technological context identifies with the innovations on the system to be accessible to an organization. Its fundamental center shows the technology attributes and element themselves, which may have an impact on the process to adopt cloud computing (Tornatzky and Fleischer, 1990; Chau and Tam, 1997). Meanwhile, if Nigeria higher education institution can see the benefit context of technology innovation to adopt cloud computing into their system either direct or indirect can show them many ways to upgrade Nigeria education same as developed countries.

The organizational context alludes to the few develops seeing the management, for example, the firm size, scope, centralization, formalization and complexity of the administrative structure and the nature of the human resources (Kuan & Chow, 2000). Some research has been done on how bigger organizations are regularly all the more overall outfitted with assets and framework to encourage advancement appropriation, while little firms may experience the effects of recourse on destitution (Thong, 1999). In Iacovou et al'1995) on embracing in fewer firms, the expense of the venture and absence of IT skill are two real concerns among management parts.

Environmental context means the rivals and government policy on organizations, industry, institutional and firm to factors external to the organization that may present opportunities or constraints for innovations Tornatzky & Fleischer, 1990. Management controls their organizations inside an environmental context which give way to see the advantage and barriers. Despite the fact that the outside environment can furnish organization with data which relevant to them in order to make a decision on adoption of cloud, assets and innovation, it has regulations and limitations on the stream of capital and data (Damanpour & Schneider, 2006). Plus, the business environment in which the business runs as a key value. Rivalry improves the probability of making changes to their institution by perceived innovation as an opportunity to their system (Thong, 1999) Normally, element of environment which is influencing innovation in new technology is typically seen as focused on technology adoption (Iacovou et al., 1995) which is respected one basic variable for innovation on cloud computing in many institutions.

RESEARCH METHODOLOGY

Research method is the way and the process of carrying out the investigation about the problem and the way the problem can be solved. According to Saunders and Thornhill (2003) state that research is *the theory of methods* and it is the route in which one comprehends the object of enquiry. According to Bryman (2003) quantitative approach is claimed to be infused with positivism which is an approach to the study of people which commends the application of the scientific method.

1 Population and Sampling

According to Sekaran (2006) populace is the way of select individual or group of people that have homogeneous attributes, while sampling is a subset of the population is which element is selected from the total number of population. Bryman and Bell (2003) state that sampling is the

element in all total of population, which is select some certain number as sampling to represent the whole total number of selected for the research process. However, warn that the sample size and selection are major concerns for researchers when designing and planning the research design (De Vaus, 1996). Non probability sampling is used as research select Convenience *sampling* According to Schofield (1996) state that the researchers see opportune method, as the respondent can be easily get or find to participate in the research in order to answer the questionnaire. According to Hair *et al.* (2010) state that *Judgment sampling* is the way to choose the respondent that has experience or knowledge to participate in the research are chosen based on their experienced researcher‘s conviction that they will meet the requirements of the study. In this study. From the annual higher educational statistic in Nigeria state that 320 accredited institutions in Nigeria as categorized them university, polytechnics and college of education as well as divided into federal, state and private (shu'ara, 2010). The sample size constituted of 127 respondents which they dean of faculty, School Management Or Board, V.C, Rector, Provost, Dean, HOD, Bursar, Head Of Academic and IT Department or Computer Centre institution OR anyone that had a unit or involve in management meeting were participating in this survey. This study will apply the Green (1991) sample size formula that the number of predictors will determine the sample size. This study has four predictors and the small size of the sample is 599, medium size is 84 while 39 are large according to Green (1991). In this chapter, the researcher will use 127 samples in order to make this study to be stronger. Hair et al (2010) proposes that a sample with a size of lower than 100 can be considered small respondent to participate in the study.

1 Data collection

Data collection is the method used to obtain information on the topic of study. According to Sekaran (2006) there are various means that can be used to acquire the data. This study was adapted from studies Such as Previous research (Vishwanath & Goldhaber, 2003; Sung, 2012; Igbaria & Iivari, 199; and Alalak & Alnawas, 2011) to measure the respondent about adopting cloud computing to their education system. Data was collected from the sampling choosing in this study. A questionnaire was distributed to the respondent by meeting them face to face to give them a questionnaire. The distribution of questionnaire was taken 3week and the collection took 2 weeks to return the questionnaire. 200 questionnaires were distributed and 127 were returned while the remaining questionnaire was uncollected. A 5-point Likert scale ranging from ‘strongly agree’ to ‘strongly disagree’ was used to measure the responses.

2 Data Analysis

In this section, two computer software packages were used to analyze the data, SPSS 20.was used to analyze the general information about the demography of the respondents such as gender, education and so on. The smarPLS 2.3 was used to analyze the questions relating to variable to test the content validity, convergent validity and discriminant validity check how strong the data is significance to explain this study.

Table 1 Demography

Items	AOI	CA	CP3	PC	QC	RV	S1	TM	TR	cloud Computing
AOI1	**0.859**	-0.004	0.320	-0.178	0.012	-0.094	-0.121	0.398	0.535	-0.099
AOI2	**0.821**	-0.073	0.391	-0.184	-0.001	-0.104	-0.118	0.482	0.456	-0.112
AOI3	**0.826**	-0.068	0.324	-0.129	-0.093	-0.056	-0.128	0.439	0.489	-0.071
AOI4	**0.829**	-0.085	0.416	-0.192	-0.115	-0.117	-0.089	0.529	0.471	-0.089
AOI5	**0.834**	-0.165	0.280	-0.185	-0.149	-0.131	-0.068	0.260	0.589	-0.169
CA1	-0.038	**0.933**	-0.161	0.547	0.607	0.585	0.612	0.203	0.032	0.648
CA2	-0.155	**0.852**	0.030	0.458	0.549	0.587	0.437	0.090	-0.051	0.494
CA3	-0.117	**0.927**	-0.220	0.548	0.616	0.580	0.564	0.068	-0.062	0.634
CP1	0.231	-0.009	**0.631**	-0.193	-0.118	-0.199	-0.140	0.087	-0.040	-0.110
CP3	0.395	-0.167	**0.948**	-0.362	-0.119	-0.220	-0.358	0.382	0.253	-0.269
PC1	-0.196	0.566	-0.298	**0.938**	0.627	0.773	0.755	0.013	-0.147	0.829
PC2	-0.243	0.556	-0.263	**0.930**	0.549	0.721	0.724	0.104	-0.143	0.821
PC4	-0.219	0.538	-0.455	**0.964**	0.591	0.770	0.732	0.006	-0.203	0.840
PC5	-0.236	0.519	-0.375	**0.927**	0.588	0.762	0.726	0.118	-0.160	0.810
PC6	-0.102	0.517	-0.320	**0.930**	0.651	0.776	0.736	0.059	-0.102	0.812
QC1	-0.069	0.569	-0.189	0.616	**0.864**	0.517	0.422	0.082	-0.131	0.503
QC2	0.058	0.537	-0.002	0.488	**0.848**	0.355	0.371	0.031	-0.104	0.406
QC3	-0.052	0.605	-0.100	0.561	**0.907**	0.473	0.436	0.004	-0.085	0.464
QC4	-0.097	0.556	-0.238	0.507	**0.882**	0.438	0.427	0.183	-0.145	0.396
QC5	-0.097	0.623	-0.029	0.622	**0.902**	0.487	0.446	0.065	-0.115	0.515
QC6	-0.143	0.545	-0.224	0.587	**0.919**	0.475	0.410	0.127	-0.190	0.466
QC7	-0.148	0.529	-0.001	0.475	**0.853**	0.479	0.391	0.019	-0.195	0.390
QC8	-0.088	0.561	-0.125	0.531	**0.835**	0.460	0.398	0.039	-0.091	0.414
QC9	-0.076	0.596	-0.170	0.603	**0.840**	0.454	0.414	0.009	-0.109	0.480
RV1	-0.045	0.521	-0.241	0.671	0.415	**0.859**	0.727	0.266	-0.008	0.776
RV2	-0.120	0.557	-0.192	0.754	0.433	**0.906**	0.738	0.173	-0.152	0.845
RV3	-0.117	0.627	-0.271	0.758	0.553	**0.931**	0.793	0.094	-0.115	0.858
RV4	-0.144	0.563	-0.241	0.702	0.494	**0.910**	0.674	0.046	-0.126	0.737
RV5	-0.147	0.619	-0.180	0.756	0.484	**0.892**	0.743	0.128	-0.102	0.815
S1	-0.084	0.585	-0.291	0.762	0.415	0.781	**0.953**	0.171	-0.028	0.860
S2	-0.095	0.580	-0.343	0.710	0.453	0.760	**0.925**	0.105	-0.079	0.800
S3	-0.125	0.570	-0.276	0.694	0.407	0.747	**0.914**	0.097	-0.081	0.787
S4S	-0.085	0.511	-0.399	0.710	0.428	0.737	**0.913**	0.017	-0.097	0.769
S5	-0.163	0.516	-0.277	0.726	0.482	0.738	**0.893**	0.032	-0.073	0.785
TM1	0.419	0.109	0.390	0.016	-0.022	0.103	0.095	**0.912**	0.345	0.123
TM2	0.548	0.037	0.226	-0.043	-0.079	0.060	-0.052	**0.828**	0.444	0.045

TM3	0.452	0.133	0.310	0.052	-0.027	0.142	0.062	**0.932**	0.375	0.142
TM4	0.461	0.026	0.189	-0.090	-0.043	-0.006	-0.011	**0.684**	0.473	-0.026
TM5	0.373	-0.032	0.328	-0.111	-0.121	-0.033	-0.072	**0.683**	0.413	-0.057
TM6	0.376	-0.005	0.247	-0.013	0.001	0.068	0.036	**0.753**	0.270	0.041
TR1	0.606	-0.071	0.184	-0.168	-0.170	-0.136	-0.097	0.286	**0.945**	-0.128
TR2	0.482	-0.030	0.113	-0.042	-0.031	-0.027	0.064	0.337	**0.767**	-0.039
TR3	0.494	0.069	0.190	-0.155	-0.114	-0.074	-0.090	0.362	**0.855**	-0.068
dv1	-0.122	0.645	-0.250	0.806	0.459	0.834	0.821	0.120	-0.093	**0.908**
dv2	-0.204	0.606	-0.165	0.780	0.432	0.761	0.781	0.152	-0.125	**0.911**
dv3	-0.032	0.616	-0.210	0.769	0.435	0.825	0.801	0.219	-0.008	**0.939**
dv4	-0.162	0.606	-0.313	0.812	0.474	0.798	0.779	0.094	-0.146	**0.933**
dv5	-0.176	0.599	-0.249	0.817	0.495	0.832	0.796	0.206	-0.109	**0.929**
dv6	-0.056	0.447	-0.202	0.701	0.483	0.752	0.666	0.100	-0.100	**0.776**

THE CONTENT VALIDITY

Measuring of contending validity is the level which items were created or to meant and evaluate, construct should be suitably measure the concept or purpose that intended or inserted to measure (Hair et al., 2010). To be more specific, the items are designed to intended for the purpose of measuring a construct as it must load higher on their separate construct than their loadings on different constructs develops. Obviously, the outcomes demonstrated the construct validity of the measures utilized as showed as a part of these two ways. Firstly, the item should be loaded high o on their individual constructs when contrasted with other constructs. Besides, items should be significantly loading on their separate develops affirming the Construct Validity identified with the measures rehearsed in this study as depicted in Table 4.1 (Chow and Chan, 2008). Table 4.1. Loading and Cross-Loadings of the items

Table 4.1

Amount of information (AOI)	Pressure competitor (PC)	firm Size (S)
Compatibility (CA)	Quality of internet connection.(QC)	Top management (TM)
Complexity (CP)	Relative advantage.(RA)	Trialability (TR)
Cloud computing (DV)		

1 The Convergent Validity of the Measures

Convergent validity is the level which converges is set of variables which can measure specific idea or element (Hair et al., 2010). The process of building convergent validity, numerous criteria specifically the element loadings, composite reliability (CR) as well as average variance extracted (AVE) (AVE) as utilized all the while as proposed via Hair et al. (2010). Procedure of composite reliability is inspecting and examines the values as shown below in Table 6.12. The composite reliability values rated 0.66 to 0.91 which surpasses the prescribed estimation of 0.7 (Fornell & Larcker, 1981; Hair et al., 2010). These are shown good results support convergent validity. In this study, the value of (AVE) is rated 0.5 and 0.7 demonstrating a construct validity were on a decent level of measures utilized construct validity (Barclay et al., 1995).

Construct	Item	Loadings	Cronbachs Alpha	AVE	CR
Amount of information	**AOI1**	**0.8586**	0.894	0.695	0.919
	AOI2	**0.821**			
	AOI3	**0.8257**			
	AOI4	**0.8286**			
	AOI5	**0.8339**			
Compatibility	**CA1**	**0.9327**	0.8895	0.819	0.931
	CA2	**0.8524**			
	CA3	**0.9274**			
complexity	**CP1**	**0.631**	0.5199	0.648	0.780
	CP3	**0.948**			
pressure competitor	**PC1**	**0.9375**	0.9656	0.879	0.973
	PC2	**0.9295**			
	PC4	**0.9642**			
	PC5	**0.9266**			
	PC6	**0.9303**			
Quality of internet connection	**QC1**	**0.8636**	0.9607	0.761	0.966
	QC2	**0.8478**			
	QC3	**0.9067**			
	QC4	**0.8817**			
	QC5	**0.9016**			
	QC6	**0.9193**			
	QC7	**0.853**			
	QC8	**0.8347**			
	QC9	**0.84**			
Relative advantage	**RV1**	**0.859**	0.941	0.809	0.955
	RV2	**0.9061**			
	RV3	**0.9306**			
	RV4	**0.9095**			
	RV5	**0.8916**			
size	**S1**	**0.9533**	0.9544	0.846	0.965
	S2	**0.9253**			
	S3	**0.9135**			
	S4	**0.9133**			
	S5	**0.8929**			
Top management	**TM1**	**0.9118**	0.9312	0.648	0.916
	TM2	**0.8279**			
	TM3	**0.9322**			
	TM4	**0.6841**			

	TM5	**0.6828**			
	TM6	**0.7529**			
Trialability	**TR1**	**0.9446**	0.8422	0.737	0.893
	TR2	**0.7671**			
	TR3	**0.8551**			
Cloud computing	**dv1**	**0.9079**	0.9465	0.795	0.959
	dv2	**0.9111**			
	dv3	**0.9393**			
	dv4	**0.9329**			
	dv5	**0.9295**			
	dv6	**0.776**			

Table 2 Convergence Validility

a: CR = (Σ factor loading)2 / {(Σ factor loading)2) + Σ (variance of error)}
b: AVE = Σ (factor loading)2 / (Σ (factor loading)2 + Σ (variance of error)}

2 The Discriminant Validity of the Measures

The construct validity is supported external model, discriminant validity is important to secure or setup. The hypotheses were tested by the way of analysis step was obligatory. The level of measuring discriminant validity is demonstrated on stage, which items were distinguished between each other on construct. Basically, items were demonstrating how it was utilized distinctively through or which constructs did not lack. Subsequently, constructs are related, idea to measure is different. This significance was obviously clarified by Compeau et al., (1999) whereas, he reasoned when measures are set up for discriminant validity to established item to correlate, it implies that the imparted change between from one construct to its measures ought to be more prominent than the fluctuation imparted among unique constructs. In this present study, analysis of discriminant validity of measures was supported with the Fornell and Larcker (1981) utilizing and applying the strategy and method.
Below table Table 4.3 illustrates how average variance extracted (AVE) square root is to put construct inlay on sloped elements of how the matrix were correlated. Elements were slop higher than the others on the same line as well as a column on the way they were placed; discriminant validity is affirmed of the external model. Construct have been made to external model, this show how valid and reliable is expected to acquire good results which relating to test hypotheses.

	AOI	**CA**	**CP3**	**TM**	**PC**	**QC**	**RV**	**S1**	**TR**	**cloud Computing**
AOI	**0.834**									
CA	-0.109	**0.905**								
CP3	0.406	-0.142	**0.805**							
TM	0.479	0.136	0.346	**0.805**						

PC	-0.212	0.575	-0.365	0.061	**0.938**					
QC	-0.091	0.654	-0.139	-0.008	0.641	**0.873**				
RV	-0.127	0.643	-0.250	0.158	0.811	0.529	**0.900**			
S1	-0.119	0.601	-0.344	0.094	0.784	0.474	0.819	**0.920**		
TR	0.622	-0.027	0.196	0.355	-0.161	-0.147	-0.113	-0.077	**0.859**	
cloud Computing	-0.142	0.661	-0.260	0.168	0.877	0.519	0.899	0.871	-0.108	**0.892**

Table 4.3 Amount of information (AOI) Pressure cometittor (PC) University Size (S)
Compatability(CA) Quality of internet connection.(QC) Top management (TH)
Complexity (CP) Relative advantage.(RA) Trialability (TR)
Cloud computing (DV)

3 The Prediction Quality of the Model

Review of multivariate analysis, R2 is showing a record of endogenous variable which can change a specific variable as clarified from predictor variables. Thusly, the extent of R2 was viewed as endogenous variables which model was as an indicator force on predictive. Notwithstanding, Particularly, model which is based on predictive importance or relevance were analyzed from Stone-Geisser non-parametric test (Chin, 1998; Fornell & Cha, 1994; Geisser, 1975; Stone, 1975), blow table is outlined showed correlation with redundancy (cross-validated) with adoption of cloud computing was 0.001237. Furthermore the Cross-Validated Communality wort was 0.795248 this figure is more than zero demonstrating a sufficient predictive model focused around the criteria specified by Fornell and Cha (1994).

Endogenous	**R Square**	**Cross-Validated Redundancy**	**Cross-Validated Communality**
cloud Computing	0.685	0.001237	0.795248

Table 4

4 The Structural Model and Hypothesis Testing

Measurement of the model which was created, testing of hypotheses is the next level to analyze in this study through smartPLS program 2.0 version, 127 cases as well as 500 generated by bootstrapping technique. The analysis will show the result in figure

NO	Hypothesized Path	Path coefficient	Standard Error (STERR)	T Value	P Value	Decision
H1	AOI -> cloud Computing	-0.005557	0.057232	0.097089	0.461	Not supported
H2	CA -> cloud Computing	0.138521	0.067082	2.064959	0.020	Supported
H3	CP3 -> cloud Computing	0.064884	0.040898	1.586487	0.057	Supported
H4	PC -> cloud Computing	0.430886	0.116191	3.708437	0.000	Supported
H5	QC -> cloud Computing	-0.163564	0.071752	2.279585	0.012	Supported
H6	RV -> cloud Computing	0.32055	0.107415	2.984217	0.001	Supported
H7	S1 -> cloud Computing	0.270553	0.092535	2.923799	0.002	Supported
H8	TM -> cloud Computing	0.031452	0.044856	0.70118	0.242	not supported
H9	TR -> cloud Computing	-0.022165	0.045786	0.484113	0.314	not supported

***:p<0.001;**:p<0.01,* p < 0.05

Table 4.5 Amount of information (AOI) Pressure competitor (PC) University Size (S)
Compatibility(CA) Quality of internet connection.(QC) Top management (TM)
Complexity (CP) Relative advantage.(RA) Trialability (TR)
Cloud computing (DV)

The table showed that the variable of the amount of information is not significant (β=0. 00, t= 0.097, p>0.05). This is show that amount of information cannot explain or is not significance to explain the adoption of cloud computing in the case of Nigeria higher educational institution. Therefore, the variable of compatibility is significant (β=0.138, t= 2.064, p<0.05) this is less than 0.05 which is supported and significance to dependent variable CA can explain the adoption of cloud computing in case to the Nigeria educational institution. Also complexity is significantly as its lower than 0.01 which β=0. 064, t= 1.586, p<0.057 mean this CP is supported and can explain dependent variable as it's less than 0.01. While pressure competitor from the degree of 0.001 is significant (β=0. 430, t= 3.708, p<0.000). This is supported. The variable in the quality of internet connect is significant (β=0. 163, t= 2.279, p<0.012). This hypothesis is supported. The variable of relative advantage is significant (β=0.320, t= 2.984, p<0.001). This hypothesis is supported. Therefore, the variable of university size is significant (β=0.270, t= 2.923, p<0.002). This hypothesis is supported. The variable of Top management is not significant (β=0.031452, t= 0.70118, p>0.242). This hypothesis is not supported. Finally, the variable of trialability is significant (β=0. 031, t= 0.701, p>0.242). This hypothesis is supported.

5 The Goodness of Fit of the Whole Model

Dislike the CB-SEM has been standing out measure of goodness of fit. This is characterized by Tenenhaus et al. (2005), the fit measure (Gof) on PLS is way to demonstrating how the geometric mean of the average commonality plus average R2 to endogenous construct. The following is the formula given to calculate.

$$Gof = \sqrt{(\overline{R^2} \times \overline{AVE})}$$

Gof 0.685 x 0.858692 = 0.5882

In particular, gof approach show the value of the model which has 0.5882 is indicate bigger compare to base on value according to Wetzels *et al.,* (2009) (small =0.1, medium =0.25, large =0.36).The outcome demonstrated model goodness of fit base one towards medium variance demonstrating and clarified is substantial which show a satisfactory level.

DISCUSSION

The amount of information will be a related to leads adopt the cloud computing in HEIs in Nigeria.

The table showed that the variance of the amount of information is not significant (β=0. 00, t= 0.097, p>0.01). This is so that amount of information cannot explain or is not significance to explain the adoption of cloud computing in the case of Nigeria higher educational institution. One of the elements of adoption technology is to source for knowledge and information to understand the important factor that will lead to after the adoption (Caselli & Coleman, 2001; Goldfarb & Prince, 2008; Kraut et al., 1998; McIntosh et al., 2000). Explore for information will lead to privilege to adopt cloud computing this is fully show that the HEIs in case in Nigeria should seek more information about cloud clouding and benefit to perceive and efficiency of cloud computing. Bondarky (1998) source for information in HEIs may be in the form of project, academic research or case study to get more information and knowledge about cloud computing adoption.

Compatibility Will Be Positively Related To Adopt The Cloud Computing In HEIs In Nigeria.

Therefore, the variable of **compatibility** is significant (β=0.138, t= 2.064, p<0.05) this is less than 0.05 which is supported and significance of the dependent variable. Compatibility can explain the adoption of cloud computing in case to the Nigeria educational institution. As indicated from Kolodinsky et al. (2004) compatibility is significant to adoption of cloud computing in higher education in Nigeria. From this analyze compatibility can explain the adoption of the cloud in HEIs and I expect that this will provide them benefit with high intention to adopt. (Rogers, 1995) define compatibility as the level which innovation can be perceived and to meet the need to use either from current or past experience. (i.e., Grover, 1993), EXPLAIN THAT is an important directive to adopt cloud computing, which it can predict to management to understand the use of cloud computing.

Complexity will be positively related to adopt the cloud computing in HEIs in Nigeria.

Also **complexity** is significantly as its lower than 0.01 which β=0. 064, t= 1.586, p<0.057 mean this CP is supported and can explain dependent variable as it's less than 0.01. Complexity is hard and difficult to intend to adopt cloud computing in HEIs base on Nigeria case complex is similar to the perceived ease to use cloud computing from the analysis above show that this variable was significant, this show that it can explain the adoption of the cloud in HEIs.). According to Hester and Scott (2007) complexity has an impact on adopting new technology due to negative intentions of use and lead to lack to willing to adopt the cloud. I expect that higher HEIs will have higher intention to adopt cloud computing to their *system*. Premkumar et al. (1994) said that complexity can become very to understand to adopt cloud computing. The hypothesis is showing negative to adoption of cloud computing in the context to Nigeria HEIs

Pressure competitor will be positively related to adopt the cloud computing in HEIs in Nigeria.

While pressure competitor from the degree of 0.001 is significant (β=0. 430, t= 3.708, p<0.000). This is supported. This variable is supported and explain dependent variable as its highly significant. This show that pressure to adopt cloud in case to Nigeria HEIs is really high this show that they have an intention to move to adopt cloud to their system because of the ease to access and the benefit to reduce the chances on a cloud. Each of the HEIs can reduce of competing among themselves. Delmas (2002) in his recommendation the pressure of competitor will lead to higher cost to make changes to the firms, but at the end this will show the high standard in of using or adopt cloud than traditional that they were used before.

The quality of internet connect will be positively related to adopt the cloud computing in HEIs in Nigeria.

The variable in the quality of internet connect is significant (β=0. 163, t= 2.279, p>0.012). This hypothesis is supported. Therefore, this is variable, can explain the use of cloud computing in the case of Nigeria HEIs. This shows that moving to cloud computing will reduce the loss or traffic of data center of each institution. The quality of internet connects will fast and speed of access to cloud computing means they understand the benefit of high speed to access of information on cloud than tradition or access directly to their server (Goodhue & Straub (1991). This show that they have good intention to adopt cloud computing as many users can access direct without weak of connection (Walczuch et al., 2000).

Top Management will be negatively related to leads adopt the cloud computing in HEIs in Nigeria.

The variable of Top management is not significant (β=0.031452, t= 0.70118, p>0.242). This hypothesis is not supported. This show that top management did not want to adopt cloud computing, they may not willing to adopt it due to the Nigeria content as they applied politic to education and corruption level. But from a higher educational institution statistic in Nigeria show that government budget over 200 billion Naira to Nigeria education(shu'ara, 2010)), but till now there are no changes, this will lead to not willing to adopt or finance as well as to intend to adopt cloud computing to HEIs in the case to Nigeria. From various of study that's done on adoption of

technology and cloud computing, which state that support management in higher education institutions in Nigeria is very important to understand and see the advantage of cloud computing as it will bring innovation to their educational system (Jeyaraj et al., 2006).

Firm size will be positively related to adopt the cloud computing in HEIs in Nigeria.
The variable of firm size is significant (β=0.270, t= 2.923, p<0.002). This hypothesis is supported. This variable can explain the adoption of cloud computing as I explain from the pressure of competitiveness and quality of internet connect as well as complexity because they have a large number of student and staff mean this variable were connected to the size of the user to adopt cloud computing (Zhu, and Kraemer 2005). The larger size will show the willingness to adopt cloud computing by management (Hage,1980; Zhu et al., 2006) because the size of large number of staff will need more communication, connectivities and others carry out the task on time. (Nord & Tucker, 1998,)

Trialability will be negatively related to, adopt the cloud computing in HEIs in Nigeria.
The variable of trialability is not significant (β=0. 031, t= 0.701, p>0.242). This hypothesis is supported. This variable is supported or significant to adopt cloud computing in the case to Nigeria context. Moore, Benbasat, (1991) said early trialability to adopt cloud computing will reduce the uncertain level to perceive. Increase the experience of the user when they try to test cloud computing will reduce the importance of trialability (Rogers, 2003). According to Murphy (2005) trialability will give an easy way to try cloud computing, easier to try will lead to increase to perceived to adopt cloud computing. Cloud computing service is pay as you utilized which is an additional attribute to top management to look at it which is better to alter that fixed.

Relative advantage will be positively related to adopt the cloud computing in HEIs in Nigeria.
The variable of relative advantage is significant (β=0.32055, t= 2.984217, p<0.001). This hypothesis is supported. This is the level of using technology which will lead to perceived better advantage to adopt cloud computing in HEIs in Nigeria (Moore, Banbasat, 1991). The nature of adopting of cloud computing will determine the relative advantage and important to the adopter. From a Roger theory show that perceived usefulness will lead to adopt the relating advantage to adopt cloud computing. This shows that this variable will explain the adoption of cloud computing in the content of Nigeria HEIs. Many stages refer to perceive usage as best predict to the relative advantage (Agarwal, Prasad, 1997; Karahanna et al, 1999; Moore, Benbasat, 1991; Plouffe et al, 2001).
Finally, several of studies have been adopted, and used models in many previous studies. The quality of internet connection and amount of information was from IDT and TOE was the remains variable that added in this study.
The significant in study show R^2 of 0.685 which means six variables can explain the adoption of cloud computing (compatibility, pressure competitor, complexity, quality of internet connect of relative advantage and university size is significant) which were supported while four variable did not supported which means they remain 0.315 is not significant (amount of information, outsource, Top management, trialability were not significant) to explain the adoption of cloud computing.

CONCLUSION

The future research can divide of the database in institution in Nigeria by a focus on university in general or private, state and federal rather than make it general to collect data. The influence to finalize some study may limit to some area. Another limitation of this study is that the data were collected from individual respondent from each institution. This may not be the all the institution that I use in as respondent means is representing the whole institution. The future study can also collect data base on focus groups. This study is focused on adoption of cloud computing in HEIs. Adoption of cloud computing in the case in Nigeria is still looking as new to them. Future research can focus on awareness of cloud computing in the Nigeria educational system. New research can test top management's intention to adopt cloud computing so that it can test their understanding of what cloud is really mean. As this is quantitative study may be the next research can be quantitative study. Compare of private and public institution in Nigeria to adopt cloud computing. Another can focus on security and privacy on cloud computing, to test how trust and reliable on cloud computing to adopt.

In conclusion, various of aspect was used to explain the adoption of cloud computing based on HEIs in Nigeria. The adoption of cloud computing in HEIs has been in practice in many developed countries, Nigeria HEIs cannot compare with those developed series of research need to done and awareness. This study explains and bring understanding to the HEIs to see the benefit and advantage of adopting cloud computing The management of HEIs in Nigeria must fully support the adoption of cloud computing, they must play their role in the ability to make the decision to embrace the cloud computing. However, they should understand the important to bear the cloud computing to their system, they should know the impact of cloud in time of finance, human, resources, skill and others which cloud can add or reduce to them.

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