

The Use Of Cloud Computing And Accounting Packages For Corporate Business Transactions In Nigeria: An Explorative Study

Onyali, Chidiebele Innocent

Okafor, Tochukwu Gloria (Phd) and Egolum, Priscilla Department Of Accountancy Nnamdi Azikiwe University Awka, Anambra State Nigeria

Abstract: *Recent changes in technology informed by the advent of the 21st century technological advancement has drastically transformed the face of accounting in recent time from its analogue nature to a digitalized package. These advancements has modernized accounting systems and packages and have created room for accounting tasks to be performed in a more easier, faster and efficient manner. By the virtue of these technological advancements, the concept of cloud computing and accounting was discussed, examining the perception of corporate stakeholders on the use of this concept as an accounting system for corporate firms in a developing economy. Using a sample of 100 respondents, comprising of accounting academics who fall within the category of investors, chartered accountants and customers drawn from across Anambra state in south-eastern Nigeria, the effect of the use of cloud computing package on corporate stakeholders was ascertained. In addition to descriptive statistics, Kolmogorov-Smirnov(K-S), One Sample t-test was used in analyzing the primary data. The results of the data analysis showed that the use of cloud computing packages by corporate firms is a welcomed development in Nigeria, however, it was observed that the use of these packages by corporate firms have high cost implication for corporate stakeholders in addition to been affected by unstable internet access and poor network connection among other challenges. Based on the findings of the study, it was concluded among others that effective standards should be put in place, not only to protect stakeholders from exploitation but also to guarantee the quality of the use of these cloud computing packages for corporate business transactions.*

Keywords: *Cloud computing, Cloud Accounting, Information System, Traditional Accounting System, Corporate Stakeholders*

I. Introduction

Organizations have come to realize that meeting stakeholder expectations is as necessary a condition for sustainability as the need to achieve overall strategic business objectives (Ballou, Heitger & Landes, 2006). Therefore one key challenge facing management in this modern day business era is determining the strategy to adopt in obtaining the needed information necessary for managing the overall business resources, production cost, quality and time related issues as well as satisfying the needs of their numerous stakeholders in the most effective and efficient manner (Al-Khadash & Feridun, 2006). This has necessitated that management adjusts their organizations strategy according to the global changes regarding science, technology and business, with impact over the key performance indicators of their businesses (Christauskas and Miseviciene, 2012).

Forced by the pressure of present day business competition and the actual global economic context, companies are actively involved in finding new efficient means to improve the efficiency and profitability of their business (Christauskas and Miseviciene, 2012). They continuously seek new ways to improve performance, protect reputational assets, and win shareholder and stakeholder trust (Ernst and Young, 2013). This has introduced the need for management to develop and implement systems capable of obtaining market information and providing information to a wide range of individuals representing varying stakeholder groups for improved organizational success and a sustained market competitiveness.

The traditional accounting information systems are designed to be capable of obtaining internal and external cost and market information, necessary to support strategic decision-making, planning and control (Banker and Johnston, 2006), however, most of the times prove to be poorly supporting the business. (Christauskas & Miseviciene, 2012) considers the inefficiency of traditional informational technologies as being the main determinant that lead to inadequate appliance of the information systems to modern day business requirements. Furthermore, in the same vein, Shah, Malik, and Malik (2011) observed that traditional management accounting systems are inadequate in fulfilling the requirements of the modern day business. They stated that the focus of the system is “too late, too aggregated and too distorted to be relevant for managers’ planning and control decisions”. It is in this context that numerous researchers such as: Melnikas, 2008, Gatautis et al, 2009, Zavadskas et al, 2010 and Christauskas and Miseviciene, 2012, opined that digital technologies

potentiate the quality of 'business' related decision process. Therefore, it is now imperative for management of firms to replace existing accounting information system in line with the demands of the 21st century new informational technologies as for setting the informational system's centre of gravity to a new paradigm, data processing and storage in the cloud. Cloud computing is the new paradigm in recent time that has been adopted by corporate firms in breaching the gap of the traditional accounting systems. Towards the development of this technology, firms are generally influenced by: the digitisation of business, the intense potential created by the internet, the implications of big data and the growing importance assigned to data mining. In this context cloud computing made its way and created new business models. For the growing spread of computer and dependence on digital data, companies attempt to accelerate and improve their services for their stakeholders. Although this concept have been proved by many scholars to have effectively breached the shortcomings of the traditional accounting system, in addition to explicitly highlighting its numerous advantages, its impact on corporate stakeholders has however, always been neglected. It thus seems that its focus is mostly directed towards maximizing firms profit as well as promoting their overall image with little or no consideration for its impact on corporate stakeholders, hence their satisfaction. This study therefore draws its contribution by examining the perception of corporate stakeholders on the applicability of cloud computing as an accounting system for corporate firms in a developing economy.

II. Review Of Related Literature

The Concept of Cloud Computing and Accounting

Cloud accounting is taking the concept of cloud computing and applying it to an accounting context. The relationship between cloud accounting and cloud computing is that while Cloud computing is the delivery of computing services such as software, information and shared resources via computers and other devices over a network (usually the internet), Cloud accounting involves the access of accounting software and data via the internet. End users access cloud based applications through a web browser or mobile applications while the software and data are stored on remotely located servers, often provided by a third party.

Cloud accounting involves access to accounting software and data through an internet browser. The software is provided on a subscription basis and the data is stored on a remote server. This differs from a traditional accounting system that involves the purchase of software and installation on either a workstation or local server. Access to the cloud accounting applications and data is controlled through user login access, as opposed to the physical location of the data files. This means that data sharing is easier and avoids the requirement to physically move data from one computer site to another. According to Pyke (2009), Buyyasi Broberg (2009), cloud computing can be defined as an abstract collection of services, accessible from any location disposing of a mobile device with internet connectivity, provided through a parallel and distributed system of virtualised computers that are interconnected, and can be dynamically supplied and presented as a computing resource, or group of resources unified, as agreed by the service provider and the user. Also, National Institute of Standards and Technology (NIST) defined "cloud computing as a model that allows permanent, convenient, on-demand access to a joint network based on configurable computing resources, easily available with a minimum management effort or a minimum interaction with the service provider".

Armbrust (2010) believes that cloud computing technology covers informatic applications provided through internet, as well as the hardware and software equipment used in data centres as for supplying these services. Chinyao Low (2011) presents cloud computing starting from the comparison with the e-mail, office software and ERP systems, and adding the ubiquitous resources shared between more users. Cloud computing features according to (Aggarwal & McCabe, 2013) include service selection based on demand, wide access to network, resource coalition, fast flexibility, agility, high scalability, and confidentiality.

Issues and Layers of Cloud Computing and Accounting

The emergence of the phenomenon commonly known as cloud computing represents a fundamental change in the way information technology (IT) services are invented, developed, deployed, scaled, updated, maintained and paid for. Cloud computing represents a convergence of two major trends in information technology — (a) IT efficiency, whereby the power of modern computers is utilized more efficiently through highly scalable hardware and software resources and (b) business agility, whereby IT can be used as a competitive tool through rapid deployment, parallel batch processing, use of computer-intensive business analytics and mobile interactive applications that respond in real time to user requirements (Kim, 2009). The concept of IT efficiency also embraces the ideas encapsulated in green computing, since not only are the computing resources used more efficiently, but further, the computers can be physically located in geographical areas that have access to cheap electricity while their computing power can be accessed long distances away over the Internet.

Cloud computing can be structured in different layers, considering its different functionalities Buyya, Pandey & Vecchiola, (2009). The first layer involves the cloud clients that enable the access to the cloud.

Examples include some computers, phones and other devices, operating systems and browsers. The next layer is formed by the applications, also known as *Software as a Service (SaaS)* and delivers software as a service over the Internet. There is no need to install or run the applications in the client equipment, and hence, the support and maintenance is simplified. A layer beyond, we find the platforms or *Platform as a Service (PaaS)*. They provide the possibility to deploy applications without the cost and work that implies managing the required hardware and software. In the upper layer, we find the infrastructure services or *Infrastructure as a Service (IaaS)*. Here, the provider offers outsourcing of servers, software, data-centre space or network equipment via a platform of environment virtualization. Finally, in the last layer we find servers that are specifically designed for the delivery of cloud services. Each of these layers generates different information that can be considered as *usage records*. These records can be classified as communication data, computational data or information data. Unfortunately, each layer offers different type of information to the provider augmenting the complexity of the business support systems operations such as accounting. Furthermore, each layer can be implemented using different products and technologies from various providers and manufacturers.

The difference between accounting performed through cloud computing compared to the traditional accounting programs can be seen in the dimension of the supported application. (Eto, 2009, Damaskopoulos, et al., 2008, Christauskas and Miseviciene, 2012) opine that cloud platforms are able to support multiple users at a large scale, known as “Internet Scale”, while traditional platforms are limited to a relatively small number of users, depending on the size of the Organization.

III. Research Design And Methodology

An exploratory study was carried out to ascertain the perception of corporate stakeholders. The questions were based on a structured five point Likert scale with the following options: Strongly agree (SA); Agree (A); Indifferent (ID); Disagree (D); Strongly disagree (SD) with the associated weights of 5, 4, 3, 2 and 1 respectively. Respondents comprised of 100 accounting academics drawn randomly from across Anambra state in south-eastern Nigeria, who fall within the category of investors, chartered accountants and customers. The choice of these category of stakeholders was chosen because of their business-like relationship with corporate firms which guarantees to a reasonable extent an unbiased response from them. The questionnaire was divided into two sections: Section A and B. Section A required information on bio-data; while, Section B was designed to elicit information on the opinion of the respondents on the subject of study. The questionnaire was validated by two experts each in Computer sciences and Accounting Department respectively in Nnamdi Azikiwe University Awka, Anambra State and their suggestions helped the researchers in the final draft of the instrument. 100 copies of this questionnaire were issued out to the respondents while 85 copies of them were duly completed and returned.

IV. Data Analysis And Discussion Of Findings

The data analysis and interpretation was carried out using descriptive statistics. Accordingly, the data gathered through questionnaire were tabulated and analyzed using frequency, percentage, and mean. Also, one sample t-test was used to test the hypotheses. The formulated hypotheses and results of empirical data analysis are presented below.

Hypothesis Formulation:

1. **Ho:** The use of cloud computing packages for corporate business transactions by corporate firms in developing economies does not significantly have beneficial impact on corporate Stakeholders.
- Hi:** The use of cloud computing packages for corporate business transactions by corporate firms in developing economies significantly have beneficial impact on corporate Stakeholders.

Frequency Distribution Of Questionnaire

Table 1: Respondents' response on the impact of the use of cloud computing packages on corporate Stakeholders.

S/No	Question Description	SA	A	ID	D	SD
1	I have adequate knowledge about the concept of cloud computing	45	33	7	0	0
2	The application of this package by corporate firms in Nigeria is seen as welcomed development.	30	40	5	6	4
3	Cloud computing packages has significantly reduced the stress of engaging in corporate business transaction.	10	15	30	16	14
4	As a stakeholder in a firm, I am adequately informed and educated about the use of the cloud computing package for my transactions.	14	11	22	20	18
5	Unstable internet access and poor network greatly affect my use of the cloud computing packages for my corporate transactions	15	23	18	17	12

6	These packages as adopted by corporate firms in Nigeria has high cost implication for corporate stakeholders.	31	22	19	7	6
7	Stakeholders interest on the use of these packages is generally protected	25	28	10	13	9
8	Accessibility and credibility assurance of the cloud computing packages for business transaction is commendable.	19	18	20	16	12

Source: Field Survey (2016)

Table 2: Descriptive Statistics of Accounting academics' Questionnaire

	N	Mean	Std. Deviation
I have adequate knowledge about the concept of cloud computing	85	4.4471	.64561
The application of this package by corporate firms in Nigeria is seen as welcomed development.	85	4.0118	1.06340
Cloud computing packages has significantly reduced the stress of engaging in corporate business transaction.	85	2.8941	1.22497
As a stakeholder in a firm, I am adequately informed and educated about the use of the cloud computing packages for my transactions.	85	2.8000	1.36102
Unstable internet access and poor network greatly affect my use of the cloud computing packages for my corporate transactions	85	3.1412	1.31975
These packages as adopted by corporate firms in Nigeria has high cost implication for corporate stakeholders.	85	3.7647	1.23102
Stakeholders interest on the use of these packages is generally protected	85	3.5529	1.34081
Accessibility and credibility assurance of the cloud computing packages for business transaction is commendable.	85	3.1882	1.35834
Valid N (listwise)	85		

Test Of Hypothesis

Table 3: One-Sample Statistics

	N	Mean	Std. Deviation	Std. Error Mean
Hypothesis1	85	3.4750	1.14269	.12394

Source: SPSS Ver. 22

Table 3.1: One-Sample Test

	Test Value = 3.5					
	T	Df	Sig. (2-tailed)	Mean Difference	99% Confidence Interval of the Difference	
					Lower	Upper
Hypothesis1	-.202	84	.841	-.02500	-.3517	.3017

Source: SPSS Ver. 22

Decision Rule: If t-computed > t-table value – Reject the null hypothesis, otherwise we accept the alternate hypothesis. Since t-computed (-.202) < t-table value (2.756) in table 3.1, we accept the null hypothesis, " The use of cloud computing packages for corporate business transactions by corporate firms in developing economies does not significantly have beneficial impact on corporate Stakeholders."

Table 2 revealed that the use of cloud computing packages by corporate firms is a welcomed development in Nigeria. However, it was observed that the use of these packages by corporate firms in Nigeria have high cost implication for corporate stakeholders, in addition to been affected by unstable internet access and poor network connection. Furthermore, it was observed that corporate stakeholders are not adequately informed and educated about the use of the cloud computing packages for transactions and that the use of these packages is greatly affected by unstable internet access and poor network connections. These observations were based on their mean scores as shown in the table.

V. Conclusion

The pressure of present day business competition and the actual global economic context have actually necessitated the need for firms to be actively involved in finding new and efficient means of improving the profitability and the overall performance of their business. To this end, Cloud computing emanated as a means of breaching the gap of inefficiencies and weaknesses of the traditional accounting packages. This has introduced the need for management to develop and implement systems capable of obtaining market information and providing information to a wide range of individuals representing varying stakeholder groups for improved organizational success and a sustained market competitiveness.

Based on the findings of the study, it was observed that the use of cloud computing packages by corporate firms in Nigeria is a welcomed development. However, it was perceived that the use of these packages by these corporate firms have high cost implication for corporate stakeholders and are often affected by unstable internet access and poor network connections, in addition to the fact that stakeholders are not adequately informed and educated about the use of these packages for transactions. The study therefore concludes that

before cloud computing could be effectively implemented in a developing economy like Nigeria, stable internet access should be in place. Also, stakeholders should be adequately educated about the use of cloud computing packages which has been proved to be effective for business operations. These criteria however should be supported by effective standards which should not only protect stakeholders from exploitation but also should guarantee the quality of these cloud computing packages.

VI. Suggestion For Further Research

Further studies should focus more on examining the extent at which cloud computing and accounting packages can be used by different categories of firms (Small, Medium and Large) to guarantee stakeholders' satisfaction and to promote corporate performance.

References

- [1]. Abdul Rahman, K. I., Azhar, Z., Abdul Rahman, H. N., & MohdDaud, H. N. (2012). Strategic management accounting and benchmarking practices in Malaysian hospitals. *Journal of Applied Sciences Research*, 8 (3), 1665 – 1671.
- [2]. Abushaiba, I. A., & Zainuddin, Y. (2012). Performance measurement system design, competitive capability, and performance consequences: A conceptual like. *International Journal of Business and Social Science*, 3 (11), 184–193.
- [3]. Aggarwal, S., L. McCabe, (2013). How TCO benefits make cloud computing a no brainer for many SMBs and mid -market enterprises, SMB Group, Inc., pp: 2.
- [4]. Al-Khadash, H. A., & Feridun, M. (2006). Impact of strategic initiatives in management accounting on corporate financial performance: Evidence from Amman stock exchange. *Managing Global Transitions Journal*, 4 (4), 299 – 312.
- [5]. Armbrust, M., Fox, A., Griffith, R., Joseph, A.D., Konwinski, A., Lee, G., Rabkin, A., Stoica, I. and Zaharia, M. (2010). A view of cloud computing, communication of the ACM, 53 (4), 50-58.
- [6]. Ballou, B., Heitger, D.L. & Landes, C.E. (2006). The future of corporate sustainability reporting.
- [7]. *Journal of Accountancy* Available at <http://referensi.dosen.narotama.ac.id/files/2012/01/The-Future-of-Corporate-Sustainability.pdf>
- [8]. Banker, R. D., & Johnston, H. H. (2006). Cost and profit driver research. In C.S. Chapman, A.G. Hopwood, & M.D. Shields (Eds.), *Handbook of Management Accounting Research* (vol. 2). Oxford: Elsevier.
- [9]. Beckham, J. (2010). Cloud computing: What it is and how your small business can benefit. Available at: <http://blogs.cisco.com/smallbusiness>.
- [10]. Buyya, R., Pandey, S. and Vecchiola, C. (2009). Cloud bus toolkit for market-oriented cloud computing, 24-44.
- [11]. Buyya, R., Yeo, C., Venugopal, S., Broberg, J. and Brandic, I. (2009). Cloud computing and emerging IT platforms: Vision, hype, and reality for delivering computing as the 5th utility, *Future Generation Computer Systems* 25(6), 599-616.
- [12]. Chinyao L., Yahsueh C., and Mingchang W. (2011). Understanding the determinants of cloud computing adoption, *Industrial management& data systems*, 1006-1023.
- [13]. Christauskas, C. and Miseviciene R. (2012). Cloud computing based accounting for small to medium sized business, *Inzinerine Ekonomika – Engineering Economics*, 23 (1), 14-21.
- [14]. Diskiene, D., Galiniene, B. and Marcinskas, A. (2008). Management attitudes in the context of Global Challenges: The lithuanian survey, *transformation in business & economics*, 7 (15), 21 - 38.
- [15]. Intacct (2012). The 2013 buyer's guide to accounting and financial software. The New Factors to Consider, available at: http://online.intacct.com/WebsiteAssets_wp_buyers_guide.html.
- [16]. Kirli, M., & Gümüş, H. (2011). *The implementation of strategic management accounting based on value chain analysis: Value chain accounting*. Retrieved from <http://www.harungumus.com/~harungum/images/CV/icbmef-2011-9EYLUL.pdf>.
- [17]. Marandi, A. A., Marandi, E. A., and Dashtebayaz, M. L. (2013). Investigating the effects of cloud computing on accounting and its comparison with traditional models. *Advances in Environmental Biology*, 7(10), 2836-2846
- [18]. Phillips B. A. (2012), How cloud computing will change accounting forever, available at: <http://accountantsonline.com/jobseekers/CloudComputing.pdf>.
- [19]. Pyke, J. (2009), Now is the time to take the cloud seriously, White Paper, available at: www.cordys.com/cordyscms_sites/objects/bb1a0bd7f47b1c91ddf36ba7db88241d/time_to_take_the_cloud_seriously_online_1_.pdf, accessed on 5.11.2011
- [20]. Ramljak, B., & Rogošić, A. (2012). Strategic management accounting practices in Croatia. *Journal of International Management Studies*, 7, (2) 93 – 100.
- [21]. Shah, H., Mali, A., & Malik, M. S. (2011). Strategic management accounting: A messiah for management accounting. *Australian Journal of Business and Management Research*, 1,(4) 1–7.
- [22]. Tuncay, E. (2010). Effective use of cloud computing in educational institutions. *Proscenia Social and Behavioral Sciences*, 2, 938-42.
- [23]. Zavadskas, E. K., Kaklauskas, A. and Banaitis, A. (2010). Application of E-Technologies for Regional Development: the Case of Vilnius City, *Journal of Business Economics and Management*, 11(3), 415-427.