CYPRUS INTERNATIONAL UNIVERSITY
INSTITUTE OF GRADUATE STUDIES AND RESEARCH
Management Information SystemsDepartment

Factors Affecting Cloud Computing Adoption Using Integrated Tam-Toe Model In Small and Medium-Sized Enterprises: A Case Study of Lagos, Nigeria.

(MSc Thesis)

Abdulazeez Abdulazeez OSUWA

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THESIS APPROVAL CERTIFICATE

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ABSTRACT

In recent decade, technology comprising of various innovative features has increasingly changed the way business operations are carried out. Technology serves as a symbol for innovation in industries and businesses and it has increased industrial capability, capacity, efficiency and immensely giving Small and Medium-Sized Enterprises the ability to operate, in some sphere as a bigger organization with less manpower. Therefore technology is seen as the complementing factor for Small and Medium-Sized Enterprises with their relatively minimum staff and businesses. Cloud computing is one of the such technology which enterprises have been adopting it in order to become cost effective, more scalable, further secure, greener in computing and to provide better solutions for business processes and service delivery requirements.The research aims to reveal the factors affecting cloud computing adoption in small and medium-sized enterprises in Lagos Nigeria, using an integration of TAM and TOE framework. The determinants investigated were derived from Gangwar, Date and Ramaswamy (2015) in their research titled "Understanding determinants of cloud computing adoption using integrated TAM and TOE model". The data used for analysis were obtained from 240 respondents representing Lagos, Nigeria SMEs cloud adopter organizations. The data obtained were analyzed using descriptive analyses and multiple regression analysis for hypothesis testing. The results showed that Top Management Support, Perceived Usefulness and Perceived Ease of Use are the significant drivers of cloud computing adoption in Lagos, Nigeria. The finding provides an enormous understanding of drivers of cloud computing adoption by SMEs, thereby providing insight beneficial to decision-makers on what factors to be considered when promoting the adoption of cloud computing technology across SMEs.

Keywords: Cloud Computing, Small and Medium-Sized Enterprises(SMEs), Technological Organizational Environmental (TOE), Technology Acceptance Model, Lagos, Nigeria.

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ABBREVIATIONS

ACCA	Asia Cloud Computing Association's
CaaS	Communication as a Service
CRI	Cloud Readiness Index
DOI	Diffusion of Innovation Theory
ERP	Enterprise Resource Planning
EU	European Union
IaaS	Infrastructure as a Service
IDT	Innovation Diffusion Theory
KMS	Knowledge Management Systems
NaaS	Network as a Service
OPEX	Operating Expenditure
PaaS	Platform as a Service
SaaS	Software as a Service
SCM	Supply Chain Management
SLA	Service Level Agreement
SMES/s	Small to Medium Enterprises
SSA	Sub Saharan Africa
TAM	Technology Adoption Model
TAT	Technology Adoption Theory
TOE	Technological, Organizational and Environmental

CHAPTER ONE

INTRODUCTION

The acceptance of technological innovations by businesses has grown immensely across the globe even in developing countries that have limited capability of accessing computing resources; there has been an increased amount of technology adoption by the developing countries around the world in the last century. They are several advantages that arise from the use of technology for either personal use or business. A business can derive a considerable amount of value commencing the use of innovation in their everyday activities. The U.S National Institute of Standard and Technology (NIST) defines “Cloud Computing as a model for enabling convenient, on-demand network access to a shared pool of configurable computing resource (i.e. servers, networks, applications, and services)” (Mell & Grance, 2011), that can be quickly provisioned and discharged with negligible administrative endeavors. The benefits to which a business implement the use of cloud computing vary connection to the reason for use and the industry it operates in, a business might consider different advantages such as business agility, automation, business continuity, flexibility which are all related to efficiency in the business process, while another business will consider benefits such as less capital expense, better use of resources, security and profits, which are all related to the monetary value it will have on the business.

Across the world, economies are mostly supported by businesses, from trade taxes to import taxes, to wages and salaries, business are platforms for economic growth, as long the business within an economy prosper, so those the economy, it is a vice versa scenario, therefore a link exist amongst business growth and economic growth. (Satope & Akanbi, 2014). The business contributes to changes in the dimension of advancement in a nation and the business organizations in each condition of the nation decide the appropriation of the states to GDP of the nation. Also, businesses are the highest employer of labor, no matter the classification such as profit margin, industry, sector, and size of the business. The classification is used to differentiate businesses and such classification are ample factor to be considered to a business,

taking for example profit, the higher a business profit margins, signifies the size of the business, the lower the profit margin the smaller the business, as such businesses are categorized by using a general factor, which is size, size is the most common factor used to differentiate businesses, business size is categorized in the form of large Enterprises, Small Enterprises and small to medium enterprises. However, according to Ling (2017), there are fewer large enterprises when focusing on a country or region, compared to the small-medium enterprises; "there are estimated 365-445 million formal and informal micros, small, medium enterprises (MSMEs) in the developing world, employing 90% of all workers. Only 25 million to 3 million of these firms are formal SMEs (5 to 250 Employees) more than 90% are either formal enterprises with fewer than 5 employees or enterprises that are not formally registered" (McKinsey, 2011). It's acceptable to think that with the high number of SMEs in third world nations, cloud computing will be adopted more prominent in contrast with large enterprise, yet that is not the case, SMEs adoption of cloud computing is slow compared to large Enterprise.

The word SMEs has no single definition, the definition varies across geographical location as a result of monetary and labor criteria used in measuring and identifying SMEs characteristics, although different analysts in the two scholastics and modern area have thought of definitions, which can be used to characterize SMEs, then again, it is essential to take note of that SMEs' definitions are for the most part dependent on nation or locale explicit view, as a result of its financial effect. The Central Bank of Nigeria 'CBN' defines SMEs as any enterprise which are economic independent companies with about 11 to 300 employees and annual maximum turnover N500 million and assets of N50 million excluding land and working capital, (Babafemi, et al., 2015). While according to the U. S. small business administration (SBA), small-scale businesses consist of everything from one person lodge businesses to industries retaining 1,500 or more employees, however, most are in the 500-employee categories (Omotunde, et al., 2015).

There has been an increased migration from the use of Internal information systems to cloud computing by large enterprise, compared to small medium enterprise in Lagos, Nigeria, Cloud computing reduces the expenditure of business's, disregarding the need for managerial cost of information technology resource, cloud computing

has given business the option to purchase and lease information technology resource online, without the usual internal management cost, the cost is carried out by the cloud computing provider, they are various example of cloud computing service provider, e.g. Google Drive, DropBox, One Drive, Oracle Cloud, Verizon Cloud, Apple Icloud and IBM cloud. Furthermore, the Need of Information Cloud computing should be greater for SMEs compared to larger enterprises, recognizing the fact, operation carried out on the cloud will reduce expenditures and add more complementary values, though that is not equivalent for SMEs in Lagos, Nigeria, the rate in which cloud computing is adopted is relative low.

1.1 Problem Statement

Cloud computing has predominantly incurred set back in West Africa, moving down to Lagos, Nigeria, there are several challenges and factors, which hinders the smooth operation of cloud computing, such factors and challenges are the instability in power supply, cost of internet service and generation of power leading to power outages, the operation cost, corruption and the security challenges (Nnadozie, 2016). Internet broad band, economic development, and security privacy and trust are the emerging issues related to the use of cloud computing in Africa (Alex & Comninos, 2011). To an extent, several businesses have shifted their attention from the success factors of doing business with cloud computing to more of the drawbacks. Nevertheless, there still an enormous opportunity that can be taken advantage of because of these challenges, such as mobile cloud computing. According to organization for economic co-operation and development, Lagos, is the commercial nerve center a of Nigeria, the most economic important and it is a major financial center and is the 5th largest economy in Africa, as if it were a country, in Lagos state and Nigeria at large, the impact of IT on SMEs operation performance has not been greatly explored (Akande & Yinus, 2013). Hence Agwu & Murray (2015), posit that some business and government transactions are still conducted manually and lots of files and documents are shelved in large cabinets and handed from table to table. Lagos has the highest number of businesses, as result, there are several SMEs around and within Lagos, the adoption of cloud computing by SMEs compared to large enterprises should be more predominant in a commercial city, regardless of the challenges and draw back it faces. The slow adoption of cloud computing by SMEs

has advanced the effect on economic growth and development of the nation and region, According to organization for Economic corporate development (OECD, 2018). There is a rise in technology expense for SMEs that do not embrace the use of technology such as cloud computing leading to lower profitability and inability to reach optimum productivity. Therefore, it is necessary to find factors affecting and restricting cloud computing adoption in the sphere of SMEs.

1.2 Objectives of the Research

The research aims to reveal the factors affecting cloud computing adoption in small and medium-sized enterprises in Lagos Nigeria, using an integration of TAM and TOE framework. The objective of this research is to make use of the integration of TAM and TOE to analyze the acceptance of cloud computing technology in small and medium-sized enterprises. According to (Gangwar, et al., 2015), the research is important because it will reveal cloud computing adoption fundamental factors and relationships of which will facilitate effective adoption of cloud computing in organizations. The data is being analyzed based on the technology acceptance model and technology organization environment framework of which will be discussed more in detail in Chapter 2 of this paper. Here are the objectives of the research as follows;

- To identify future expectations in these emerging environments of cloud computing adoption in SMEs.
- To identify organization-specific capabilities such as the technical capability of cloud computing in SMEs
- To identify SMEs attitude towards cloud computing adoption.

1.3 Significance of the Research

In this research, at first the research findings could give understanding into cloud computing adoption and how Small and Medium-Sized Enterprises could use it and benefit from it adoption. Second, this research result will assist the Small and Medium-Sized Enterprises management with identifying factors that could affect cloud computing adoption. Third, the outcomes of this research could give Small and Medium-Sized EnterprisesEmployees and management an understanding of the processes for a successful cloud computing adoption. Fourth, the research

discoveries will push the Small and Medium-Sized Enterprises management on how cloud computing will address new emerging problems.

1.4 Research Questions

The following listed below are the thesis research questions.

I. Identifying factors affecting cloud computing adoption in Lagos, Nigeria, SMEs.
II. Identifying factors restricting cloud computing adoptions in Lagos, Nigeria, SMEs.
III. Identifying the challenges SMEs in Lagos Nigeria encounters and which solutions can be offered to resolve these problems.

1.5 Thesis Outline

This thesis is composed of five different chapters. Chapter one is introduction. This is the first chapter, it provides introduction to the research and feature the problem statement of which prompt the factors that affect cloud computing adoption in SMEs. Chapter two is iterature review. This chapter features the systematic and comprehensive literature review on the research topic as well as other relevant studies. It includes background on cloud computing and explains the framework of the research. Chapter three is methodology. This chapter gives the information on research design, theoretical framework, research instrument and how data were collected and analyzed. Chapter four is data analys, results and discussion. The chapter represent the data analysis as well as the results,outcomes and disccusions.Chapter five,conclusion. The final chapter will be the conclusion which will include a brieg final summary of the results as compared to the study aims and objectives. The chapter will also outline the study, implications, recommendations, limitations and additional areas for future studies.

CHAPTER TWO

LITERATURE REVIEW

2.1 SMEs Computing Background

Small and medium-sized enterprises (SMEs) are often regarded as the lifeblood of the economy(Lal, 2008). According to The national credit regulator of South Africa stated that, there is no single uniformly accepted definition for SMEs They are various definition used in defining SMEs (National Credit Regulator(NCR, 2011). According(Dababneh & Tukan, 2007)there are three major indicators used to define SMEs: “Annual sales, the number of Employees total assets, although each country is differentiated with a threshold of number of employees”. The European commission (EC) defines SMEs as “those Enterprises that Employ fewer than 250 people and have annual sales not exceeding $67 million and or total asset not exceeding $56 million”. In Lagos SMEs play an Important role in the national economy and play vital role in the economy development of Nigeria. SMEs in Nigeria are the main engine of economic growth and key factors in promoting private sector development and partnership(Tom, et al., 2016). According to the research conducted by the federal bureau of statistics in 2004 provides that 97% of all enterprises in Nigeria employed less than 100 employees(Eniola & Ektebang, 2014). Therefore, it means that 97% of all business in Lagos state has used the "umbrella" of the "small business". Micro and small enterprises provided on average about 50% of employment in Nigeria and 50% of its industrial production(Folabi, 2015). According to Frimpongin his article on SMEs: As an engine of social and economic development in Africa (July 2013), “it is estimated that SMEs account for 70 percent of Ghana’s gross domestic product (GDP) and 92 percent of its businesses”(Frimpong, 2013). Also, it make up 91% of “formalized businesses” in South Africa and 70% of the “manufacturing sector” in Nigeria. SMEs are not only the engine of the economy, but can also serve as a stimulus for economic diversification in other sectors of the economy (Folabi, 2015).

Computing technology has evolutionalized from mainframe, personal computer, client server computing and the web over the past decades, to an era where computing takes place on the cloud. In the 19th century business operation & coordination activities take place using technology which were mainly centralized internally using “intra-net and extra net”, taking a time line of these periods, files, document and data, began to be stored in punch card, magnetic tape, magnetic drum memory, magnetic core memory, hard disk drive, floppy disk, optical disk, flash memory and memory card(Kaur, Parveen & Singh, 2014). In 21st century timeline, cloud computing has presented the most advanced means of storage.

The advancement is not mainly related to the ability of businesses to store data on the cloud but as a means of storage which has limitless storage capacity for continuous business process, compared to the previous model of storage which was used across the globe for business purpose, such as the hard copies of paper files which need a document storage facility or document ware house within a business premises to keep records of business transaction from current and previous years. Cloud computing have created simple ease of use for storing massive data without a physical drive or external technological storage device.

It is believed that there is a relationship between innovation and firm performance with a focus on Small Medium Enterprise firm(Jong et al., 2003).Therefore, forSMEs to increase its performance it is necessary to adopt technological innovation at all levels, the management and personnel of every SMEs must understand the perceived usefulness of having cloud computing for business operations.

Cloud computing offers various advantages to businesses especially the small ones such as: flexibility, scalability and low cost, they are just a few out of the many advantages cloud computing offers, it enables business the ability to provide standardized and lower cost of services(Etro, 2009). Therefore, cloud computing enhances companies cloud service which assist business in reducing the cost of cooling power, new servers and server administration and management(Greggo, 2009) . The Lower cost provided by cloud computing aids SMEs to grow larger, becomes more affective, efficient, innovative and productive, therefore allowing

them to focus on their core business capability and competitive advantage(Throng, 2010). Amazon elastic compute cloud web service is an example of such.

As result of the cloud computing SMEs now sell cloud-based services globally and embrace the global advantages of spread end user's devices and technologies. An example of such technology are smart phones and touch pads, which cloud -based services are used to gain frequent access to information and communication technologies and services worldwide (Ross & Blumenstein, 2013).

2.2 Cloud ComputingBackground

There are various interpretation, which has been coined in respect to cloud computing that has sprung up in the last decade, various research authors and practitioners have defined cloud computing corresponding to their understanding of it, it is an all-embracing and evolving concept (Sahandi, Alkhalil, & Opara-Martins, 2013). The concept of cloud computing is based on three prevailing features which are IT Hardware, Software efficiency and business agility (Kim & Suwan, 2009). The most basic definition of cloud computing is (Xaas) Delivering Everything as service (Spillner & Schill, 2013). The Xaas concept was later explained by Winkler (2011), in his explanation X means "Everything" Xaas relate the availability of IT infrastructure, platforms, software, database and other IT resources on the Internet which can be accessed remotely. Cloud computing are set of services in which each mechanism is delivered via the internet such as backup facilities development, data storage , processing power and resource appllication (Haag & Cumming, 2010).

They are currently various cloud computing deployment models; these models are built in relation to user need of use, such as data sensitivity and management Requirements.

- **Private cloud**: These provide infrastructure which is focused on one organization or a cluster. An organization can either own or rent its own private cloud. A private cloud can be managed internally by the organization IT department or outsourced externally. The location of an organization private cloud can be within its properties or externally located in a third part premises. The cost of owning a private cloud is very high compared to other

alternatives. It is always hosted inside the organization firewall. The intranet is the mean which private cloud computing can be accessed.

- **Public Cloud**:The cloud infrastructure, in this case, is meant to provide cloud service via web application not via an intranet, example of such web application is the internet, it provides service to a large cluster of people or organization; in simple words the public. public cloud services are offered, by wholesomely private organization selling cloud services to a target market, it is designed in a way to provide an elastic and cost-effective service IT deployment model; in short words, it is designed to be cheap and affordable to users. The concept of public miss-understood that user data are not safeguarded, however, that is not the case user's data are safely guarded and protected to both the public and government agencies. There are few applications in which comprises the public cloud, example of such application are customer relationship management (CRM), messengers, office productivity, we have different public cloud providers, however just to mention a few are Google, Apple, and Amazon.
- **Community Cloud**: The cloud infrasture is built to include shared infrastructure and shared access, built collaboratively by organizations in same industrial sector with identitical goal, the cloud services are managed or hosted by external service provider or managed or hosted internal by the group of organizations with shared common ineterest.
- **Hybrid Cloud**: The cloud infrastructure is a combination of both private cloud and public cloud, which is typically managed by both the user and third party, they are more preferable, because they provide grater flexibility, data deployment and also grant users more access to their personal information.

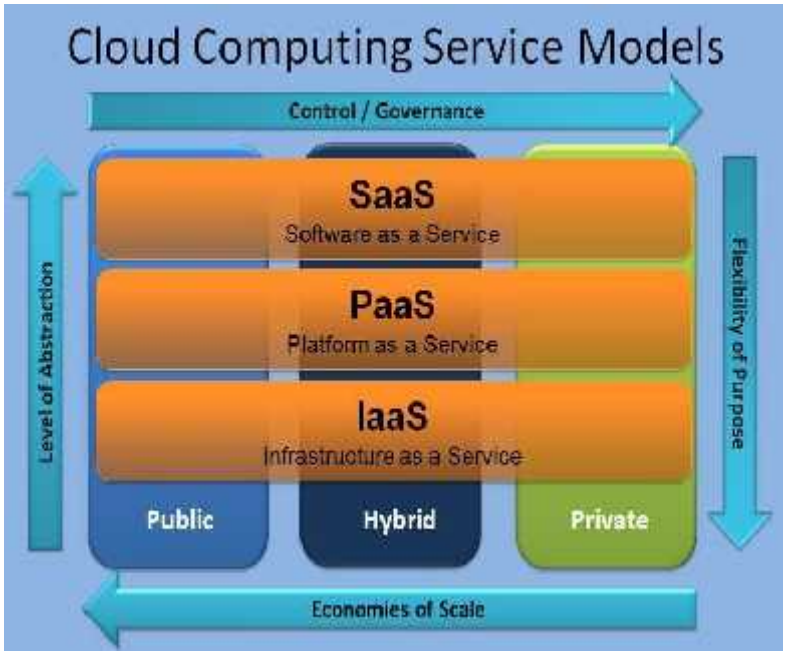

Figure2.1 “Cloud Computing Service Models and Deployment Modes” (Ogunmefun, 2011).

In explanation of Figure 2.1, we have various cloud computing delivery service models, the delivery models assist cloud computing providers to deliver various services to cloud computing users on demand. There are three Traditional service delivery models for cloud computing, these service delivery model are, Software as a Service (SaaS), Platform as a Service (PaaS) and Infrastructure as a Service (IaaS). The delivery Models are mostly run via deployment model explained earlier on, example of those deployment models is public cloud, private cloud, inter clouds, community cloud, hybrid cloud and combined cloud. The SaaS is a typical example of a delivery model, a good example of SaaS delivery model is the public cloud, because its transmit and accessed via the internet. When comparing the SaaS to PaaS, PaaS delivery model is totally different because it can only be accessed via the intranet.

Software as a Service (SaaS) model provides client with facilities which are run via cloud computing infrastructure over a shrill client interface, for instance a web browser via the internet by a pay you go subscription platform, not managed by the

client. The underlying platforms such as network, servers, storage or operating systems. The present day has seen a seamless model of SaaS, which can be used by client to access weightless applications for instance, word processor, media player and so on. Though in the case of non-lightweight applications, for example, playing 3D movies and games online, may cause the SaaS performance to get slow due to buffering time.

While in the case Platform as a Service (PaaS) model provides client with programming language platforms and software, it is usually used by large corporate organization. The Paas provides autonomous control of all deployed application and likely the environment configuration, for hosting such applications. Though users and client are not given access to the underlying infrastructure of cloud, such as access to the network, servers, storage and operating systems.

2.3 Cloud Computing Adoption

Technology adoption refers "to the acceptance and agreement to use cloud-based services as a new way of deploying technology"(Marston, et al., 2011). Technology adoption is classified as an established research area in information system(Rajesh. & Rajhans., 2014),While Carr Jr(1999); Eneh (2010), defined technology adoption as the "stage" of selecting a technology for use by an individual or an organization.

The International Telecommunication Union (ITU) in the year 2011, in their statistics report showed that"Nigeria is the second country after South Africa, in Sub-Sahara Africa, with the highest number of fixed internet broad band subscription and first in the total mobile broad band subscription"(ITU, 2012). Thus, this has created an opportunity for cloud service providers as well a hub for providing cloud computing service to the surrounding countries. Laverty investigated "the cloud readiness of Africa countries, which showed Nigeria as one of the countries that satisfies the indicators for the growth of at least one form of cloud technology in the future" (Laverty, 2011), while in December 2012 MTN, a telecommunication company distributed across Africa launched a cloud service brokerage product in Nigeria and Ghana targeted at Small and Medium-Sized Enterprisescustomers, As a result MTN, has become the first Mobile Network in Africa to offer cloud services

on the Africa Continent. MTN Cloud is a small business enterprise resource planning launched via the cloud (Gillwald, et al., 2013).

The process of adopting cloud computing is demonstrated by various progression with numerous phase, which need to be considered before an eventual decision is taken. Various organizationsconsider, perceived cost, effectiveness, reliability and security factors, which are taken to predict cloud computing adoption by technology acceptance model, (Ross & Blumenstein, 2015). While most researchers attributed the technology organization environment model as the major framework which can be used by organization to evaluate the adoption of cloud computing, such as(Chen, Low, & Wu, 2011), considered to predict eight factors for cloud computing adoption, which are: relative advantage, complexity, compatibility, top management support, firm size, competitive pressure and trading partner's pressure.

A well-regulated organization will have in place a systematic process before all eventual decision of technology adoption appears. There are various frameworks available for technology adoption such as diffusion of innovation (DOI), technology acceptance model (TAM) and technology adoption theory.

The Asia cloud computing association has prepared a cloud computing adoption index by country for the year 2016. The Asia Cloud Computing Association has the following assumption that "data will becomes the currency of the future, digital economy and cloud computing continually establishing itself as mainstream as a technology, used by government, large enterprises, small and medium-sized enterprisesand Individuals." The seamless flow of data through cloud infrastructure becomes central to country readiness. Thus, the seamless flow of data through cloud computing is key to economic growth (ACCA, 2016).Asshownintable1,Hong Konghasmorecloud computing adoption readiness than other its counterparts such as Japan and China, whose cloud readiness index (CRI) dropped during the year 2016, it is shown that every country has certain amount of cloud computing adoption readiness and at some point, all countries have used cloudcomputing.

Table 2.1: "Asia Index for Cloud Readiness 2016", (ACCA, 2016)

Rank, country	CRI#01 International connectivity	CRI#02 Broadband Connectivity	CRI#03 Power Grid, Green Policy, and sustainability	CRI#04 Data Center Risk	CRI#05 Cyber Security	CRI#06 Privacy	CRI#07Government Regulation Environment	CRI#08 Intellectual Property Protection	CRI#09 Business Sophistication	CRI#10Freedom of Information	TOTAL CRI SCORE (/100)	Rank Change
#1 HONG KONG	8.1	9.1	6.7	8	6.2	9.5	7.2	8.6	7.4	7.2	78.1	4
#2 Singapore	6.4	9.4	6.5	7.8	6.8	9	8.6	8.9	7.3	6	76.7	2
#3 New Zealand	4.6	8.2	7.6	6.8	7.4	9	8.1	8.7	6.9	7.2	74.4	-1
#4 Australia	4.3	8	6.6	6.3	7.6	9.5	7.4	8.3	6.7	8.3	73.2	-1
#5 Japan	3.9	8.9	6.7	5.9	7.1	8	7.8	8.7	8.3	7.8	73	-4
#6 Taiwan	4.1	8.8	6.7	6.4	7	9.5	6.7	7.4	7.1	7.2	71.1	1
#7 South Korea	3.8	9	6.3	6.2	7.1	9	7	6	6.9	6.7	68	1
#8 Malaysia	3.3	7.6	5.4	5.9	7.6	8	7.4	7.7	7.6	5.8	66.3	-
#9 Philippines	3.3	5.5	6	3.5	3.5	7.5	5.5	5.6	6.1	7.3	53.8	1
#10 Thailand	3.8	8.6	6	5.2	4.1	5	5.1	4.6	6.3	3.8	52.6	-1
#11 Indonesia	1.8	6.3	5.4	2.7	4.7	6	5.6	6.1	6.1	5.8	50.6	1
#12 India	1.7	5.6	5.1	1.9	7.1	4.5	5.5	6	6	5.8	49.1	1
#13 China	1.6	6.6	5.3	2.5	4.4	5.5	6.2	5.7	6.1	1.3	45.4	-2
#14 Vietnam	3	6.7	5.4	2.6	3.2	5	5.4	5.1	5.1	2.4	44	-
Comparison (and hypothetical rank)												
Brazil (#8)	3.8	6.8	7	4.4	7.1	5	5.2	4.7	6.1	7	57.1	
Germany (#3)	5	8.4	7.1	6.9	7.1	8	7.3	8.1	8.1	8.3	74.3	
South Africa (#8)	5	6	5.8	2.7	3.8	3.5	6	7.7	6.3	7.4	54.3	
UAE (#8)	3.8	8.3	4.9	6.7	3.5	3.5	8.1	7.9	7.6	3.3	57.5	
UK (#3)	6.1	8.5	7.2	6.6	7.1	8.5	7.8	8.6	7.9	7.6	75.7	
USA (#5)	4.3	8.4	6.6	5.8	8.2	6.5	7.4	8.3	8	8.1	71.6	

All Values to 1 decimal Place

Furthermore, Asia is leading in the world in cloud computing readiness, according to the ACCA report 2016, while global economies are outperformed, when placed on a new comparative portion by the top Asia pacific score, compared to several non-Asia economies against local market.

There is a general assumption on the growth of the Asia economy in the last decade is because of the online world presence in small medium enterprise across Asia, with Hong Kong having the highest cloud readiness. According to a report released by IPSOS Business Consulting on how Hong Kong small business are growing in digital economy(IPSOS, 2014). The report provided strategies in Hong Kong SMEs; it states that SMEs contributed over 98% of total business units and around 47% of private sector employment in 2013. Also, SMEs provided over 50% of Hong Kong GDP. SMEs which have greater amount of digital presence & engagement had better outcomes, they are about 2.9 times more likely to grow and gain close to 15% more revenue growth, with also 24% more revenue per employee compare to SMEs not digitalize.

Singapore is seen as a risen star in cloud computing adoption across the Asia Pacific region, with the country ranking second position in the cloud readiness index. The cloud computing infrastructure within Singapore makes it a hub for the Asia region for cloud services; all neighboring countries close by can their cloud infrastructure. The main success factors in Singapore cloud readiness are the availability of cloud infrastructure and low cost of cloud services for business and individual use. It is more expensive for business to acquire their own cloud infrastructure because of the high rental cost of renting a space to hold an IT infrastructure.

A report issued by the eurostat in the year 2016, titled “use of cloud computing service in European enterprise”, the report shows Finland taking the lead in cloud adoption in European enterprise with 57%, followed by Sweden scoring 48%, while Denmark scored 42%, Norway 40% and the United Kingdom ranked 5th scored 35%, other criteria were also used, such as email use, storage, hosting enterprise database (Kaminska & Smihily, 2016).

The CRI report shows only South Africa in the entire Africa, which further proves assumption of South Africa as the leader in cloud computing adoption in Africa, followed by Nigeria, cloud offering in Nigeria are provided on Iaas, SaaS and PaaS platform solution, which is same for all Africa countries.

Nigeria is considered as a fast growing developing country and is classified as the giant of Africa with 84.3 million internet users in 2017, which is a perfect enabling factor of cloud computing usage by both organizations and individuals; Nigeria has a lot of cloud computing enabling factors which include population technology readiness and usage. Nevertheless, current studies have revealed a moderate rate of adoption and which are credited to the existence of some of the challenges being addressed by thisresearch.

2.4 Cloud Computing Adoption Challenges

Cloud computing adoption is slow in contrast to general anticipation, they are various challenges and issues, in which it encounters, such as security/privacy issues, standardization, government regulation.

2.4.1Security and Privacy Concerns

Security/privacy is seen as one of the major challenges of cloud computing adoption, they are various security concerns by both organization and individual end users. There have being various extensive research surveys, in the research stream of cloud adoption security concern. The fact that cloud computing exists over a network, make it more vulnerable to any form of cyber-attack, also “security and privacy are often presented as key risks often associated to outsourcing IT services that may include critical data”(Opara-Martins, Sahandi, & Tian, 2015). Cloud computing data are transmitted via the internet an access network therefore all data most pass-through end users firewall, which opens it to cyber-attacks. Cloud service providers put in place multiple data centers in dispersed geographical location, because end users need are served optimally across the globe. Traditional cloud computing end users, do not have insight to where data are stored by the service provider, thus bringing up legal and regulatory issues, which needs careful attention, data center location and country law determines laws that govern data management.

They are different model of deployment of cloud computing, each service models are developed with its own security protocol and has a security issue. Therefore, an infrastructure as a Service deployment model, the security obligation of underlying structured and abstraction layers go to the service provider, whereas the rest of the stack concerns, belong to the customers.

2.4.2Government Policy and Regulations

They are a lot of concern over government policy when adopting cloud computing, government policy is seen as a risk for fruitfulenactment of cloud computing. They are various governmental laws, regulation and policy that approved by the government for their security agency on merits over terrorism threat which merits such agency to access data directly from servers of cloud provide without pro-consent of the end user.

Furthermore there is a valid concern by cloud service users on where data is located, with a risk of foreign, due to concern of foreign government control over cloud service provider, a foreign government with a policy which warrants data seizure on terrorism merits, which creates challenges,concerns,issues for cloud adoption by end users,which ischaraterisedas arestrictivefeature.

2.5 Cloud Computing Adoption Drivers

The most interesting research detail is identifying and listing possible advantages and gains from the topic at hand. Cloud adoption drivers are mostly the advantages expected from the cloud computing use, over the traditional computing, which may lead to the decision to adopt cloud computing. Though conceivably numerous drivers are also sometimes viewed as expected benefits, only four‘ drivers will be highlighted in this review.

2.5.1 Need to Scale as Competitive Advantage

SMEs enactment of cloud computing provides the ability to grow scalability of the working process, therefore, both managers and employees can meet the organization goal need more efficiently. Cloud computing will provide the capability needed for an organization to handle an increasing amount of tasks. In SMEs, the limitless processing power of cloud computing based-solution is a distinctive advantage

compared to a traditional server system. Additionally, SMEs will longer wait on line for a storage upgrade.

2.5.2 Lower Ownership Cost Benefit

The use of cloud computing aids organization with its on-demand accessibility i.e. the Service as a Software (SaaS) provides assets manager the platform to center extra on their main business competence. There is providing customer service using technology influence as a mean of competitive distinction. In Gartner words, total ownership cost (TOC) is characterized as a far-reaching evaluation of data innovation or different expenses crosswise over big business limits after some time for IT. Cloud computing provides lower cost by eliminating the cost of capital equipment, servers, back up servers and overtime hardware maintenance. Also, interruption and intricacy upgrades and version control are excluded in a SaaS deployment.

2.5.3 Operation Agility

An organization ability to gain both increasing-income and cost reduction capability opportunities within its core enterprise operation more quickly compared to its competitors (Sternfels, 2018).Therefore, cloud computing will provide SMEs the capability to increase both increasing-income and cost reduction of SMEs core business operations. Also regurgitation of a distinct advantage by providing all technical processes needed to focus on core duties.

2.5.4Ecological Computing

Cloud computing serves as a resource for green computing, by providing an ecological friendly platform for SMEs engaging in environment social responsibility. Cloud computing serves as a green computing resource because it provides a means of reducing the earth carbon output from heat emitted from the organization, because of computing power and servers power input, compared to having available space within the SMEs for the server room. Ecological computing is a necessary feature to be well-thought-out, when adopting cloud computing by SMEs that practice social responsibility.

2.6 TOE & TAM Technology Adoption

Technology adoption is essential for the progression of all business, for an organization to adopt technology a gradual process is followed, in order to determine the potential of the technology. The various framework has been developed by academicians to highlight the procedure and phases involved until the adoption is reached. Tornaztzky and Fleischers initially introducedTOE in 1990 their book “The process on technology innovation”. The book describes the process to which novelty can be adopted. TOE was coined from the diffusion of innovation (DOI) framework which was originally presented to describe the firm context influence on the adoption of innovation, Rogers (2002) underlineddistinctfeatures, for both internal and external features of businessnovelty.

While TOE is an organization-level model that describes three separate features of an enterprise perspective influencing adoption decisions, the organization elements are Technology, Organization, and Environment. The DOI and TOE are identical in context except TOE framework comprises of imperative features, which include the Environment context. The context presents additional constraints and opportunities for technology novelty. While intra-firm novelty diffusion, is better explained as a result of Rogers diffusion of innovation theory (Hsu, Kraemer, & Dunkle, 2006).

The last decade has experienced a significant use of the TOE framework being used to explain technology adoption and its process by both researchers and practitioners. Research on both challenges and benefits of cloud computing in Nigeria, reported privacy concern, legal concern, absence of IT groundwork, absence of cloud awareness, lack of cloud groundwork and national security concern by cloud Service providers (Ofili, 2015).

The alternative theory used to explain technology adoption grounded on behavior is the Technology Acceptance Model (TAM), TAM model is usually accepted for comprehending IT adoption and usage process (Gangwar, et al., 2015) , TAM is aimed at measuring and predicting technology user acceptance by highlighting potential design issues before user interacting with the technology (Koul & Eydgahi, 2017). Also, it explains why there is a discrepancy in user intent linked to IT implementation and usage transversely in a wide variety of perspectives (Hong, et al., 2006). TAM was initially designed to support IBM Canada, TAM was initially

rooted in the basic psychological theory which was known as the theory of reason action (TRA). They are basically two perceptions in which TAM users hold which are Perceived Usefulness (PU) and Perceived Ease of Use (PEOU), PU is defined as "the degree to which a person believes that using a particular system would enhance his or her job performance", while PEOU is defined "as the degree to which a person believes that using a particular system would be free on effort" (Alshamaila, Papagiannidis, & Li, 2013).

In related research, on factors affecting cloud computing adoption by SMEs they use different adoption method of TOE framework, which included technological, organizational and environmental factors affect on SMEs cloud adoption (Alshamaila, Papagiannidis & Li, 2013). While Wang & Wu (2005) recognized the relevance of Perceived Usefulness and Perceived Ease of Use.

2.6.1Technological

The perspective of the TOE framework point to internal and external technology pertinent to the enterprise. This technology includes the ones available in the marketplace and also the ones which are currently in use at the organization (Gutierrez, Arias-Aranda & Bustinza, 2010).

2.6.1.1Relative Advantage

Serves as major indicator trends in information technology innovation, which describes the degree in which technology factor is alleged to deliver superior advantage to the organization (Rogers, 2002). There have been a number of a previous detailed study on the benefit of relative advantage on organization technological adoption i.e (Lee, 2004), acknowledge that when the relative advantage of an innovation is perceived by a business, adoption likelihood will increase (Alshamaila, Papagiannidis, & Li, 2013). It is considerate to understand why firms understand the benefits that stem from adopting innovations (To & Ngai, 2006). A greater advantage is provided by cloud computing over other technology such as storage resources, flexibility, scalability, reduced cost and mobility (Dwivedi & Mustafee, 2010). According to Miller (2009), they are various advantage that can be offered by cloud computing, in relations to flexibility, reliability, and capacity. Furthermore, the cost of entry by SMEs is considerably lowered in order to provide a

significant access amount of computing resources for a relatively limited amount of time. (Marston S, et al., 2011), no upfront investment is needed by small businesses with immediate access to hardware assets that will have a quicker time to market (Marston S, et al., 2011).

Bearing in mind the reliability of outcomes showing that relative advantage is undeniably a factor that affects the adoption of cloud computing in different countries, it is vital to determine if this effect is equally true in the Lagos, Nigeria SMEs' cloud adoption process.

2.6.1.2Uncertainty

According Freeman & Soete (2000) consider the variation in countries abilities to take risk and access new innovation as the cause of slow diffusion rate across countries. While Jalonen (2012) "Claims ambiguous and complex"detail" of situation result in uncertainty, also unavailibility or disparity of information; insecurity in individual understanding"

2.6.1.3 Compatibility

Compatability in this research stream directly refers to how technology aligns with existing system, organization structure and technology use. Therefore a weight is needed to compare and evaluate the necessity of the innovative technology and the existing systems, if it aligns with the organization preferences.

Previous experiences, recommendations, appraisals and also trial runs (tests) are crucial to understand technology compatibility. Compatability is defined "as the perceived extent to which innovation is consistent with the organization beliefs and needs, which is determined by previous experience (Rogers, 2002). The lack of compatability in IT with organization need may negatively affects the organization technology use (Mckenzie, 2001)

2.6.1.4 Security and Privacy Risk due to Geo-restriction

Security has been one of the major concerns for an organization adopting technology, however, security is a far-reaching context, this research mainly focuses on the security context relating to media, data center security, data confidentiality, and overall cloud service security. Also, privacy is a major deterrent in the adoption intention of cloud computing service, further research determined that privacy and

security are the major deterrents in the adoption of cloud computing services(Ziyad & Rehman, 2014).

Previous research conducted using the TOE framework for SMEs cloud computing adoption by (Al Isma'ili, Li, Shen, & He, 2016), acknowledge new important factors, namely privacy, security due to geo-restrictions. Authentication was also recognized as a key security measure that users implement, to improve privacy and security. Authentication was also recognized as a key security measure used to increase the privacy and security of every end-user. According to Wang (2011), it is clear, both security and privacy are nevertheless the fundamental challenges in cloud computing as though it was indicated in the previous years..

2.6.1.5 Complexity

Adopting technology are most time complex due to the decision-making considerations made.In certain case it is considered risky due to there are vast amount of unknown and known factors attached to adopting an IS innovation with a short lifetime. A certain degree of complexity is as a result of short lifetime of innovation (Jalonen, 2012). A supplementary advanced clear and focused understanding of complexity in relevance to cloud computing adoption "is the degree to which using cloud computing is free of effort"(Karahanna, Straub, & Chervany, 1999; Gefen, Karahanna, & Straub, 2003).

Complexity was further defined by Rogers (2002) as the "degree to which an innovation is perceived as relative difficult to understand and use" Premukumar, & Ramamurthy, (1995);Bozbay & Yaşin (2008)recommend that the complexity of innovation is usually negative linkedto its adoption.

2.6.1.6 Trial Ability

The final stage in TOE technology factors of the resolution to acceptinnovative technology in organization is trialability, which "is the degree to which innovation may be experimented with, on a limited basis" (Rogers, 2002). It is more significant in the early stage of technology adoption than in the late stages of the adoption process. cloud computing is still in its initialperiods and is known for its novelty in the SMEs arena trialability. Hence, it's a necessary stimulator of the adoption decision, it also considered by Kendall, Tung, Chua, Ng & Tan (2001)to be

positively related to IS adoption.

2.6.2 Organizational

Organization context in the TOE framework consist of organization characteristics such as organization readiness, frim size and top management support Alshamaila, Papagiannidis, & Li (2013) . While Chang (2010) defines the organization context as the enterprise's availability of financial and financial resources. When simplifying the organization context in the TOE context Lippert & Govin, (2006) states organization context are the affect of organization features which affect the decision to adopt a new innovation.

However the variation between characteristics may not be conspicuous, though, the entire activities that fall under organization culture , human resources , organization structure otherwise the features already mentioned above are categorized under organization context of TOE framework.

Nonetheless various researcher put forward the perception, acknowledging the benefits of introducing new technology is advantageous to organization, it is necessary to evaluate the characteristics of the organization before adopting innovative technology. According Alavi & Leidner (2001) vital settings for a technology to succeed may include employee and exchange. Thus, it is necessary for the exchange of knowledge to happen within the confinement or location in the firm where more than two members intermingle, and units communicate to encourage understanding. Among all the organization characteristics firm size is considered as one major factor to be considered when adopting IS innovation.

2.6.2.1 Firm Size

Firm size is a factor that should be considered while adopting innovative technologies, "larger firms have extra resources that motivate innovation adoption", (Alismaili, et al., 2015). The constrains in which small firms have can be in form of monetary constraints,functioning in a cutthroat setting, absence of technology apprehensiveness, absence of specialized IS apprehensiveness and abbreviated management perception, these are the distinctive feature of SMEs, (Alismaili, Li, Shen, & He, 2015). SMEs usually suffers from low resources compared to their

larger business counterparts.

2.6.2.2 Top Management Support

Top management support is critical for organizations initiating technology adoption rather than middle management and line managers. The importance of top management in decision making is very essential because they are known to make an unstructured decision. This means they hold a vast decision-making power, their decision can be either to adopt or not. Therefore, it is necessary to recognize the influence of top management in the adoption of cloud computing and other IS innovations (Salwani, et al., 2009). The positive view and action of high ranking managerial personnel on the advantages of technological novelty in producing value in an organization is necessary.

Furthermore, top management support ensures the sufficient resources are allocated for adopting the new technology (Annukka, 2008). Finally, top management support has a great influence on the adoption of an IS innovation (Wilson, et al., 2008).

2.6.2.3 Innovativeness

"Innovativeness is the willingness degree of taking a risk and trying new solutions that have not been tried before" while Rogers (2002), describes innovation as "an idea, practice, or project that is perceived as new by an individual or other units of adoption". Innovativeness relates to the willingness to pursue a non-preexisting approach and method, whereby clients process information, make the decision and solve the problem (Mercanti et al., 2008). While SMEs degree of receptiveness in the direction towards adopting novel technology at the firm level represents a significant feature in adopting innovative technology (Marcanti et al., 2008). Previews research signifies the probability for an increased no-negative decision on novel technology adoption decision by a firm is promoted by innovativeness (Mercanti et al., 2008).

2.6.2.4 Prior Similar Technology Experience

This simply refers to the basic acquired technology know-how and knowledge relative to its operation and functionality. Similar research recognized existing technology expertise as a measure that influences the adoption of technology decision when it concerns the adoption of new and innovative technology (Kim, Jung

& Baek 2008). Users recognition of preexisting similar experience as recognition of pre-existing occurrences, which is seen on the significance of current know-how and past trials (Lippert & Forman, 2005). Prior knowledge from past experiences, training, and consultations from other users or adopters is influential in adoption decisions (Thong et al., 2006). When relating to cloud computing, features such as virtualization are considered to be related to user perceptions on the technology (Alshamaila et al., 2012). Therefore in the technology adoption decisions, preexisting technology experience plays a facilitative role.

2.6.3 Environment

The Environment context represents the area in which an organization conducts its business, while the environment concept of the TOE framework to all factors related to environments in which organization exists and operates such as industry and competitors, the region in which a business operation is carried out, highly contributes consistently in influencing the business's adoption of IS (Goode & Stevens, 2000).

There are several environment factors that may affect an organization technology adoption, a few include supplier, distributor, organization location, sectors of operation, regulation of government, and immediate surrounding. Previous studies according to Baker (2011) have found intense competitive pressure as a stimulating factor of innovation.

Perceived industrial pressure, measures how well equipped an organization is in the level of technological capability as well as its competitors, also one of the most important factors in technology adoption has been identified as perceived pressure (Fuchs, M. et al, 2010; Ramdani et al, 2013; Wang et al, 2010). In a previous research conducted by Wang & Quals (2007) they put forward a suggestion, which concluded on the organization which is a competitor-oriented usually is worriedonce it is perceived other entrants in the industry, areimplementing innovative technology. In order to avoid loosing their competitive spot and failing to keep the pace among its competitors, such a firm sees the importance of adopting technology and has a stronger will to adopt new technologies.

While previous research conducted suggested government regulations and policies are important factor to be considered among the environment variable of cloud

computing adoption, SMEs located in regions restrained by government policies and regulations, leads to low pace of ict adoption (Dasgupta, Rajesh & Sethi, 1999).

However competitive pressure has gained increasing support from numerous studies, however, in a research conducted by Alshamaila, et al., in 2013 at North East England suggested that competitive pressure has not gained enough conclusive evidence as a factor to support. Premukumar & Ramamurthy (1995) suggested that pressure arising from competitors in most cases turn out to be strategic inevitable in SMEs adoption of innovative technologies. Nevertheless, there exists an overall consent among researchers, in which industry is identified as a factor to support and seen as a common factor. Thus SMEs location, for a whil has been accepted as an significant motivator of managerial adoption of information communication technology (Jeyarat, et al., 2016). Competitive pressure, therefore, has a positive effect on cloud computing adoption(Lin &Lin, 2008; Lippert & Govindarajulu 2006).

2.6.4 Technology Acceptance Model

This model tends to explain and make reasonable predictions regarding the behavior of system. Perceived usefulness (PU), this takes the users view over the technology as well as offering relative value that perform same functions. Then the perceived ease of use (PEU), this takes the degree of which the user or adopter's perspective of the technology usage to be free of effort (Davis et al., 1989). Perceived usefulness usually has affect on the users' behavior.

According to the suggestion made by (Davis et al., 1989) that the beliefs on TAM come between external variables that can possibly affect the user of a system. The attitude been presented in TAM as well as differences are being bridge in respect to the external variables and that of internal beliefs and behaviors influenced by management (Davis et al., 1989). The influence caused by the external variable is usually done indirectly which result in affecting the behavior of the user (Zhang et al., 2010). Compared to Perceived usefulness and perceived ease of use, they have quite several influences on the technology use (Hussein, 2017; Chuleeporn C& Chat C, 2016). As seen in figure 2.2 below, the diagram illustrates the behavioral attitudes, believes of user technology.

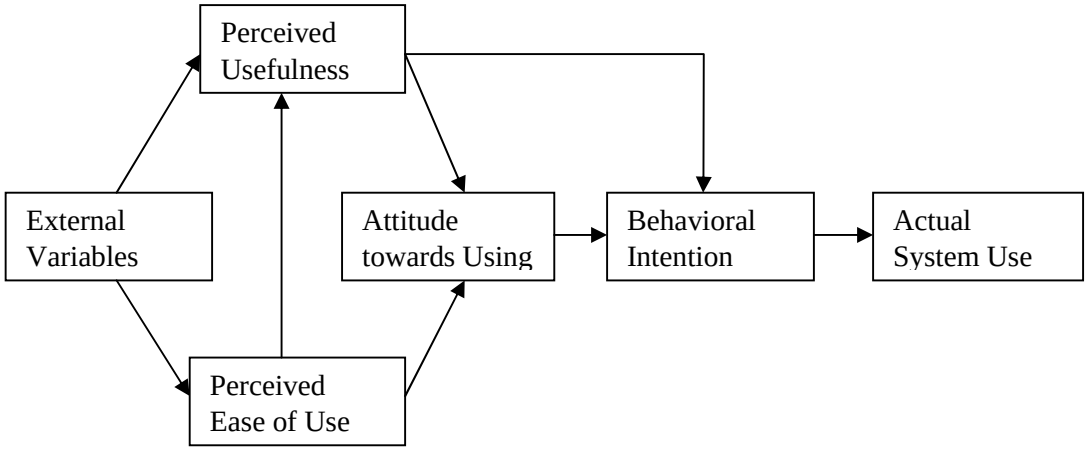

Figure 2.2Technology Acceptance Model Adopted from Devis et al., 1986 and Tornatzky and Fleischer, 1990).

2.6.4.1Perceive Ease of Use

PEU is defined as "the degree to which the prospective user expects the target system to be free of effort" (Davis, et al., 1989). "This factor plays a crucial role in understanding individual responses to information technology (Hong, et al., 2010; Tarcan, Varol; Toker, 2010). Decade-old research offers significant evidence of the degree of PEU effect on usage intention (Venkatesh & Davis, 2000). Based on these discussions, PEU has a positive intention to use cloud computing" (Changchit & Chuchuen, 2016).

2.6.4.2Perceive Usefulness

Perceived usefulness is defined as "the prospective users' subjective probability that using a specific application system will increase his or her job performance within an organizational context" (Davis et al, 1989). This factor has a significant effect on usage intention (Venkatesh & Davis, 2000). Prior researches found perceived usefulness as a positive predictor and driver of cloud computing adoption intention.

CHAPTER THREE

METHODOLOGY

The chapter briefly highlights the research design, hypotheses, sample size, Research Instruments, Questionnaire Distribution and Research Regression Equation used to conduct the research. The research was conducted in Lagos State which has the most SMEs in Nigeria.

3.1 Research Design

The research goal is to investigate the factors, which affect cloud computing adoption in small and medium-sized enterprises Lagos Nigeria by means of an Integrated TAM -TOE Framework. To answer this inquiry and evaluate the outcomes of the hypothesis, the research design will provide a step by step guide of the processes to be followed to ensure accurate results. In the research, the quantitative research method is used. Quantitative research focuses on gathering numerical data and generalizing it across groups of people or to explain a phenomenon. The overarching aim of quantitative research is to classify features, count them, and construct statistical models to explain what is observed.

3.1.1 Theoretical Framework

The theoritical framwework helps to reveal the concepts or model in which the study or investigation will use. A researcher will have to adopt a model or develop a model in which the research will use based on existing literature. “The goal of a conceptual framework is to categorize and describe concepts relevant to the research and map relationships among them. To achieve this goal, qualitative researchers incorporate both relevant theory and empirical research that help to organize the conceptual framework and to see where the overlaps, contradictions, refinements, or qualifications are” (Miles and Huberman, 1994; Rocco & Plakhotnik, 2009). In quantitative studies, “one uses theory deductively and places it toward the beginning of the plan for a research. The objective is to test or verify the theory. One thus begins the research advancing a theory, collects data to test it, and reflects on

whether the theory was confirmed or disconfirmed by the results in the research. The theory becomes a framework for the entire research, an organizing model for the research questions or hypotheses for the data collection procedure" (Creswell, 2013; Amanda & Rockinson-Szapkiw, 2018).

The framework as shown in figure 3.1 used in this research was adopted from a research conducted by Gangwar, Date and Ramaswamy in 2015.

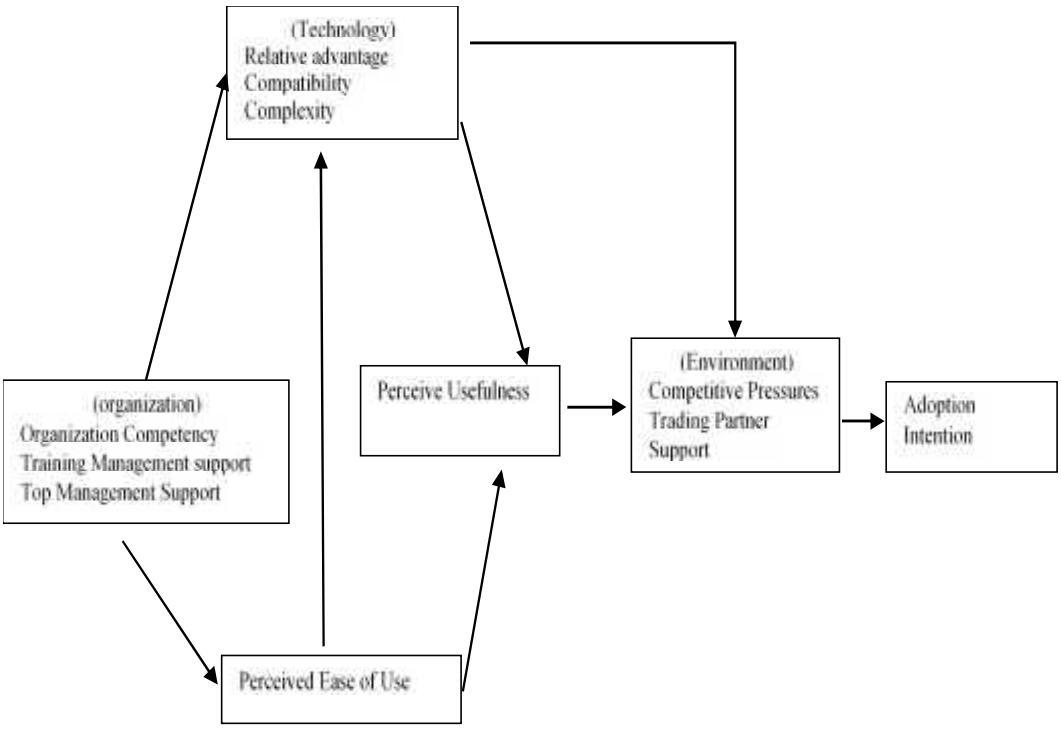

Figure 3.1Conceptual Framework for Integrated TAM-TOE Framework for Technology Adoption.

3.2 Hypothesis

The hypothesis is utilized to research and assess the factors that affect cloud computing adoption in SMEs in Lagos Nigeria.

H1: "Relative advantage has positive effect on adoption intention."

H2: "Compatibility has positive effect on adoption intention."

H3: "Complexity has negative effect on adoption intention."

H4: "Organizational readiness has positive effect on adoption intention."

H5: "Top management support has positive effect on adoption intention."

H6: "Training and Education has Positive effect on adoption intention"

H7: "Competitive pressure has positive effect on cloud computing adoption intention."

H8: "Trading partner support has positive effect on cloud computing adoption intention."

H9: "Perceive Use has positive effect on cloud adoption intention."

H10: "Perceive Ease of Use has positive effect on adoption intention."

3.3 Sample Size

A survey was carried out to collect respondent data, a total of 350 inquiry form were distributed via e-mail and linking to high ranking and middle-level IT professionals of Small and Medium-Sized Enterprises who are in course of adoption (possible adopter) in Lagos Nigeria, in return received a total of 240 questionnaires that were filled, while 100 questionnaires were not filled, and 10 of them are excluded from the research as they were not completely filled.

To come up with the needed sample size, a number of selection frame was used to ascertain and collect information from the companies within each sector, three sampling technique was employed for the research which includes.

- Simple Random Sampling: The method was used to randomly select 350 participant for the thesis survey, out of the total numbers of SMEs operating in Lagos, Nigeria.
- Cluster Sampling Method: A cluster sampling method was applied to hand-pick 6 sectors in which their operation include:
    - "Technology"
    - "Energy"
    - "Legal and Professional Service"
    - "Education Manufacturing and Government, Retail"
    - "Financial"

- “Health Care”

- Purposive Smapling Technique: The sampling technique was used to retrieve accurate response, pin pointed by the research question in the questionnaire section.The purposive sampling accertained that only participant in “Top Management and Middle Management” positions should fill in the questionnaire to further investigate the research .

3.4 Research Instruments

The questionnary which is used in the research consist of personal and company information, and cloud computing adoption using an integrated TAM-TOE scale.

Personal and Company Information

This section consist of the following 13 items:

1. “Gender.”
2. “Age.”
3. “Best describes the area you live in your Country.”
4. “Company name (optional).”
5. “What is your education level?”
6. “What is your position in your company?”
7. “How many years have you being employed by your enterprise?”
8. “In which industry does your firm operates.”
9. “What is the market scope of your firm?”
10. “Which is the following phrases best describing your firm situation.”
11. “What “information system application” has your firm adopted?”
12. “Has your firm adopted or consider adopting any cloud computing services form those listed below?”
13. “Which of the following cloud computing type has your firm adopted or consider adopting?”

Cloud Computing Adoption Using an Integrated TAM-TOE Scale

This scale is adopted from a research conducted by Gangwar, Date and Ramaswamy in 2015. The scale consist 46 items “as a five likert scale, ranging from (strongly disagree, disagree, neutral, agree and strongly agree)”. Also, this scale consists of 11 factors which are listed below:

1. “Relative Advantage
2. Compatibility
3. Complexity
4. Organization Competency
5. Training & Education
6. Top Management Support
7. Perceived usefulness
8. Perceived Ease of Use
9. Competitive Pressure
10. Trading Partner Support
11. Adoption Intention”

3.5 Questionnaire Distribution

The questionnaire was distributed online via e-mail and linkeding to total of 350 particpants employed by SMEs in Lagos Nigeria. In the process 250 questionneir were sent via email and 100 via selected linkeding accounts, who held prominent position in their Small Medium Enterpris. A total of 250 response were obtained on both platforms within a period of two months in 2019. 10 of them are excluded from the research as the questionnaire were not completely filled.

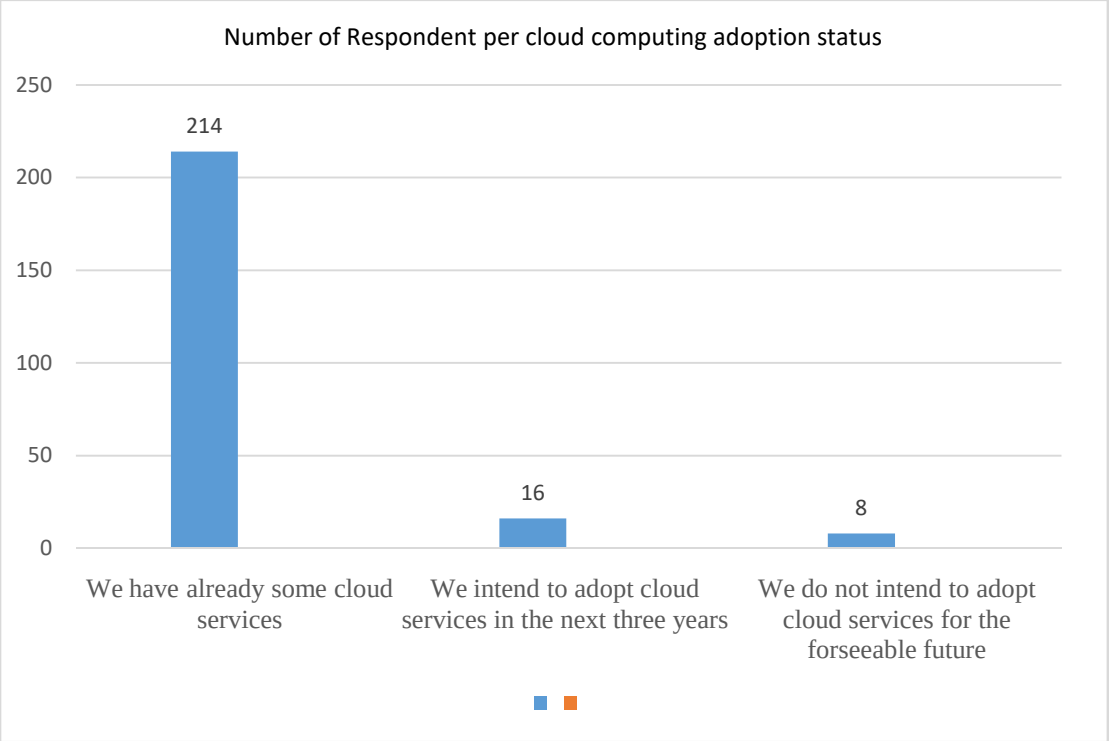

Figure 3.2 Number of Respondent per Cloud Computing Adoption Status

The bar chart graph displayed in figure 3.1 shows a lion share of the respondent 214, representing 89% of the sample size stressed the have already adopted cloud computing. By design, the largest shares of respondent, will be used as sample size for the research as it accurate to say only respondent who have adopted cloud computing, will have given accurate details on factors related to cloud adoption.

The number of respondent in their respective SMEs intending to adopt cloud computing in the next 3 years were a total of 16, representing (6.7%) while only 8 (3.4%) expreessed their non intention to adopt cloud computing at all, and 2 of the respondent left that question empty.

3.6 Research Regression Equation

The framework is developed conferring with the research hypotheses and conceptual framework, the research questions and hypotheses are also included, the model addressed the constructs in the research hypothesis of integrated TAM-TOE Framework. The research contains two variables, which include independent and dependent, the research independent variable comprises all the constructs of

technology, organization, perceived usefulness, perceived ease of use and environment factors within the TAM-TOE Framework, whereas adoption intention was the dependent variable. The framework was expressed in equation below and table 4.50, adoption of cloud computing is expressed from the various constructs of technology, organization, perceived usefulness, perceived ease of use and environment factors. The fundamental goal of the research is to measure the influence of all the constructs within technology organization, perceived usefulness and perceived ease of use and environment factors as signified via the ensuing framework.

$Y = \alpha + \beta 1X_1 + \beta 2X_2 + \beta 3X_3 + \beta 4X_4 + \beta 5X_5 + \beta 6X_6 + \beta 7X_7 + \beta 8X_8 + \beta 9X_9 + \beta 10X_{10} + \varepsilon$

Y=0587285+0.0166386+-.0044112+0364233+-0.0054691+.0544651+.228455+-.0228778+-.0228778+.378852+.0870513+.275734

Y=52+.0357518+.0290227+.0250468+.0200523+.0274958+.0206881+.0341246+.0298109+.0384497+.0537884

3.7 Data Analysis

In the statistical evaluation of the research all analyses are performed by using SPSS 24.0 for windows

CHAPTER FOUR

DATA ANALYSIS, RESULTS and DISCUSSION

The chapter analyses the data obtained from the respondent questionnaire. The research hypotheses are discussed based on a survey questionnaire with which data are collected. The findings of the research are discussed under three sections: participant demographic information, findings associated with the research hypotheses and discussion of results.

4.1 Participant Demographic Information

The participant data were collected using an online questionnaire process, which was willing filled in by the respondents, the questionnaire was sent by e-mail and via LinkedIn, while the questionnaire was received by ranking-official, such as top and middle management personnel. The e-mail was sent to selected SMEs that are almost to adopt cloud computing or have adopted cloud computing in Lagos, Nigeria. The survey was filled by 243 partakers (124 females, 115 males; mean age 30.6309 years, SD = 6.176328 from a list of industrial sectors. Comprehensive details about biography are presented in Table 4.1.

Table 4.1 Participant Demographic Information

Characteristics	Respondents (number)	Respondents (percentage of total)
Gender		
Female	124	51.9
Male	115	48.1
Location		
Urban	180	74.1
Suburban	53	21.8
Education		
High School	5	2.1
Undergraduate	164	67.5
Masters	63	25.9
PhD	2	0.8

4.2 SMEs Industries

The questionnaire personal information section includes the industries in which the SMEs belong to, six industries are mentioned in total, while a section was available for participant whose industry was not included. Figure 5 shows the industry with least respondent was the energy sector, which can be rationalized that it is a capital intensive industry; Technology had the highest number with 102 respondents, followed by Education Manufacturing Government Retail with 32 respondents, Legal and professional service with32, Financial service with 18, Health care with 10, non-available with 23 and other with 37.

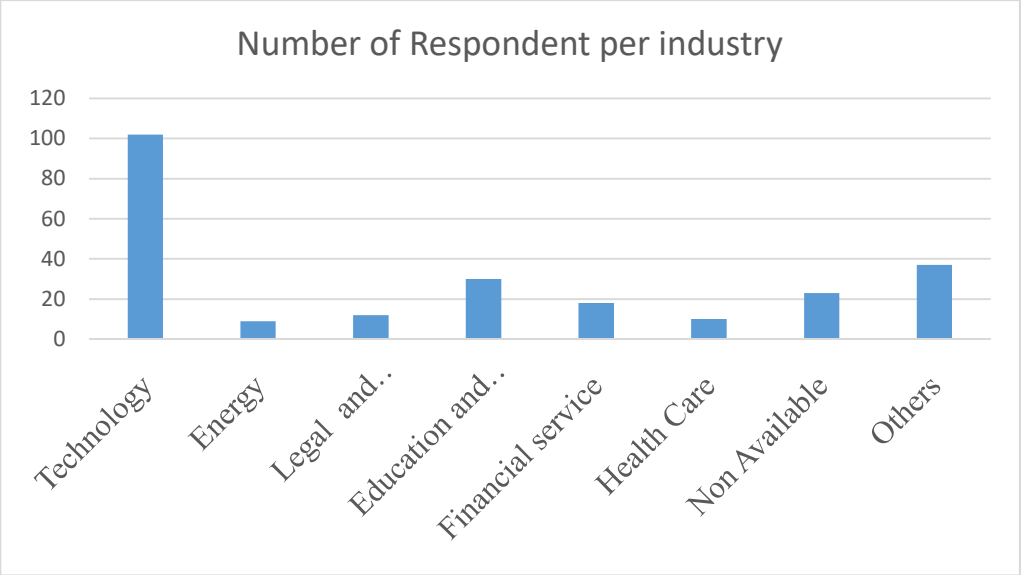

Figure 4.1 Number of Respondent per Industry

The largest respondent was in Technology industry which can be associated to the fact technology is currently associated with every industry and SMEs entry into the technology sector is more easy than other sectors due to the capital intensity, also technology is mainly related to creating service, which means more technical knowhow is needed than infrastructure capability.

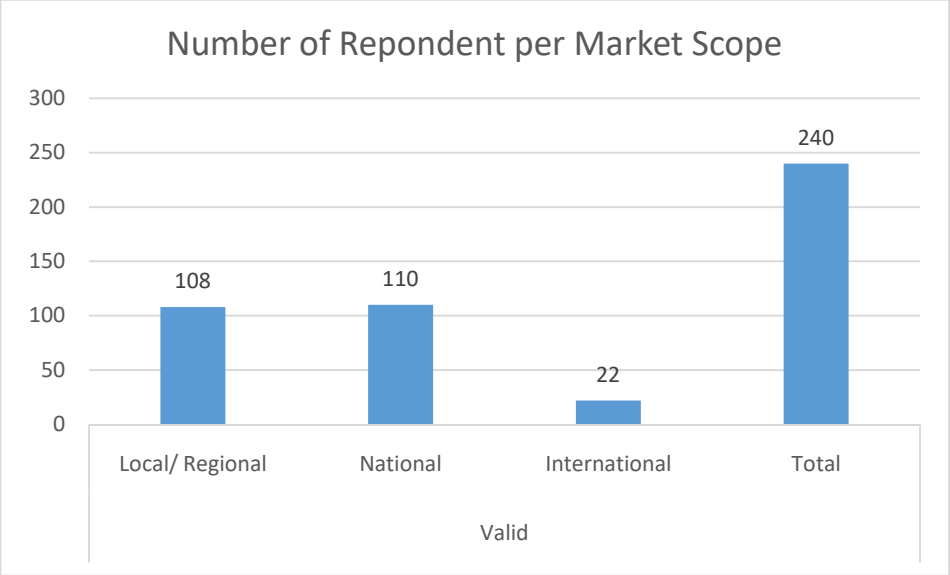

Figure 4.2Number of Respondents per Market

The figure shows the target market in which the respondent firms attract their customers from, the market in which their product or service is delivered. After

Reviewing the market scope, it showed a greater number of the respondent firms attract the customer or delivered product nationaly, with 110, followed by 108 respondent firms focused on the local market scope. Only 22 respondent represented firms with International market. The distribution was only focused on respondents with firm operation in Local/Regional, National and International market, while 90.8 the respondent had no international market scope and as result, the research will on reflect on Local/regional, National in-country market context.

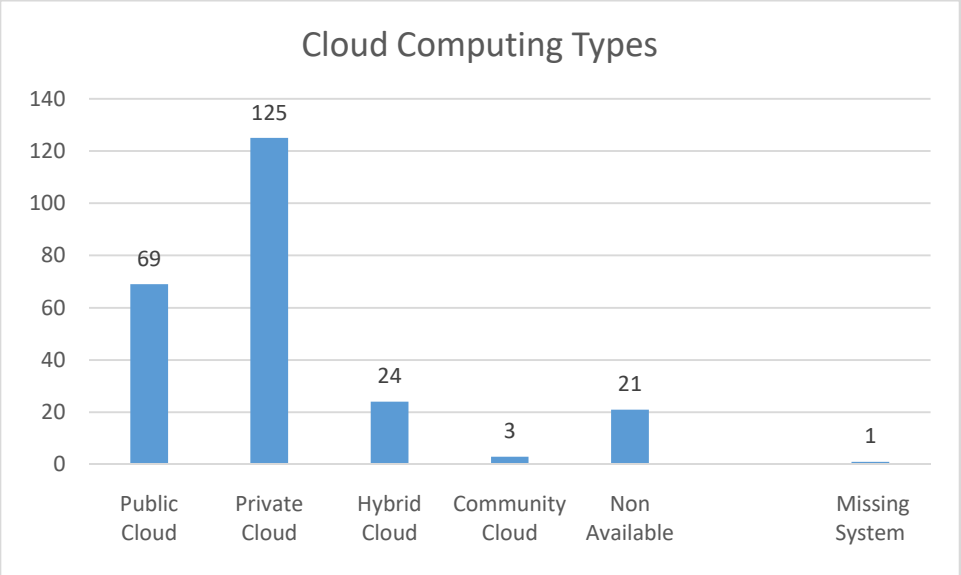

Figure 4.3 Cloud Computing Types

Figure 4.3 illustrates 125 of the respondent firms have adopted private cloud and 69 of the adopted public cloud, 24 hybrid cloud, 3 public clouds, and 21 respondent firms do not have any cloud computing infrastructure in their firms, while a respondent omitted the section.

4.3 Descriptive Analysis

This section helps in explaining the analyzed data inputted in the SPSS analysis, which are presented in a tabular format through the use of descriptive statistical results. The descriptive analysis was carried out on the 46 items/constructs, which represent the sub-hypothesis and questions in the questionnaire representing each factor presented in the research. The descriptive analysis was obtained to guarantee the exactitude of the analyzed data.

Also, the descriptive analysis table comprises of measurable scale, which exemplifies the respondent's opinion on relating to each question of the research. The analysis made use of five (5) Likert scale, which represents how strongly they agree or disagree with the questions contained in each variable. The question consists of strongly disagree, disagree, neutral, agree and strongly disagree.

Furthermore, the variable result was categorized into the section of frequency and percentage, the frequency section represents the amount of time a number of respondents choose a particular scale representing their opinion, while percentage represents the degree to which a portion of respondents select a particular Likert in a question.

4.3.1 Relative Advantage

Relative Advantage has 7 items used to measure respondent perception on cloud adoption

Table 4.2 Descriptive Results of "Using Cloud Computing, we only pay for what I use".

"Using cloud computing, we only pay for what we use"					
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Strongly Disagree	3	1.2	1.2	1.2
	Disagree	10	4.1	4.1	5.4
	Neutral	18	7.4	7.4	12.8
	Agree	74	30.5	30.6	43.4
	Strongly Agree	137	56.4	56.6	100.0
	Total	242	99.6	100.0	
Missing	System	1	.4		

Table 4.2 offers answers on relative advantage question which asked respondent on whether they pay for only what they use. A greater number of respondent, constituting of 86.9% of the response population agreed, they only pay what they use, when using cloud computing. Therefore, with cloud computing the overhead cost of operation for SMEs will be cut down because it "offers pay as you go services, which results in level of usage adjustment, according to the present organization need" (Feuerlicht and Govardhan, 2010) due to they will only pay for what is used and the expense on unnecessary IT infrastructure will be eliminated.

Table 4.3Descriptive Results of Using Cloud Computing, "We can are able to scale up our requirement when required"

"Using cloud computing, we can are able to scale up our requirement when required"					
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Strongly Disagree	2	0.8	0.8	0.8
	Disagree	5	2.1	2.1	2.9
	Neutral	14	5.8	5.8	8.6
	Agree	91	37.4	37.4	46.1
	Strongly Agree	131	53.9	53.9	100.0
	Total	243	100.0	100.0	

In Table 4.3, shows a total 122 (91.3%) agreed that the Using cloud computing, we can are able to scale up our requirement when required 7 (2.9%) disagreed, also another 14(5.8%) remained neutral on the subject. Scability is defined as "the ability of a particular system to fit a problem as the scope of that problem increases (number of elements or objects, growing volumes of work and/or being susceptible to enlargement)." (Furht & Escalante , 2010).Therefor cloud computing provides solution to SMEs requirements as they increases.

Table 4.4Descriptive Result for Using Cloud Computing, "We can Access information from any time from any place"

"Using Cloud computing, we can access information from any time from any place"					
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Strongly Disagree	3	1.2	1.2	1.2
	Disagree	3	1.2	1.2	2.5
	Neutral	11	4.5	4.5	7.0
	Agree	72	29.6	29.6	36.6
	Strongly Agree	154	63.4	63.4	100.0
	Total	243	100.0	100.0	

In Table 4.4, a total of 226 (93%) agreed that the using cloud computing they can access information from any place at any time from any place, while a total of 6 (2.4%) disagreed, also another 11(4.5%) remained neutral on the subject. The ability to work anywhere is one of the major advantages of cloud computing in SMEs, Jain and Bjarddwaj (2010) describes mobility in their research as "a user ability to retrieve and accessing work-related files from any location globe; as long as a computer network access to internet exist.

Table 4.5 Descriptive Result for "Using Cloud Computing , We Need to Administer my IT Infrastructure"

"Using cloud computing , we need to administer my IT infrastructure"					
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Strongly Disagree	6	2.5	2.5	2.5
	Disagree	24	9.9	9.9	12.4
	Neutral	49	20.2	20.2	32.6
	Agree	94	38.7	38.8	71.5
	Strongly Agree	69	28.4	28.5	100.0
	Total	242	99.6	100.0	
Missing	System	1	.4		
Total		243	100.0		

In table 4.5shows that 103 (67.1%) where in agreements that using cloud computing they do not need Information technology infrastructure, while 26 (12.4%) disagree, which is incomparable to the amount respondents which agreed this means more no new IT infrastructure is needed by SMEs who wish to adopt cloud computing. In the past SMEs spend a lot on owning IT infrastructure, however with the use of cloud computing, there won't be need to administer IT infrastructure, i.e. personal servers, only the need of connected internet and computer.

Table 4.6 Descriptive Result of Performance of "Cloud Services Does Not Decrease With Growing User Base"

"Performance of cloud services does not decrease with growing user base"

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Strongly Disagree	4	1.6	1.7	1.7
	Disagree	8	3.3	3.3	5.0
	Neutral	49	20.2	20.3	25.3
	Agree	122	50.2	50.6	75.9
	Strongly Agree	58	23.9	24.1	100.0
	Total	241	99.2	100.0	
Missing	System	2	.8		
Total		243	100.0		

Table 4.6 shows a high number of the respondent agree users base does not affect cloud performance even with growing user base with 180 (74%), which more than half agreed and 49(20.2%) the respondent neither agreed or disagreed. SMEs users base does not affect cloud performance, cloud computing allows SMEs to increase their server space as their employees increase more space are paid for and used by SMEs, which rein cline the pay as you go strategy it effectuates.

Table 4.7 Descriptive Result For Using Cloud Computing , "We Can Access Share Resources Placed On Cloud"

"Using cloud computing , we can access share resources placed on cloud"

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Strongly Disagree	10	4.1	4.1	4.1
	Agree	8	3.3	3.3	7.4
	Neutral	17	7.0	7.0	14.5
	Agree	121	49.8	50.0	64.5
	Strongly Agree	86	35.4	35.5	100.0
	Total	242	99.6	100.0	
Missing	System	1	.4		
Total		243	100.0		

In Table 4.7 result shows 207 (85.5%) respondent agreed that they can share resource placed on the cloud, while another 18 (7.4%) disagreed, which is quite minimal to the number of respondent who agreed, only 17(7.0%) where neutral which was quite less in number to the number of agrees. Cloud computing provides the avenue for SMEs employees to share available resources, which serves an extra advantage offered to organization, it enables employees to access resources placed on cloud from any location, and therefore it saves SMEs time and money (Jain and Bhardwaj, 2010).

Table 4.8 Descriptive Result For "Using Cloud Computing We Need Not Maintain My IT Infrastructure"

"Using cloud computing we need not maintain my IT infrastructure"					
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Strongly Disagree	32	13.2	13.2	13.2
	Disagree	20	8.2	8.3	21.5
	Neutral	36	14.8	14.9	36.4
	Agree	74	30.5	30.6	66.9
	Strongly Agree	80	32.9	33.1	100.0
	Total	242	99.6	100.0	
Missing	System	1	.4		
Total		243	100.0		

Table 4.8 shows 154 (63.4%) respondents agreed using cloud computing SMEs in Nigeria do not need to maintain an IT infrastructure, while 32 (13.2%) disagreed and another 36 (14.8%) where Neutral Not Agree or Disagree. İt can be seen it is generally agreed that as a result of adopting cloud computing SMEs will not need to maintain any previous IT infrastructure which may result in cost increment because all the SMEs IT needs are processed in the cloud.

4.3.2 Compatibility

The compatability section has 8 itemss used to measure respondent perception on cloud adoption.

Table 4.9Descriptive Result for "In Case of Compatibility Issue , We Ask Cloud Service Provider To Offer Integrated Services"

"In case of compatibility issue , we ask cloud service provider to offer integrated services"

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Strongly Disagree	2	.8	.8	.8
	disagree	4	1.6	1.7	2.5
	Neutral	38	15.6	15.7	18.2
	Agree	93	38.3	38.4	56.6
	Strongly Agree	105	43.2	43.4	100.0
	Total	242	99.6	100.0	
Missing	System	1	.4		
Total		243	100.0		

Table 4.9 shows majority of the respondent agrees that cloud computing providers could provide integrated services in any case of incompatibility. The results show 198 (81.5) respondent response in agreement, while 6(9.6%) of the respondent disagreed, while about 38 (15.6) of the respondent did not agreed or disagreed but Neutral. İt is necessary that cloud computing providers offers integrated services which enhances SMEs abilities to import, export and customize it applications and services at the user convenience

Table 4.10Descriptive Result for"Cloud Services are Compatible with Existing Technological Architecture of my Company"

"Cloud services are compatible with existing technological architecture of my company"

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Strongly Disagree	9	3.7	3.7	3.7
	Disagree	15	6.2	6.2	10.0
	Neutral	47	19.3	19.5	29.5
	Agree	86	35.4	35.7	65.1
	Strongly Agree	84	34.6	34.9	100.0
	Total	241	99.2	100.0	
Missing	System	2	.8		
Total		243	100.0		

Table 4.10 shows result of the constructs cloud computing are compatible with existing technology architecture of adopting firms 170 (70%) respondent agreed, while 24 (9.9%) disagreed and 47 (19.3%) respondent where neutral. Technology compatibility is a factor which is mostly considered when adopting any new IS, due to the cost of Business Process Reengineering (BPR), therefore cloud computing mustremain compatible with currentarrangements, interfaces and other organized data, or else incorporated services must be availble by cloud service providers (Geczy et al., 2012).

Table 4.11 Descriptive Results for"Customization in Cloud Services is Easy"

"Customization in cloud services is easy"					
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Strongly Disagree	6	2.5	2.5	2.5
	Disagree	19	7.8	7.9	10.4
	Neutral	43	17.7	17.9	28.3
	Agree	128	52.7	53.3	81.7
	Strongly Agree	44	18.1	18.3	100.0
	Total	240	98.8	100.0	
Missing	System	3	1.2		
Total		243	100.0		

Table 4.11 shows respondent 172(70.8%) respondent agreed customization in cloud computing is easy while another 25 (10.3) disagreed that it is not easy. The majority of accepted that cloud computing is easy to customize, therefore SMEs employee agrees that customization is performed on cloud computing with no or less difficulty, which implies that cloud computing service providers provided customization services.

Table 4.12 Descriptive Result for "The Changes Introduced by Cloud are Consistent With Existing Practices in my Company Computing"

"The changes introduced by cloud consistent with existing practices in my company computing"

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Strongly Disagree	4	1.6	1.7	1.7
	Disagree	21	8.6	8.9	10.5
	Neutral	60	24.7	25.3	35.9
	Agree	120	49.4	50.6	86.5
	Strongly Agree	32	13.2	13.5	100.0
	Total	237	97.5	100.0	
Missing	System	6	2.5		
Total		243	100.0		

Table 4.12 shows 152(62%) of the respondent agreed on the compatibility of cloud computing with existing practices in their organization, while another 25(10.2) disagreed. The respondent answers illustrate, the compatibility of cloud computing with existing practices in their organization, which corresponds to Calisir et al (2009) in their research, which positions compatibility as "The degree to which innovation is perceived to be consistent with potential user's existing values, previous experiences, and requirement"

Table 4.13Descriptive Result of "Cloud Development is Compatible with Firms Existing Format , Interface, and other Structural Data"

"Cloud development is compatible with firms existing format , interface, and other structural data"

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Strongly Disagree	8	3.3	3.3	3.3
	Disagree	30	12.3	12.4	15.7
	Neutral	75	30.9	31.0	46.7
	Agree	88	36.2	36.4	83.1
	Strongly Agree	41	16.9	16.9	100.0
	Total	242	99.6	100.0	
Missing	System	1	.4		
Total		243	100.0		

Table 4.13 shows 129 (53.1%) respondents agreed that Cloud development is well-matched with firms current arrangement, interface, and other organizational data, while 38 (15.6) disagreed. The amount of respondents who agreed signifies cloud computing providers made it possible to match existing organization format, interfaces, and another structural components. Therefore, cloud computing provides a different layout to match different organization needs and compatibility.

Table 4.14Descriptive Result of "We Incur Re-training Cost in Case Of Non-Customizable Cloud-Based Services"

"We incur re-training cost in case of non-customizable cloud-based services"

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Strongly Disagree	9	3.7	3.7	3.7
	Disagree	20	8.2	8.3	12.0
	Neutral	81	33.3	33.5	45.5
	Agree	82	33.7	33.9	79.3
	Strongly Agree	50	20.6	20.7	100.0
	Total	242	99.6	100.0	
Missing	System	1	.4		
Total		243	100.0		

Table 4.14 shows respondent 132 (54.3) agreed that adopting they sustain re-training fee in case of non- modifiable cloud based services, while 29 (11.9) disagreed they incur re-training cost, another 82(33.7) where neutral, which was higher than the disagreed, which implies, cloud computing is well-matched with current organization interface and existing knowledge of computing is sufficient for employees to undertake their organization task

Table 4.15Descriptive Result of "There is no Difficulty Importing Applications/Data from Cloud Services"

"There is no difficulty importing applications/data from cloud services"					
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Strongly Disagree	13	5.3	5.3	5.3
	Disagree	38	15.6	15.6	21.0
	Neutral	34	14.0	14.0	35.0
	Agree	121	49.8	49.8	84.8
	Strongly Disagree	37	15.2	15.2	100.0
	Total	243	100.0	100.0	

Table 4.15 shows 155 (65) respondents agreed that application/importing data from cloud services has no difficulty, while another 34 (14.0) were neutral the question but another 51 (20.9) respondents disagreed. This means, data stored on the cloud can be easily extracted and be used in the future by employees in SMEs. Therefore, cloud computing is compatible with the existing organization process.

Table 4.16Descriptive Result for "There is No Difficulty in Exporting Application/ Data to Cloud Services"

"There is no difficulty in exporting applications/data to cloud services"					
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Strongly Disagree	7	2.9	2.9	2.9
	Disagree	43	17.7	17.8	20.7
	Neutral	31	12.8	12.8	33.5
	Agree	126	51.9	52.1	85.5
	Strongly Agree	35	14.4	14.5	100.0
	Total	242	99.6	100.0	
Missing	System	1	.4		
Total		243	100.0		

Table 4.16 shows 161 (66.3) respondent agreed applications/datahas no difficulty exporting to the cloud, another 50 (20.6) disagreed, while 31(12.86) remained neutral on the subject matter

4.3.3 Complexity

The complexity section has 4 itemss used to measure respondent perception on cloud adoption

Table 4. 17 Descriptive Result for"Cloud computing is flexible to interact with"

"Cloud computing is flexible to interact with"					
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Strongly Disagree	7	2.9	2.9	2.9
	Disagree	21	8.6	8.7	11.6
	Neutral	46	18.9	19.1	30.7
	Agree	94	38.7	39.0	69.7
	Strongly Agree	73	30.0	30.3	100.0
	Total	241	99.2	100.0	
Missing	System	2	.8		
Total		243	100.0		

Table 4.17 shows 167 (68.7) respondent agreed that cloud computing is flexible to interact with while 46 (18.9) remained neutral and another 28 (11.5) disagreed. The table reflects the perceived attitudes of SMEs employees towards performing given task using cloud computing. The higher number of respondents who selected agree means adopting cloud is complex in terms of flexibility

Table 4.18Descriptive Result for "Using Cloud Computing Exposes me to the Vulnerability of Computer Breakdown and Loss of Data"

"Using cloud computing exposes me to the vulnerability of computer breakdown and loss of data"

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Strongly Disagree	100	41.2	41.5	41.5
	Disagree	54	22.2	22.4	63.9
	Neutral	61	25.1	25.3	89.2
	Agree	14	5.8	5.8	95.0
	Strongly Agree	12	4.9	5.0	100.0
	Total	241	99.2	100.0	
Missing	System	2	.8		
Total		243	100.0		

The Table 4.18 shows 154 (66.6) disagreed when using cloud computing they are vulnerable of system break down or loss of data, while another 26 (10.7) agreed and 61(25.1) respondent remained neutral on the subject.

Table 4.19Descriptive Result for "When we Use Cloud Computing , We Find it Difficult to Integrate my Existing Work With the Cloud Based Services".

"When we use cloud computing , we find it difficult to integrate my existing work with the cloud based services"

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Strongly Disagree	40	16.5	16.5	16.5
	Disagree	108	44.4	44.4	60.9
	Neutral	66	27.2	27.2	88.1
	Agree	24	9.9	9.9	97.9
	Strongly Agree	5	2.1	2.1	100.0
	Total	243	100.0	100.0	

Table 4.19 shows 148 (60.9) disagreed that they find it harder to fit current work with the cloud-based services, while another 66 (27.2) remained neutral on the subject, while 29 (11.2) disagreed on the subject matter. Therefore as a result of the ease of integrating cloud computing to existing work, SMEs will have less complexity in adopting cloud computing.

Table 4.20 Descriptive Result for "When Perform Many Task Using Cloud Together, Using Cloud Computing Takes Up Too Much of my Time"

"When perform many task using cloud together, using cloud computing takes up too much of my time"

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Strongly Disagree	47	19.3	19.3	19.3
	Disagree	106	43.6	43.6	63.0
	Neutral	78	32.1	32.1	95.1
	Agree	10	4.1	4.1	99.2
	Strongly Agree	2	.8	.8	100.0
	Total	243	100.0	100.0	

Table 4.20 shows 12 (4.9) agreed that when performing a task together cloud computing takes time, while a greater number of 153 (62.9) disagreed on the subject matter. A higher number of respondent disagreed that using cloud computing longer time is required to work, which means adopting cloud computing by SMEs employees will perform their task faster.

4.4 Organization competency

The Organization competency section has 4 itemss used to measure respondent perception on cloud adoption

Table 4.21 Descriptive Results for "my Company Hires Highly Specialized or Knowledgeable Personnel for Cloud Computing"

"My company hires highly specialized or knowledgeable personnel for cloud computing"

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Strongly Disagree	14	5.8	5.8	5.8
	Disagree	68	28.0	28.0	33.7
	Neutral	33	13.6	13.6	47.3
	Agree	98	40.3	40.3	87.7
	Strongly Agree	30	12.3	12.3	100.0
	Total	243	100.0	100.0	

Table 4.21 shows 128 (52.6) respondents agreed for cloud computing their organization retains an expert or well-informed employees for cloud computing, while 82 (33.8) disagreed they hired specialized staff. Thus SMEs competency in using cloud computing in Nigeria is high when qualified and specialized personnel are retaining knowledgeable employees to use their cloud infrastructure.

Table 4.22Descriptive Results for "We Have Sufficient Technology Resources to Implement Cloud Computing Unrestricted Access to Computer"

"We have sufficient technology resources to implement cloud computing unrestricted access to computer"

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Strongly Disagree	12	4.9	5.0	5.0
	Disagree	46	18.9	19.0	24.0
	Neutral	49	20.2	20.2	44.2
	Agree	110	45.3	45.5	89.7
	Strongly Agree	25	10.3	10.3	100.0
	Total	242	99.6	100.0	
Missing	System	1	.4		
Total		243	100.0		

Table 4.22 shows 135 (109.9) agreed their firm have adequate technological means to actualize cloud computing unlimited access to a computer, while another 48 (23.8) disagreed. Technology resources are necessary when adopting cloud, however, an organization that intends to adopt a technology innovation will need to have existing technology resources available for such technology deployment. SMEs have sufficiently technology resource to implement cloud computing shows the degree of their willingness for adoption.

Table 4.1.3Descriptive Result for "We Have Sufficient Technological Resources to Implement Cloud Computing –High Bandwidth Connectivity to Internet"

"We have sufficient technological resources to implement cloud computing –high bandwidth connectivity to internet"

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Strongly Disagree	4	1.6	1.7	1.7
	Disagree	34	14.0	14.0	15.7
	Neutral	37	15.2	15.3	31.0
	Agree	132	54.3	54.5	85.5
	Strongly Agree	35	14.4	14.5	100.0
	Total	242	99.6	100.0	
Missing	System	1	.4		
Total		243	100.0		

Table 4.23 shows 167 (68.7%) respondents agreed their organization has the adequate technological capability to actualize cloud computing high bandwidth connectivity to the internet, while a lower number of respondents 38 (15.6%) disagreed. An SMEs without technology resource surely cannot use internet talk less of running a higher speed internet needed for successful adoption, implementation and use of cloud computing, therefore, it is compulsory to have sufficiently technology resource, as it can be seen with the amount of respondent in agreement, means cloud adoption by SMEs will not be affected by the lack of technology resources.

Table 4.24 Descriptive Result for "We Allocate a Percent of Total Revenue for Cloud Computing Implementation in the Company"

"We allocate a percent of total revenue for cloud computing implementation in the company"

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Strongly Disagree	16	6.6	6.7	6.7
	Disagree	41	16.9	17.2	23.8
	Neutral	56	23.0	23.4	47.3
	Agree	103	42.4	43.1	90.4
	Strongly Agree	23	9.5	9.6	100.0
	Total	239	98.4	100.0	
Missing	System	4	1.6		
Total		243	100.0		

Table 4.24 shows 126 (51.9%) respondent agreed they will appropriate a proportion of overall income to cloud computing enactment, while 57 (23.5%) disagreed, which highlighted the fact the necessity financial readiness when adopting cloud computing, this are the financial resources used in the enactment and for concurrent expenditure throughout cloud computing usage (Musawa & Wahab 2012; Oliveria & Martings, 2010). To effectively adopt cloud computing SMEs, have to the organizational competency and the infrastructure which aligns with employee's expertise, a financial capability which boost the usefulness of the technology.

4.5 Top Management Support

Table 4.25 Descriptive Result of "our Top Management Exhibits a Culture of Enterprise Wide Information Sharing"

The Top Management section has 4 itemss used to measure respondent perception on cloud adoption

"Our top management exhibits a culture of enterprise wide information sharing"

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Strongly Disagree	9	3.7	3.7	3.7
	Disagree	35	14.4	14.4	18.1
	Neutral	83	34.2	34.2	52.3
	Agree	82	33.7	33.7	86.0
	Strongly Agree	34	14.0	14.0	100.0
	Total	243	100.0	100.0	

Table 4.25 shows 116 (47.7) agreed that their ranking executives portray a culture of organizational widespread information dissemination, while another lower number of 44 (18.1) disagreed. Information is a key component in successful organization operation, it well-considered for technology adoption, information sharing is one major factor which facilitates the ease of and use of technology, therefore an organization in which it top management shares information creates an atmosphere in which technology such as cloud computing will be effective and adopted.

Table 4.26Descriptive Results for "The Company's Top Management Provides Strong Leadership and Engages in the Process When it Comes to Information Systems Company"

"The company's top management provides strong leadership and engages in the process when it comes to information systems company"					
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Strongly Disagree	5	2.1	2.1	2.1
	Disagree	30	12.3	12.4	14.5
	Neutral	45	18.5	18.6	33.1
	Agree	120	49.4	49.6	82.6
	Strongly Agree	42	17.3	17.4	100.0
	Total	242	99.6	100.0	
Missing	System	1	.4		
Total		243	100.0		

Table 4.26 shows 162(66.3%) of the respondent agreed strong leadership are provided by top management provides and involved in development when it comes to information system of the organization, while another 35 (14.4%) disagreed with top management support above.

Table 4.27 Descriptive Result for "My Top Management is Likely to Consider the Adoption of Cloud Computing as Strategically Important"

"My top management is likely to consider the adoption of cloud computing as strategically important"

	Frequency	Percent	Valid Percent	Cumulative Percent
Strongly Disagree	5	2.1	2.1	2.1
Disagree	24	9.9	9.9	11.9
Neutral	27	11.1	11.1	23.0
Agree	115	47.3	47.3	70.4
Strongly Agree	72	29.6	29.6	100.0
Total	243	100.0	100.0	

Table 4.27 shows 187 (58.4%) respondents agreed and a lower number of 29 (12%) disagreed with their organization, while the adoption of cloud computing is consider strategically important by top management. The perception of topmostadministration in cloud computing adoption is necessary for it creates an atmosphere which guarantees "long term obligation of assets, optimum supervision of assets, refinement of favorable organization environment, greater assessment of self-efficacy, provision in incapacitating obstacles and opposition to amendment (wang et al., 2010; Jang., 2010; Ramdani et al., 2009).

Table 4.28Descriptive Result for "My Top Management is Willing to Take Risks Involved in the Adoption of Cloud Computing"

"My Top management is willing to take risks involved in the adoption of cloud computing"

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Strongly Disagree	17	7.0	7.0	7.0
	Disagree	25	10.3	10.3	17.4
	Neutral	51	21.0	21.1	38.4
	Agree	88	36.2	36.4	74.8
	Strongly Agree	61	25.1	25.2	100.0
	Total	242	99.6	100.0	
Missing	System	1	.4		
Total		243	100.0		

Table 4.28 shows a total number 149 (61.3) respondent agreed their top management is will to take risk when it comes to cloud computing adoption, while another 42 (17.3) respondent disagreed. Thus for an organization to adopt cloud computing, SMEs managers have to be willing to take a risk in its implementation due to uncertainty of the value of which it will add to organization, however Salwani et al. (2009) identifies top management support as the perception and actions of top officials on the usefulness of technology innovation in creating values for the firm.

4.6 Training and Education

The Training and Education section has 3 itemss used to measure respondent perception on cloud adoption

Table 4.29 Descriptive Result for "My Level of Understanding Was Substantially Improved After Going Through the Training Program On Cloud Computing"

"My level of understanding was substantially improved after going through the training program on cloud computing"

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Strongly Disagree	5	2.1	2.1	2.1
	Disagree	21	8.6	8.7	10.7
	Neutral	36	14.8	14.9	25.6
	Agree	120	49.4	49.6	75.2
	Strongly Agree	60	24.7	24.8	100.0
	Total	242	99.6	100.0	
Missing	System	1	.4		
Total		243	100.0		

Table 4.29 shows 180 (74.1%) respondent agreed their level of understanding was significantlyupgraded after undergoing exercisepackage on cloud computing, while 26 (10.7%) respondent disagree. Highlighting SMEs employee's ability to interact affectively with cloud, this means sufficient training is given to employees, which increase their performance on task when using cloud computing.

Table 4.30 Descriptive Result for "My Company Provided Me Compete Training in Using Cloud Computing"

"My company provided me compete training in using cloud computing"					
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Strongly Disagree	20	8.2	8.3	8.3
	Disagree	24	9.9	10.0	18.3
	Neutral	75	30.9	31.1	49.4
	Agree	75	30.9	31.1	80.5
	Strongly Agree	47	19.3	19.5	100.0
	Total	241	99.2	100.0	
Missing	System	2	.8		
Total		243	100.0		

Table 4.30 shows 122 (50.2) respondent agreed their organization provide complete training in using cloud computing, while 44 (18.1%) of respondent disagreed complete training was provided to them.

Table 4.31 Descriptive Result of "The Training Gave Us Confidence in Use of Cloud Computing"

"The training gave us confidence in use of cloud computing"					
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Strongly Disagree	12	4.9	4.9	4.9
	Disagree	36	14.8	14.8	19.8
	Neutral	54	22.2	22.2	42.0
	Agree	89	36.6	36.6	78.6
	Strongly Agree	52	21.4	21.4	100.0
	Total	243	100.0	100.0	

Table 4.31 shows 141 (58%) respondent agreed the training provided by their organization gave them confidence in using cloud computing, another 48 (19.7%) disagreed the training gave them confidence. The respondent signifies the training they received for the purpose of working on their task on cloud, boost their confidence, which directly increase their work performance.

4.7 Trading Partner Support

The Trading Partner Support section has 3 itemss used to measure respondent perception on cloud adoption

Table 4.32 Descriptive Result for "our Agreement With Cloud Services Providers Ensures that they Have High Availability"

"Our agreement with cloud services providers ensures that they have high availability"					
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Strongly Disagree	4	1.6	1.7	1.7
	Disagree	21	8.6	8.7	10.3
	Neutral	36	14.8	14.9	25.2
	Agree	133	54.7	55.0	80.2
	Strongly Agree	48	19.8	19.8	100.0
	Total	242	99.5	100	

Table 4.32 shows 186 (74.8%) of the respondent agreed, while 25 (10.2%) disagreed that their contractthrough service providers guaranteesextraordinaryconvenience architecture, and verified platform and applications for readiness service.

Table 4.33 Descriptive Result for "Our Organization Ensures that Cloud Service Providers Considerably Invest in Security Controls and Monitoring of Access to the Contents"

"Our organization ensures that cloud service providers considerably invest in security controls and monitoring of access to the contents"					
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Disagree	21	8.6	8.7	8.7
	Neutral	34	14.0	14.0	22.7
	Agree	148	60.9	61.2	83.9
	Strongly Agree	39	16.0	16.1	100.0
	Total	242	99.6	100.0	
Missing	System	1	.4		
Total		243	100.0		

Table 4.33 Shows 187 (76.9%) respondent when in agreement that their organization ensure that cloud computing provider considerably invest in security controls and monitoring access to the contents, another 55 (22.6%) disagreed. İt was discussed by katzan (2010) in his studies of security in the cloud, he stipulated that security is not just about genuineness, consent and culpability, nevertheless is more related to informationsecurity, adversityrepossession, and business continuity.

Table 4.34Descriptive Result for "We Check Whether Cloud Service Provider has Policy for Handling Personally Identifiable Information"

"We check whether cloud service provider has policy for handling personally identifiable information"

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Strongly Disagree	7	2.9	2.9	2.9
	Disagree	29	11.9	11.9	14.8
	Neutral	45	18.5	18.5	33.3
	Agree	118	48.6	48.6	81.9
	Strongly Agree	44	18.1	18.1	100.0
	Total	243	100.0	100.0	

Table 4.34 shows respondent 162 (66.7%) agreed their organization check wheth\er cloud service provider has policy for handling personally identifiable, while another 36 (14.9%) disagreed on the subject. It is necessary to know if personal identifiable information policy, in order to ascertain the risk in which SMEs will be exposed to in the case of data breach as such, having a policy protecting the SMEs will help in providing support for the SMEs.

Table 4.35 Discreptive Result for "We Ensure that Cloud Vendors Implement Strong Access and Identity Management to Ensure Unauthorized Access to Cloud Computing"

"We ensure that cloud vendors implement strong access and identity management to ensure unauthorized access to cloud computing"					
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Strongly Disagree	4	1.6	1.7	1.7
	Disagree	26	10.7	10.8	12.5
	Neutral	27	11.1	11.3	23.8
	Agree	125	51.4	52.1	75.8
	Strongly Agree	58	23.9	24.2	100.0
	Total	240	98.8	100.0	
Missing	System	3	1.2		
Total		243	100.0		

Table 4.35 shows 183 (74.8%) of the respondent agreed their organization ensure cloud vendor actualize robust access and uniquenessin organization to ensure unauthorized access to cloud computing, while another 30 (12.3%) respondent are in disagreement. Data security is a pertinent factor to be considered when adopting new technologies, therefor it is necessary, for cloud service providers to provide strong access and prevent unauthorized access to cloud computing. SMEs have to ascertain their cloud service provider is aware of this and have necessary measures put in place, it can be seen from the table a large number of the respondent agreed their organization ensures the measures are put in place by their cloud service providers.

4.8 Competitive Pressure

The Competitive Pressure section has 3 itemss used to measure respondent perception on cloud adoption

Table 4.36 Descriptive Result Showing, "We are Aware of Cloud Computing Implementation in our Competitor Organizations"

"We are aware of cloud computing implementation in our competitor organizations"

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Strongly Disagree	3	1.2	1.2	1.2
	Disagree	7	2.9	2.9	4.1
	Neutral	34	14.0	14.1	18.3
	Agree	152	62.6	63.1	81.3
	Strongly Agree	45	18.5	18.7	100.0
	Total	241	99.2	100.0	
Missing	System	2	.8		
Total		243	100.0		

Table 4.36 shows 197 (81%) of the respondent agreed, while 10 (4.1%) disagreed their organization are aware of cloud computing implementation in the competitor organizations. Competitive pressure is always motivating factor for technology adoption, as highlighted by (Lin and Lin, 2008), while competitive pressure remains a motivator for cloud adoption in every organization and predominantly in this thesis as seen from the table a great number of respondent agreed, to the statement, as competition is broadlyseen to positively influence the IT adoption specifically, especially if precisely affects the competition and strategically essential to accept new technologies to contest in the market (Ramdani et al., 2009).

Table 4.37Descriptive Results Represents, "We Understand the Competitive Advantages offered by Cloud Computing in our Industry"

"We understand the competitive advantages offered by cloud computing in our industry"

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Strongly Disagree	1	.4	.4	.4
	Disagree	2	.8	.8	1.2
	Neutral	17	7.0	7.1	8.3
	Agree	139	57.2	57.7	66.0
	Strongly Agree	82	33.7	34.0	100.0
	Total	241	99.2	100.0	
Missing	System	2	.8		
Total		243	100.0		

Table 4.37 shows 221 (90.09%) of the respondent agreed, while 3 (1.2%) disagreed their organization understand the competitive advantage offered by cloud computing in their organization. SMEs have to understand the competitive advantage they will attain by adopting cloud computing, "information system adoption is beneficial for a organization to change the competitive environment in relation to rules of competition, business structure and exceed the adversary (Gangwar et., al 2015, Porter and Miller, 1985).

4.9 Perceive Ease of use

The Perceive Ease of use section has 3 itemss used to measure respondent perception on cloud adoption.

Table 4.38Descriptive Result showing "The Procedure of Using Cloud Computing is Understandable"

"The procedure of using cloud computing is understandable"					
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Disagree	1	.4	.4	.4
	Neutral	18	7.4	7.5	7.9
	Agree	130	53.5	54.4	62.3
	Strongly Agree	90	37.0	37.7	100.0
	Total	239	98.4	100.0	
Missing	System	4	1.6		
Total		243	100.0		

Table 4.38 shows 220 (90.5) respondent agreed, while another 18 (7.4%) neutral and 1 (0.4%) disagreed on the statement that the procedureused in cloud computing operation is understandable. Thus cloud computing is having a great variety in terms of ease of use understandability.

Table 4.39Descriptive Result of"It is Easy to Make Use of Cloud Computing"

"İt is easy to make use of cloud computing"					
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Disagree	4	1.6	1.7	1.7
	Neutral	16	6.6	6.6	8.3
	Agree	129	53.1	53.3	61.6
	Strongly Agree	93	38.3	38.4	100.0
	Total	242	99.6	100.0	
Missing	System	1	.4		
Total		243	100.0		

Table 4.39 shows 222 (91.4%) agree, while 20 (8.2%) disagree, it is not difficult for the respondents to gain knowledge of cloud computing in their organization,

therefore SMEs will adopt cloud because it is easy to use.

Table 4.40Descriptive Result for "Using Cloud Computing Allow me to Manage Business Operation in an Efficient Way"

"Using cloud computing allow me to manage business operation in an efficient way"					
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Disagree	2	.8	.8	.8
	Neutral	14	5.8	5.9	6.7
	Agree	136	56.0	56.9	63.6
	Strongly Agree	87	35.8	36.4	100.0
	Total	239	98.4	100.0	
Missing	System	4	1.6		
Total		243	100.0		

Table 4.40 shows 223 (91.8%) of the respondent agree it easy to use cloud computing, while another 2 (0.8%) disagrees to the statement in terms of using cloud computing enabling SMEs to efficiently manage their busineses

4.10 Perceive usefulness

The Competitive Pressure section has 5 items used to measure respondent perception on cloud adoption.

Table 4.41 Descriptive Result of"Using Cloud Computing Allow me to Manage Business Operation in an Efficient Way"

"Using cloud computing allow me to manage business operation in an efficient way"					
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Disagree	2	.8	.8	.8
	Neutral	28	11.5	11.6	12.4
	Agree	142	58.4	58.9	71.4
	Strongly Agree	69	28.4	28.6	100.0
	Total	241	99.2	100.0	
Missing	System	2	.8		
Total		243	100.0		

Table 4.41 shows 211 (86.6%) of respondent agreed allow them to manage business operation in efficient way, while 2 (0.8%) respondent disagrees in their organization.

Table 4.42Descriptive Result of "Using Cloud Computing Allow me to Increase Business Productivity"

"Using cloud computing allow me to increase business productivity"					
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Neutral	16	6.6	6.6	6.6
	Agree	162	66.7	67.2	73.9
	Strongly Agree	63	25.9	26.1	100.0
	Total	241	99.2	100.0	
Missing	System	2	.8		
Total		243	100.0		

Table 4.42 shows a total of 225 (92.5%) of the respondent agreed using cloud computing countenance them to intensifyindustry productivity, while 16 (6.6%) where neutral on the subject.

Table 4.43 Descriptive Result Presenting "Using Cloud Computing Allow me to Accomplish my Organization Task More Quickly"

"Using cloud computing allow me to accomplish my organization task more quickly"					
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Strongly Disagree	2	.8	.8	.8
	Disagree	2	.8	.8	1.7
	Neutral	21	8.6	8.7	10.3
	Agree	156	64.2	64.5	74.8
	Strongly Agree	61	25.1	25.2	100.0
	Total	242	99.6	100.0	
Missing	System	1	.4		
Total		243	100.0		

Table 4.43 shows 217 (89.3) respondent agreed using cloud computing them to accomplish organization task more quickly, while 2 (0.8%) respondent disagrees.

Table 4.44Descriptive Result for "The Use of Cloud Computing Services Improve the Quality of Business Operation"

"The use of cloud computing services improve the quality of business operation"					
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Neutral	31	12.8	12.8	12.8
	Agree	144	59.3	59.5	72.3
	Strongly Agree	67	27.6	27.7	100.0
	Total	242	99.6	100.0	
Missing	System	1	.4		
Total		243	100.0		

Table 4.44 shows 211 (86.9%) respondent's agreed that using cloud computing services improves the quality of business operation, while 31 (12.8%) remained neutral.

Table 4.45Descriptive Result Showing "Using Cloud Computing Advances my competitiveness"

"Using cloud computing advances my competitiveness"					
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Disagree	3	1.2	1.2	1.2
	Neutral	30	12.3	12.4	13.6
	Agree	138	56.8	57.0	70.7
	Strongly Agree	71	29.2	29.3	100.0
	Total	242	99.6	100.0	
Missing	System	1	.4		
Total		243	100.0		

Table 4.45 shows 209 (86%) respondent agrees using cloud computing improves their competitiveness, while another 3 (1.2%) disagrees.

4.11 Adoption Intention

The Adoption Intention section has 2 itemss used to measure respondent perception on cloud adoption

Table 4.46Descriptive Result for, "Overall, I Think That Using Cloud Computing Service is Advantageous"

"Overall, I think that using cloud computing service is advantageous"					
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Disagree	2	.8	.8	.8
	Neutral	11	4.5	4.5	5.4
	Agree	168	69.1	69.4	74.8
	Strongly Agree	61	25.1	25.2	100.0
	Total	242	99.6	100.0	
Missing	System	1	.4		
Total		243	100.0		

Table 4.46 shows 229 (94.2%) overall think that using cloud computing services are advantageous, while 2(0.8%) disagree, therefor cloud adoption is seen as advantageous to the respondent organization, which means the service it offers is beneficial to the SMES productivity.

Table 4.47Descriptive Result for Overall, "I am in Favor of Using Cloud Computing Services"

"Overall, I am in favor of using cloud computing services"					
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Disagree	1	.4	.4	.4
	Neutral	14	5.8	5.8	6.2
	Agree	116	47.7	48.1	54.4
	Strongly Agree	110	45.3	45.6	100.0
	Total	241	99.2	100.0	
Missing	System	2	.8		
Total		243	100.0		

Table 4.47 shows 226 (93%) of respondent agreed overall they are in favour of using cloud computing service, while 1(0.4) respondnet disagreed another 14(5.8%) did not agree or disagree but where neautral.

4.12 Statistical Analysis Result

The statistical analysis result are presented in this section, the research undertook three statistical analysis, the first which was cronbach's alphas, which was used to measure the questionneir relaibility, the second is correlation analaysis which was used to measure the check if ther is a between the independent and dependent variable, while the multiple regression analysis was used to identify the significant variable affecting cloud computing adoption

4.12.1 Cronbach's Alphas Analysis

The Cronbach's Alphas Analysis, was the first Statistical Test conducted for the research which tested the research survey questions in the questionnaire.Cronbach's alphas, is a test used to measure instrument reliability, the test was conducted on the 10 factors for cloud adoption. Results of all the factors are sufficiently high to conclude that the instruments are reliable. The Cronbach's alphas are determined to be reliable because the Cronbach's alphas α scores computed for each factor where not less than 0.70 (except complexity and Trading Partner support). The alphas α for the factors are considered as the reliability coefficient of acceptability. Thus out of the ten factors considered for the research only 2 are determined to be unacceptable the remaining eight are acceptable as seen in Table 4.48, they have high reliabilities with values higher or equal to 0.7 which is the acceptability coefficient.

4.12.2 Discuusion of Cronbach's Alpha Analysis Outocome

- **Relative Advantage**: The Cronbach's Alpha result for relative advantage was positive and relaiable at α= .747, therefor the questionnaire construct starting from 1-7 representing relative advantage are are good to be used collect data.

- **Compatability**: The Cronbach's Alpha result for relative compatability was positive and relaiable at α= .760, therfor the questionnaire construct starting from 8-15 representing compatability are are reliable to be used collect data for the research because it is not less than 0.70.
- **Complexity**: The Cronbach's Alpha result for relative complexity was negative and not relaiable at α= .171, therefor the questionnaire construct starting from 16-19 representing complexity are not reliable to be used collect data for the research because it is less than 0.70, however it was still to be adopted in the research because it was found to be insgnifican in the regression analysis.

- **Organization Competence**: The Cronbach's Alpha result for Organization Competence was positive and relaiable at α= .720, therefor the questionnaire construct starting from 20-23 representing Organization Competence are reliable to be used collect data for the research because the alpha is not less than 0.70.

- **Top Management Support:** The Cronbach's Alpha result for Top Management Support was positive and relaiable at α= .779, therefor the questionnaire construct starting from 24-27 representing Top Management Support are reliable to be used collect data for the research because the alpha is not less than 0.70.

- **Training and Education :** The Cronbach's Alpha result for Training and Education was very positive and very relaiable at α= .824, therefor the questionnaire construct starting from 28-30 representing Training and Education are are reliable to be used collect data for the research because the alpha is more than 0.70.

- **Competitive Pressure:** The Cronbach's Alpha result for Competitive Pressure was very positive and very relaiable at α= .862, therefor the questionnaire construct starting from 31-34 representing Competitive Pressure are are reliable to be used collect data for the research because the alpha is more than 0.70.

- **Trading Partner Support:** The Cronbach's Alpha result for Trading Partner Support was negative and not relaiable at α= .373, therefor the questionnaire construct starting from 35-36 representing Trading Partner Support are are not reliable to be used collect data for the research because it is less than 0.70, however it was still to be adopted in the research because it was found to be insgnifican in the regression analysis.
- **Perceived Ease of Use:** The Cronbach's Alpha result for Perceived Ease of Use was positive and relaiable at α= .742, therefor the questionnaire construct starting from 37-39 representing Perceived Ease of Use are are reliable to be used collect data for the research because the alpha is not less than 0.70.
- **Perceived Usefulness:** The Cronbach's Alpha result for Perceived Usefulness was very positive and relaiable at α= .7807, therefor the questionnaire construct starting from 40-44 representing Perceived Usefulness are are reliable to be used collect data for the research because the alpha is not less than 0.70.

Table 4.2"Instrument of Reliability Test Croncbach's Alpha"

Factors	Cronchbach's alphas	Item/Question no's
Relative advantage	.747	1-7
Compatibility	.760	8-15
Complexity	.171	16-19
organization competence	.720	20-23
Top management support	.779	24-27
Training and Education	.824	28-30
Competitive pressure	.862	31-34
Trading Partner support	.373	35-36
Perceived ease of use	.742	37-39
Perceived usefulness	.807	40-44

The Table 4.48 show in detail the Cronbach's Alpha analysis result, it is discussed in detail above.

4.13 Correlation Analysis

The research presents a correlation analysis of the dependent variables and independent variable, the results of the analysis are presented as follows:

The correlation results are presented in Table 4.48 shows the research result of correlation analysis between SMES adoption of cloud computing and each of the factors under Integrated Technology acceptance model and Technology Organization Environment Factors. The correlation analysis was conducted midst the dependent variable and each of the independent variables. Where correlation is absent, this is denoted by (r = 0.00) correlation coefficient. Correlation coefficient of r= + 1.00 denotes a positive linear relationship while a perfect negative linear relationship is shown by a correlation coefficient of r = -1.00. An absolute value of r = ± 0.70 measures the results, and shows a strong negative or positive linear relationship.

The relationship between the constructs of this research, expressed by means of correlations are reported in table 4.48

4.13.1 Correlation Analysis Result Discussion

The research correlation Analysis was all positive for all the constructs, except

complexity with a negative correlation coefficient of r = -1.00. The independent variable correlation coefficient are explained in details individual

- **Relative Advantage**: The correlation between adoption intention coefficient of r = 0.0948 was neither negative or positive since its not upto a negative or positive r= 1.00 for raltive advanatge denotes correlation is absent.
- **Compatability**: The correlation betweencompatability and adoption intention coefficient of r= 0.157 was positive because r= + 1.00, which denotes a positive linear relationship.
- **Complexity**: The correlation for complexity and adoption intention was negative because correlation was absent at -0.052, this denotes a negative linear relationship.
- **Organızation Competence**: There was a positive linear correlation between organization competency and adoption intention because r=0.138* , which denotes a positive linear relationship.
- **Top Management Support**: There was a linear correlation between Top Management Support and Adoption Intention because r=0.3381*,which denotes a positive linear relationship.
- **Training and Education**: There was a positive correlation between Training and Education with Adoption Intention because r=0.2496*, which denotes a positive linear relationship.
- **Trading Partner Support**: There was a positive correlation between Trading Partner Support and Adoption Intention becauser=0.2292*, which denotes a positive linear relationship.
- **Competitive Pressure**: There was possitive corelation with between Competitive pressure and Adoption Intention because r=0.3613*, which denotes a positive linear relationship.
- **Perceived Ease of Use** : There was a positive correlation between Percieved Ease Of Use and Adoption Intention because r=0.524, which denotes a positive linear relationship.
- **PerceivedUsefulness:** There was a positive Correlation between perceived Usefulness and Adoption Intentionbecause r=0.662, which denotes a positive correlations.

Table 4.49"Correlation Anlysis Result"

Constructs	Relative advantage	Compatibility	Complexity	Organizational Competency	Top Management Support	Training and education	Trading partner support	Competitive Pressure	Perceived Ease of use	Perceived Usefulness	Adoption Intention	Mean	Standard deviation	Cronbach' s alpha
Relative advantage	1.0000											.819	.125	.747
Compatibility	0.601*	1.000										.739	.124	.760
Complexity	-0.153	-0.036	1.000									.525	.110	.171
Organization competency	-0.070	0.2280*	-0.116*	1.000								.676	.157	.720
Top management support	0.114*	0.248*	0.148*	0.533*	1.00							.729	.161	.779
Training and Education	0.219*	0.401*	-0.107*	0.416*	0.615*	1.000						.7200	.189	.824
Trading partner support	0.219*	0.154*	-0.116*	0.277*	0.548*	0.491*	1.000					.756	.155	.862
Competitive Pressure	0.195*	0.278*	-0.055	0.187*	0.290*	0.1801*	0.346*	1.000				.812	.1230	.373
Perceived Ease of Use	0.176*	0.212*	-0.092	0.090	0.328*	0.112*	0.219*	0.538*	1.000			.847	.125	.742
Perceived Usefulness	0.108*	0.222*	-0.145*	0.112*	0.236	0.230*	0.231*	0.324*	0.551*	1.000		.826	.109	.807
Adoption intention	0.095	0.157*	-0.051	0.138*	0.338*	0.249*	0.229*	0.361*	0.542*	0.662*	1.000*	.426	.058	.578

4.14 Multiple Regression Analysis Result

The research was conducted to determine factors affecting cloud adoption by SMEs, therefor a relationship between SMEs adoption of cloud computing was tested using Integrated Technology Acceptance Model and Technology, organization and Environment Factors. A multiple regression analysis was executed and the outcomes are shown in Table 4.50.

Table 4.50. shows R-squared 0.5156 for the Technology Acceptance Model and Technology, organization and Environment Factors predicts SMES's adoption of cloud computing. The model proposes 51.56% variability in SMES's adoption of cloud computing which is explained by the selected independent variable. Thus, the changes in the adoption of cloud computing are explained by the selected independent variables.

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4.14.1 Multiple Regression Analysis Result Discussion

The data obtained from the questionnaire were all inputed into excel and a mean score for each factor was derived. A total of ten factors of the were used for multiple regression analysis as independent predictors of cloud computing adoption.

The result shows that most of the factors where not factors that affect cloud computing adoption in Lagos, Nigeria. The Results are presented below.

- **Relative Advantage**: Ap value of 0.642 was derived it was insignificant to cloud computing adoption because it is greater than 0.1
- **Compatbility**: A p value of 0.130 was derived, which means it is insignificant to cloud computing adoption because it is greter than 0.1
- **Complexity**: A p value of 0.147 was derived, which means it is insignificant to cloud computing adoption because it is greter than 0.1
- **Organization Competency**: A p value of 0.785 was derived, which means it is insignificant to cloud computing adoption because it is greter than 0.1
- **Top Management Support**: A p value of 0.049 was derived, which means it is significant to cloud computing adoption because it is less than 0.1 at 5% significant value

- **Training and Education**: A p value of 0.271was derived, which means it is insignificant to cloud computing adoption because it is greter than 0.1
- **Trading Partner Support**: A p value of 0.384 was derived, which means it is insignificant to cloud computing adoption because it is greter than 0.1
- **Competitive Pressure**: A p value of 0.268was derived, which means it is insignificant to cloud computing adoption because it is greter than 0.1
- **Perceived Ease of Use**: A p value of 0.004was derived, which means it is significant to cloud computing adoption because it is less than 0.00 at 1% significant value
- **Perceived Usefulness**: A p value of 0.000 was derived, which means it is significant to cloud computing adoption because it is less than 0.0 at 1% significant value

Table 4.50 "Multiple Regression Results"

Adoption Intention	B values	Standard Error	t	p	[95%Conf	.Interval]
Relative advantage	0.0166386	.0357518	0.47	0.642	-0.538011	0.870784
Compatibility	-.0044112	.0290227	-1.52	0.130	-.1012936	.0130697
Complexity	.0364233	.0250468	1.45	0.147	-.012925	.0857715
Organization Competency	-0.00547	.0200523	-0.27	0.785	-.044977	.0340388
Top Management Support	.0544651	.0274958	1.98	0.049	.0002916	.1086386
Training and education	.228455	.0206881	1.10	0.271	.0179151	.063606
Trading partner support	-.0228778	.0341246	-0.87	0.384	.0745952	.0288396
Competitive pressure	.378852	.0298109	1.11	0.268	-0.293486	.105119
Perceived Ease of Use	.0870513	.0384497	2.92	0.004	.0283167	.145786
Perceived Usefulness	.275734	.0537884	7.17	0.000	.1999788	.3514893
Adoption Intention	.0587285	52	1.09	0.276	-0.472477	.1647047
R2	.5156					

Number observation= 240 Model Fit: F (10,232) = 12.02, p>F=0.0000, R^2=0.5156, R^2adjusted=.04103

4.14.2 Analysis of Variance

From the Table 4.50the reported R^2 value indicated that approximately 52% of the variation in adoption intention can be explained by the independent variables included in the model

4.14.3Significant Variable for Regression Analysis

The outcomesindicates that, all other variable where insignificant except Top management support, perceived usefulness and perceived ease of use, all other factors are statistically insignificant influencing the decision to adopt cloud computing. Therefore, below equation can be rewritten in standard Algebraic form of under –standardized regression equation becomes as follows.

$Y = 0.587285+0.544651X_5+0.870513X_9+0.275734X_{10}+\varepsilon$

The outcomes show a positive multiple regression of 0.0544651 coefficient for top management support. Thus a unit change in top management support leads to an increase in adoption of cloud computing. Which infers adoption of cloud computing amongst SMES's in Lagos, Nigeria were likely to be as a result of perceived increase in Top Management support. Relatively where there is perceived Top Management support, there is a probability that SMES's would adopt cloud computing, Yagitbasioglu (2015) suggest Top management as the most important factor influencing cloud computing adoption. Hence the result confirmed the hypothesis that SMES's are more likely to adopt cloud computing, when top management provide support for cloud computing adoption

H5 Top management support positively effect adoption intention.

Also it was perceived use had a positive regression coefficient of 0.870513. Thus a unit change in perceived use will results in an increase in the adoption of cloud computing. This imply an increase in perceived use of cloud computing will likely improve the adoption of cloud computing SMES's in Lagos, Nigeria

H9 PU has positive effect on cloud computing adoption

The results further show perceive ease of use has positive coefficient of 0.275734. This denote a unit change in perceive ease of use of cloud computing will result in an increase in cloud computing adoption by SMES's in Lagos, Nigeria. As the perceive ease of use of cloud computing increase, it inversely increase the likelihood of adoption.

H10 PEOU has positive effect on cloud computing adoption

4.14.4Insignificant Variable

The insignificant variable shown include, relative advantage, compatibility, complexity, organization competency, training and education, competitive pressure.

They all had p values less than 0.0000. This means SMES's in Lagos adoption intention are not influenced by relative advantage, compatibility, complexity, organization competency, training and education, competitive pressure and are not-significant in posit to the influence on SMES's adoption of cloud computing. It is understandable to say that these factors do not considerably affect the adoption of cloud computing in amongst SMES's, as such the following hypothesis are neglected.

H1 Relative advantage has positive effect on adoption intention
H2 Compatability has positive effect on adoption intention
H3 Complexity has negatively effect on adoption intention
H4 Organization readiness has positive effect on adoption intention
H6 Training and education has positive effect on adoption intention
H7 Competitive pressure has positive effect on adoption intention

4.15 Summary of Variables

Table 4.51 provides a summary of each variable of the model against the constant variable cloud computing adoption.

Table4.51"Summary of Variables"

	Variable	Hypothesis Result
H_1	Relative advantage	Rejected
H_2	Compatibility	Rejected
H_3	Complexity	Rejected
H_4	Organization Competency	Rejected
H_5	Top Management Support	Accepted
H_6	Training and Educatiuon	Rejected
H_7	Competitive Pressure	Rejected
H8	Trading Partner Support	Rejected
H9	Perceived Usefullness	Accepted
H10	Perceived Ease of Use	Accepted

CHAPTER SIX

CONCLUSION

The research identifies factors affecting cloud computing adoption in Lagos, Nigeria, in Small Medium Enterprise's with particular focus on the integration of Technology Acceptance Model and Technology Organization Environment framework factors, and was propelled as a result of TAM-TOE factors considered from related research conducted by Hemalta Gangwar, Date and Ramaswamy (2015). Also, it is intended to compare the findings of this research to previous researches conducted using the TOE Framework or TAM Model factors in finding significant and insignificant factors affecting cloud computing adoption by SMEs.

The current research found top management support, perceived usefulness and perceived usefulness as factors affecting cloud computing adoption while using integrated TAM-TOE to analyze factors affecting cloud computing in SMEs, in Lagos Nigeria, using multiple regression analysis, while another paper on the determinants of cloud computing adoption: "analyzing the Australia SMEs adoption of cloud computing" found relative advantage, compatibility, and trialability, firm size, and top management support, innovativeness of firm, IS knowledge, external computing support was found to be determinant of cloud computing using TOE Framework.

Also a research conducted to understand determinants of cloud computing adoption using integrated TAM-TOE model in Mumbai India found relative advantage, complexity, organizational readiness, top management commitment, and training and education as factors affecting cloud computing adoption in India (Gangwar, Date, & Ramaswamy, 2015). The findings of the research with the current research only has a single identical factor which is top management support, it confirms top management support as one of the most essential factors to be considered when adopting cloud computing due to its importance is recognized continents apart.

Furthermore, a study in northeast's England on cloud computing: A multi-perspective framework (Alshamaila & Papagiannidis, 2012) using TOE Framework found relative advantage, uncertainty, geo-restrictions, compatibility, trialability, size, top management support, prior experience, innovations and industry scope as factors influence cloud computing adoption, however the factors differ in contrast to the current research but still found top management support as an influencer of cloud computing adoption by SMEs. Similarly, in Sabah, Malaysia determinants factors of cloud computing adoption (On, Roger, Guan & Patricia, 2012), using TOE Framework found cost savings, technology readiness, top management support as the core determinants of cloud computing adoption.

There are a few studies in which TAM was used to identify or determine factors affecting cloud computing adoption. In Malaysia a systematic review was conducted to identify factors affecting cloud computing adoption by organizations, the findings showed security, compatibility, relative advantage, complexity and privacy, ease of use and usefulness as the most important factor for cloud computing adoption by an organization (Alatresh, Ali & Ambrek 2016). Similarly, Gupta, Seetharaman & Raj (2013) found perceive ease of use and usefulness as a factor affecting usage and adoption of cloud computing, in their study the usage and adoption of cloud computing by small and medium businesses.

As a result of previous research findings it can be concluded that the current research did not necessary include all factors which might affect cloud computing adoption due to the framework it adopted however other findings discussed also have similar results as the current research, they individually shared, Top Management support and perceive ease of use and usefulness, which was mostly, one of the factor or determinant of cloud computing adoption by SMEs, even though other factors such as relative advantage complexity, compatibility, etc. were also found as factors affecting or determine cloud adoption in previous research but subsequently the findings of current research have similar factors with previous researches, it is concluded to be accurate that the current research finding is necessarily the factors actually affecting cloud computing in various geographical location

The research conclusions present the findings and their interpretations. In general, the findings show out 11 of the integrated TAM-TOE model factors only three factors: top management support, perceived usefulness and perceived ease of use, affected cloud computing adoption intention. This implies the perception of SMEs adoption intention of cloud computing is more affected by the aforementioned facotre the most.

5.1 Implications

The integrated TAM- TOE Model factors examined in this research can positively encouraged and provide benefit in cloud adoption by SMEs in Lagos, Nigeria, If thorough consideration are thought-out by the SMEs. İncreasing awrenes of benefit of cloud computing by SMEs, can persuade those lacking Knowledge and understanding of the technology into adoption, therefore increasing the outwayed benefits within SMEs.

5.2 Recommendations

Finding from this research show that SMEs, in lagos Nigeria are only affected by top management support, perceived ease of use and perceived usefulness. Though they may be other factors responsible for increasing adoption of cloud computing outside the framework/model implemented in this research , factors such as cloud computing provider varieties , free triability and cost of acquisition of the technology by SMEs, which may be put into consideration by cloud service providers and developers, which may enable increased understanding of of services provided the products without concession on the technology performance and usability.

5.3 Limitations

The research ecountered varieties of Limitations, such as time scope, sample size and the questionneir model for data collection, which posed certain levels of difficulties due to over 40% of the total sent questionneir sent via email and linkeding where left unanswered and and levels of follow up were undertaken and as a result the time frame for the research had to be extended . Additional limitations was the geographical target location of the research respondnets increased the level of unresponsiveness which increased the level of follow up needed.

5.4 Further Research Area

Principally the research utilized TAM-TOE framework and concentrated on cloud computing adoption intention. It is essential to say other variable not included in integrated TAM-TOE model where not tested therefore we are unlikely to know if they affect cloud computing adoption intention. Additionally the research was focused on SMEs in lagos, Nigeria, its intuitive to view the entire SMEs in this geographic location do not constitute overall adoption intention of cloud computing in Nigeria. It is necessary for further research to include SMEs in Entire Nigeria and include variable such as security and geographical location of the servers, and comparative studies comparing SMEs in Lagos, Nigeria, Nigeria, and Africa as a whole to those in countries sharing similar indexes on techology adoption intention.

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APPENDIX I

Questionnaire

THE FACTORS AFFECTING CLOUD COMPUTING ADOPTION IN SMALL AND MEDIUM- SCALE ENTERPRISES USING AN INTEGRATION OF TAM MODEL AND TOE FRAMEWORK. A CASE RESEARCH OF LAGOS, NGERIA.

Dear Participants

The aim of questionnaire is to reveal the factors affecting cloud computing adoption in SMEs in Lagos, Nigeria using integration of TAM model and TOE framework. Pleas provide the best suited answer to the questions below. All response will be compiled and analyzed. Your response will be kept confidential.

Thank you very much.
Abdulazeez Abdulazeez Osuwa
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Cloud computing definition:

Cloud computing is a model for enabling ubiquitous, convenient, on-demand network access to a shared pool of configurable computing resources (e.g., networks, servers, storage, applications, and services) that can be rapidly provisioned and released with minimal management effort or service provider interaction

SECTION I: PERSONAL and COMPANY INFORMATION

14. Gender

    a. Female
    b. Male

15. Age:_____

16. Best describes the area you live in your Country

    a. Urban
    b. Suburban
    c. Rural

17. Company name (optional)

_____

18. What is your education level ?

    a. High School
    b. Undergraduate
    c. Masters
    d. PhD
    e. Other

19. What is your position in your company?

_____

20. How many years have you being Employed by your Enterprise?

.

21. In which industry does your firm operates

    a. Technology
    b. Energy
    c. Legal and Professional service
    d. Education Manufacturing Government Retail
    e. Financial service
    f. Health care
    g. N/A
    h. Other: _____

22. What is the market scope of your firm?
    a. local/regional
    b. National
    c. International
23. Which is the following phrases best describing your firm situation
    a. We have already adopted some cloud services
    b. we intend to adopt cloud service in the next three years
    c. we do not intend to adopt any cloud services for the foreseeable future

24. what “information system application” has your firm adopted?
    a. Simple e-commerce functions, web-site and advanced e-commerce function
    b. Transaction processing system such as: payroll, order transaction
    c. Decision support system such as: sale management, inventory control
    d. Executive support systems such as: profit planning and man power planning
    e. other: _____
25. Has your firm adopted or consider adopting any cloud computing services form those listed below?
    a. Individual software packages
    b. Infrastructure service as storage, network capacity
    c. Security service in the cloud
    d. A complete operating system and software package available via cloud service
    e. N/A
26. which of the following cloud computing type has your firm adopted or consider adopting
    a. Public cloud
    b. Private cloud
    c. Hybrid cloud
    d. Community cloud
    e. N/A

SECTION II:

CLOUD COMPUTING ADOPTION USING AN INTEGRATED TAM-TOE SCALE

Forthefollowingstatements,pleaseselecttheanswerthatbestrepresentsyouropinion.

1---Strongly Disagree 2---Disagree 3 ---Neutral
4 ---Agree 5 ---Strongly Agree

	CLOUD COMPUTING ADOPTION USING AN INTEGRATED TAM-TOE SCALE	**Strongly Disagree**	**Disagree**	**Neutral**	**Agree**	**Strongly Agree**
1	Using cloud computing, we pay only for what I use.	1	2	3	4	5
2	Using cloud computing, we are able to scale up our requirement when required.	1	2	3	4	5
3	Using cloud computing, we can access information from any time from any place	1	2	3	4	5
4	Using cloud computing, we need not administer my IT infrastructure..	1	2	3	4	5
5	Performance of cloud services does not decrease with growing user base	1	2	3	4	5
6	Using cloud computing, we can access share resources placed on cloud	1	2	3	4	5
7	Using cloud computing, we need not maintain my IT infrastructure.	1	2	3	4	5
8	In case of any incompatibility issue, we ask cloud service provider to offer integrated services	1	2	3	4	5
9	Cloud services are compatible with existing technological architecture of my company.	1	2	3	4	5
10	Customization in cloud-based services is easy.	1	2	3	4	5
11	The changes introduced by cloud computing are consistent with existing practices in my company	1	2	3	4	5
12	Cloud computing development is compatible with my firm's existing format, interface, and other structural data.	1	2	3	4	5
13	We incure re-training cost in case of non-customizable cloud-based services.	1	2	3	4	5
14	There is no difficulty in importing applications/ data from cloud services.	1	2	3	4	5
15	There is no difficulty in exporting applications/ data to cloud services	1	2	3	4	5
16	Cloud computing is flexible to interact with	1	2	3	4	5
17	Using cloud computing exposes me to the vulnerability of	1	2	3	4	5

	computer breakdowns and loss of data.					
	CLOUD COMPUTING ADOPTION USING AN INTEGRATED TAM-TOE SCALE*	**Strongly Disagree**	**Disagree**	**Neutral**	**Agree**	**Strongly Agree**
18	When we use cloud computing, we find it difficult to integrate my existing work with the cloud based services.	1	2	3	4	5
19	When we perform many tasks together, using cloud computing takes up too much of my time.	1	2	3	4	5
20	My company hires highly specialized or knowledgeable personnel for cloud computing.	1	2	3	4	5
21	We have sufficient technological resources to implement cloud computing - unrestricted access to computer.	1	2	3	4	5
22	We have sufficient technological resources to implement cloud computing - high bandwidth connectivity to the internet.	1	2	3	4	5
23	We allocate a percent of total revenue for cloud computing implementation in the company.	1	2	3	4	5
24	Our top management exhibits a culture of enterprise wide information sharing	1	2	3	4	5
25	The company's top management provides strong leadership and engages in the process when it comes to information systems company.	1	2	3	4	5
26	My top management is likely to consider the adoption of cloud computing as strategically important.	1	2	3	4	5
27	My top management is willing to take risks involved in the adoption of cloud computing	1	2	3	4	5
28	My level of understanding was substantially improved after going through the training program on cloud computing.	1	2	3	4	5
29	My company provided me complete training in using cloud computing	1	2	3	4	5
30	The training gave us confidence in use of cloud computing.	1	2	3	4	5
31	Our agreement with cloud service providers ensures that they have high availability architecture, and tested platform and applications for readiness of services.	1	2	3	4	5
32	Our Organization ensure that cloud provider considerably invest in security controls and monitoring of access to the contents	1	2	3	4	5
33	We check whether the cloud service provider has policy for handling personally identifiable information.	1	2	3	4	5
34	We ensure that cloud vendors implement strong access and identity management to ensure unauthorised access to cloud computing.	1	2	3	4	5
35	We are aware of cloud computing implementation in our	1	2	3	4	5

	competitor organisations.					
36	We understand the competitive advantages offered by cloud computing in our industry.	1	2	3	4	5
37	The procedure of using cloud computing is understandable.	1	2	3	4	5
38	It is easy for us to learn using the cloud computing	1	2	3	4	5
39	It is easy to make use of cloud computing.	1	2	3	4	5
40	Using cloud computing allow me to manage business operation in an efficient way	1	2	3	4	5
41	Using cloud computing allow me to increase business productivity.	1	2	3	4	5
42	Using cloud computing enables allow me to accomplish my organizational task more quickly	1	2	3	4	5
43	The use of cloud computing services improves the quality of business operation	1	2	3	4	5
44	Using cloud computing advances my competitiveness	1	2	3	4	5
45	Overall I think that using cloud computing services is advantageous	1	2	3	4	5
46	Overall, I am in favour of using the cloud computing services.	1	2	3	4	5

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