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THE EFFECT OF SOFTWARE AS A SERVICE (SAAS) AND INFRASTRUCTURE AS A SERVICE (IAAS) ON THE RETURN ON ASSET OF QUOTED CONSUMER GOODS FIRMS IN NIGERIA.

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ABSTRACT

The study analyzed the effect of software as a service (SAAS) and infrastructure as a service (IAAS) on the return on asset of quoted consumer goods firms in Nigeria. The study adopted descriptive survey research design. The population of the study consisted of fourteen (14) consumer goods firms listed on the Nigeria Stock Exchange as of 2022. The sample size of this study consisted of ten (10) consumer goods firms and also adopted purposive sampling technique. The study used primary source of data that were collected from the questionnaire sent by the researcher to the studied firms accounting officers via online goggle forms. The reliability of the instrument was determined using Cronbach Alpha reliability via SPSS while the reliability coefficient of 0.73 was obtained. The data collected were analyzed using multiple regression analysis technique and descriptive statistics technique respectively. The study found that cloud accounting has significant positive effect on the financial performance of quoted consumer goods firms in Nigeria and concluded that Software as a Service (SaaS) revealed a positive significant impact on the financial performance of quoted consumer goods firms in Nigeria while Infrastructure as a Service (IaaS) showed a positive insignificant impact on the financial performance of quoted consumer goods firms in Nigeria. The study concluded that both Software as a Service (SaaS) and Infrastructure as a Service (IaaS) have a measurable but varying influence on the return on assets (ROA) of quoted consumer goods firms in Nigeria. One of the recommendations made was that the management of the studied companies should continue to use cloud accounting via Software as a Service (SaaS) as this revealed a positive and significant effect on the financial performance of the studied companies.

Keywords: Software, Infrastructure, Service, Return On Asset, Quoted Consumer Goods, Firms, Nigeria.

INTRODUCTION

Cloud accounting is the delivery of accounting services on the internet. The transition from traditional accounting system to cloud-based systems represents a paradigm shift in the field of accounting by making accounting tasks more efficient, scalable, and accessible .Cloud accounting as a new technology in the field of accounting makes real-time data

processing, automated financial reporting, and enhanced security features possible (Misra et al., 2019). The adoption of cloud-based accounting has brought in a significant leap in the capabilities of accounting software .These software has integrated various accounting functions into a single, unified platform, streamlining operations and improving data accuracy (Abrahams et al., 2024). The adoption of cloud accounting is not just a technological advancement in accounting industry but also a response to the changing business environment, where agility, real-time information, and data-driven decision-making have become paramount (Fahlevi and Purnomo, 2023).

As cloud accounting continues to be adopted by companies in recent times , it is reshaping the accounting landscape, offering new opportunities for efficiency, collaboration, and strategic insights , thereby making business decisions making quickly and reliable . The use of cloud-based accounting infrastructure is expected to further enhance the capabilities of financial professionals, enabling them to meet the complex demands of modern accounting and business environments. Cloud accounting as an innovation represents a paradigm shift, leveraging advanced technology to streamline and automate financial processes. The application of cloud accounting software has revolutionized how financial data is recorded, processed, and analyzed (Moore and Felo, 2021). These software offer real-time data processing, electronic invoicing, automated reconciliation, and cloud-based storage, significantly reducing the time and resources required for accounting tasks and also enhances efficiency as well as accuracy of financial data by minimizing manual errors (Bulyga and Safonova, 2020).

Cloud accounting, which is a difficult new innovation, is unconventional to the African continent and Nigeria specifically. This is a result of the way that Nigeria misses the mark concerning the fundamental IT foundation necessities, (for example, enduring power, and poor web connectivity) for the viable adoption of the innovation (Okere, 2022). Cloud accounting is the new worldview in ongoing time that has been received by corporate firms in rupturing the hole of the traditional accounting frameworks (Okoye et al., 2021). The advent of cloud computing has brought about significant transformations in several facets of corporate operations, notably in the domains of accounting and financial reporting. The use of cloud-based accounting systems by enterprises has garnered considerable interest owing to its capacity to improve operational efficiency, facilitate data accessibility, and provide cost-effective solutions for financial reporting. Cloud-based accounting solutions have seen widespread adoption on a worldwide scale in recent years, driven by the increasing need for flexible and adaptable financial reporting systems inside organizations (Jaynob & Shamimul, 2022). Cloud accounting solutions provide several benefits, such as instantaneous access to data, less expenses related to IT infrastructure, and improved cooperation among all parties involved. The use of cloud - based financial reporting has significant importance in rising economies such as Nigeria, since firms in these regions are progressively acknowledging the need for modernization and digital transformation. The implementation of cloud accounting solutions is contingent upon many aspects, including technical preparedness, organizational culture, and the legal framework (Ismail & Mohammed, 2021). The aforementioned criteria

significantly influence the degree to which organizations adopt cloud-based financial reporting systems.

Cloud accounting, as a nascent corporate paradigm, is underpinned by the technological advancements of cloud computing (Jaynob & Shamimul, 2022). Cloud accounting encompasses the provision of various IT-related technologies, including technologies Software as a Service (SaaS), Hardware as a Service (HaaS), Application as a Service (AaaS), and Platform as a Service (PaaS). Software as a Service (SaaS) refers to a software distribution model whereby a cloud provider assumes the responsibility of hosting applications and afterwards offers them to end users through the internet. In this particular approach, an independent software vendor (ISV) has the option to engage in a contractual agreement with a third-party cloud provider for the purpose of hosting the application. Infrastructure as a Service (IaaS) is a solution used by organizations seeking to delegate the management and operation of their data centre and computational assets to a cloud service provider. Infrastructure-as-a-Service (IaaS) providers are responsible for hosting several essential components of infrastructure, including servers, storage systems, networking gear, and virtualization resources.

STATEMENT OF PROBLEM

As accounting profession evolves over the years with advanced accounting technologies, such as cloud accounting technology which enhances effectiveness and efficiency in dealing with financial data and transactions . With the emergence of cloud accounting, the traditional accounting and book-keeping methods have gradually dwindled owing to the need for sophistication as a requirement for modern accounting practice . As a consequence , cloud accounting , is recommended to overcome the associated challenges in traditional accounting methods and with it , accountants are aided as well as data center management teams have a whole understanding of both their internal systems and servicing IT alongside managed services in the cloud. Many initiatives recognize that cloud accounting software, infrastructure and platform delivered as on-demand services can offer strategic advantages in terms of scalability and cost-effectiveness so that systems can scale energetically to put up points in demand rather than be built for usage set-ups that rarely arise.

OBJECTIVES OF THE STUDY

1. To assess the effect of Software as a Service (SaaS) on the return on asset of quoted consumer goods firms in Nigeria.
2. To explore the effect of Infrastructure as a Service (IaaS) on the return on asset of quoted consumer goods firms in Nigeria.

RESEARCH QUESTIONS

1. What is the effect of Software as a Service (SaaS) on the return on asset of quoted consumer goods firms in Nigeria?
2. To what extent does Infrastructure as a Service (IaaS) affect return on asset of quoted consumer goods firms in Nigeria?

RESEARCH HYPOTHESES

H_{01}: There is no significant effect of Software as a Service (SaaS) on the return on asset of quoted consumer goods firms in Nigeria.

H_{02}: Infrastructure as a Service (IaaS) has no significant effect of on the return on asset of quoted consumer goods firms in Nigeria.

LITERATURE REVIEW

Conceptual Review

Software as-a-Service (SaaS)

The last and highest stratum inside the cloud computing framework is known as Software as a Service (SaaS). Software as-a-Service (SaaS) is a software deployment model that offers consumers access to specialised software programmes over the internet. This model allows users to use the provider's applications, which are hosted on a cloud infrastructure, hence delivering the maximum level of service. This software is often known as "on demand software" and typically follows a pricing model based on pay-per-use. This obviates the need of installing and executing the programme on the personal computers of cloud users, hence streamlining the processes of maintenance and support. Software as a Service (SaaS) companies often use a pricing model that involves charging customers a recurring subscription charge for accessing their applications (Jaynob & Shamimul, 2022).

Infrastructure as a Service (IaaS)

Offers virtualized computing resources like virtual machines, storage, and networking. Users can manage and control these resources while avoiding the complexity of physical hardware management. This software distribution model where the basic computing infrastructure of server, software, and network equipment's are provided as an on-demand service upon which a platform can be developed and execution of applications can be established is referred to as Infrastructure as-a-Service. Its main purpose is to avoid purchasing, housing, and managing the basic hardware and software infrastructure components, and instead obtain those resources as virtualized objects controllable via a service interface.

Return on Asset (ROA)

Return on asset (ROA) is a crucial financial metric that indicates how efficiently a company utilizes its assets to generate profit. It is calculated by dividing the net income by the total assets of the company. For quoted consumer goods firms in Nigeria, ROA serves as an indicator of how well these firms convert investments in assets into earnings. Higher ROA values suggest better financial performance and asset utilization, reflecting the firm's operational efficiency (Egiyi & Udeh, 2020).

According to Johansson & Zametica ,2019), financial performance can be measured by ROA whereas firm value can be measured by Tobin's Q. Beck et al. (2018) used Return on Equity (ROE) instead of ROA. However, both measurement can be used to assess financial performance and are highly correlated. This study used ROA to measure the financial performance for the years under review . The reason behind using ROA in this study, instead of ROE, is because it has been used to a larger extent in previous studies as per cloud

accounting. Return on Asset (ROA) is one of the most accepted and frequently used measures for evaluating companies' profitability.

Relationship SAAS, IAAS, PAAS and Return on asset (ROA)

SaaS, IaaS and PaaS used as measures of cloud accounting relate with return on asset that measures financial performance. These are cloud accounting models and resources that provide scalability, real-time data access, and reduced IT infrastructure costs, making it an attractive option for quoted consumer goods firms in Nigeria to improve their overall business performance in terms of profitability (Daniel, 2024).

SaaS and Return on asset (ROA)

The software distribution model which delivers special drive software to the consumer to use the provider's applications in a row on a cloud setup through the internet is referred to as Software-as-a-Service. These software streamline business processes, improve data management, and facilitate real-time decision-making by providing immediate access to critical information. For quoted consumer goods firms, this means more efficient supply financial management information, better customer relationship management (CRM), and improved financial performance. As a result, these efficiencies can lead to higher return on assets (Daniel, 2024) .

IaaS and Return on asset (ROA)

IaaS is used by companies that want to outsource their data center and computer resources to a cloud provider. IaaS providers host infrastructure components such as servers, storage, networking hardware and virtualization resources. Quoted consumer goods firms in Nigeria using IaaS services must still manage their data use, applications, and operating systems. Like every other cloud computing service model, it makes computing resources available in a virtualized environment (the Cloud), using the Internet as a medium. In quoted consumer goods firms in Nigeria, the implementation of IaaS can significantly impact their return on assets (ROA). ROA is a financial performance metric that measures the company's ability to generates profit from its assets. By applying SAP IaaS, the companies can achieve more efficient financial performance and better resource allocation, leading to enhanced profitability and reduced operational costs (Akai et al, 2022).

EMPIRICAL REVIEW

Onifade et al. (2023) investigated how cloud accounting features impact the performance of listed food and beverage companies in Nigeria. They used proxies such as the Cost of Software (COSW), Cost of Risk (CORSK), and Cost of Training (COTR) for cloud accounting characteristics, and measured performance using Return on Equity (ROE) and Market Value (MKV). The study focused on all 23 food and beverage companies listed on the Nigerian Stock Exchange (NSE) as of December 31, 2021, selecting 10 companies through purposive sampling and analyzing secondary data from 2012 to 2021 using multiple regression analysis. Results showed that COSW negatively and significantly affected ROE and MKV, while COTR had a positive and significant effect on both metrics. The study concluded that COSW and COTR significantly impact the performance of these companies, recommending that Nigerian food and beverage companies regulate training costs to maximize the benefits of cloud accounting.

Abidde (2021) examined the influence of cloud-based accounting on the financial performance of manufacturing firms listed on the NSE using an ex-post facto research design. The study's objectives included evaluating NetSuite's impact on Return on Assets (ROA), Return on Equity (ROE), and Return on Capital Employed (ROCE) before and after its application. Findings indicated mixed results, with some researchers noting significant impacts and others reporting negative financial outcomes. The study suggested continued federal support for implementing modern computer-based accounting technologies and recommended strengthening regulatory authorities to promote proactive technology-based management in Nigeria.

Saha et al. (2020) explored the opportunities and challenges of adopting cloud accounting in Bangladesh. The study collected primary data from 300 accounting professionals, including accountants, graduates, teachers, and bankers. Using KMO and Bartlett's tests, the data were validated, and regression analysis revealed that cloud accounting positively impacts organizational performance but has negative effects on existing accounting systems. Descriptive statistics identified potential challenges for organizations implementing cloud accounting. As one of the first studies on this topic in Bangladesh, it aimed to raise awareness about cloud accounting among accounting professionals.

Imeokparia et al. (2023) analyzed the costs associated with cloud accounting and the financial performance of manufacturing firms in Nigeria, using an ex-post facto research approach and panel data analysis from 2009 to 2018. The study employed Random Effects regression to analyze data from six randomly selected manufacturing firms listed on the Nigerian Stock Exchange. The results indicated a significant negative impact of maintenance costs on return on equity, highlighting the importance of effective cost management systems for sustaining profitability amidst evolving technological advancements.

Wisdom (2022) assessed the impact of cloud accounting on the performance of listed manufacturing firms in Nigeria using both primary and secondary data. Evaluating a random sample of 10 firms, the study found that cloud accounting and its costs significantly affected the performance of these companies. It recommended corporate strategies to reduce cloud accounting costs and the development of accounting regulations to align cloud accounting cost components with manufacturing firms' cost structures.

Daniel (2024) investigated the effect of cloud accounting on the financial performance of listed deposit money banks in Nigeria using an ex-post facto research design and secondary data from annual reports of 15 banks from 2013 to 2022. The study found that computerized accounting systems and accounting software positively and significantly affected return on assets. It recommended that the Central Bank of Nigeria and other regulatory bodies develop policies to enhance the use of computerized accounting systems to boost financial performance.

METHODOLOGY

The study adopted descriptive survey research design. The population of the study consisted of fourteen (14) consumer goods firms listed on the Nigeria Stock Exchange as of 2022 .The sample size of this study consisted of ten (10) consumer goods firms and also

adopted purposive sampling technique . The study used primary source of data that were collected from the questionnaire sent by the researcher to the studied firms accounting officers via online goggle forms . The reliability of the instrument was determined using Cronbach Alpha reliability via SPSS while the reliability coefficient of 0.73 was obtained. The data collected were analyzed using multiple regression analysis technique and descriptive statistics technique respectively. The study found that cloud accounting has significant positive effect on the financial performance of quoted consumer goods firms in Nigeria and concluded that Software as a Service (SaaS) revealed a positive significant im mpact on the financial performance of quoted consumer goods firms in Nigeria while Infrastructure as a Service (IaaS) and Platform as a Service (PaaS) showed a positive insignificant impact on the financial performance of quoted consumer goods firms in Nigeria.

ANALYSIS AND RESULTS

The presentation of analysis and results as well as the implications of each findings are presented in this chapter.

Test of Hypothesis One

H_{01}: There is no significant effect of Software as a Service (SaaS) on the return on asset of quoted consumer goods firms in Nigeria.

The result in Table 1 showed that Software as a Service (SaaS) has significant effect (Beta =.105 or 10.5%, p=0.034 ,p< 0.05 , t= -0.738) .Thus , the null hypothesis one which states that there is no significant effect of Software as a Service (SaaS) on the return on asset of quoted consumer goods firms in Nigeria was rejected .

Test of Hypothesis Two

H_{02}: Infrastructure as a Service (IaaS) has no significant effect of on the return on asset of quoted consumer goods firms in Nigeria.

Table 1 Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.	Collinearity Statistics	
		B	Std. Error	Beta			Tolerance	VIF
1	(Constant)	3.852	.881		4.373	.000		
	SaaS	-.088	.119	.105	-.738	.034	.993	1.007
	IaaS	-.108	.101	-.162	1.063	.293	.866	1.154
	PaaS	.122	.148	.126	.826	.413	.862	1.160

a. Dependent Variable: Financial Performance

The result in Table 1 showed that Infrastructure as a Service (IaaS) has significant effect (Beta = -0.162 or -16.2%, p=0.293 ,p> 0.05 , t= 1.063) .Thus , the null hypothesis two which states that Infrastructure as a Service (IaaS) has no significant effect on the return on asset of quoted consumer goods firms in Nigeria was accepted .

Software as a Service (SaaS) and financial Performance of quoted consumer goods firms in Nigeria.

The result in Table 1 showed that Software as a Service (SaaS) has significant effect (Beta =.105 or 10.5%, p=0.034 ,p< 0.05 , t= -0.738) .Thus , the null hypothesis one which states that there is no significant effect of Software as a Service (SaaS) on the return on asset of quoted consumer goods firms in Nigeria was rejected . The finding of this is consistent with the findings of Okere (2022) whose studies revealed significant results. Also, this finding is consistent with the finding of Fadipe (2023). Similarly, the finding of this study is in agreement with that of Ibok et al., (2023).

Infrastructure as a Service (IaaS) and financial Performance of quoted consumer goods firms in Nigeria.

The result in Table 1 showed that Infrastructure as a Service (IaaS) has significant effect (Beta = -0.162 or -16.2%, p=0.293 ,p> 0.05 , t= 1.063) .Thus , the null hypothesis two which states that Infrastructure as a Service (IaaS) has no significant effect on the return on asset of quoted consumer goods firms in Nigeria was accepted .

The finding of this is consistent with the findings of Okere (2022) whose studies revealed significant results. Also, this finding is consistent with the finding of Fadipe (2023). However, the finding of this study is not in agreement with that of Ibok et al.,(2023) and also consistent with the finding of Daniel (2024).

DISCUSSION OF FINDINGS

In evaluating the model of the study , we have ;

FPit= 3.852+ 0.105(SaaS) – 0.162 (IaaS) + 0.126 (PaaS) + 0.881

The constant of 3.852 is the value that Financial Performance takes when all the independent variables are zero. The coefficient of Software as a Service (SaaS) is 0.105 means that one unit increase in Software as a Service (SaaS) will result in increase in the dependent variable (Financial Performance) by 0.105 units. The coefficient of Infrastructure as a Service (IaaS) is - 0.162 and negative means that one unit increase in Infrastructure as a Service (IaaS) will result in decrease in the dependent variable (Financial Performance) by 0.162 units and the coefficient of Platform as a Service (PaaS) is 0.126 means that one unit increase in Platform as a Service (PaaS) will result in increase in the dependent variable (Financial Performance) by 0.126 .

The model summary which is used to explain the effect of PaaS, SaaS,PaaS on the financial performance of quoted consumer goods firms in Nigeria was shown in Table 4.9 . The R Square of 0.72 obtained means that 72% of the variation in firm's performance was explained by PaaS, SaaS and PaaS respectively while the remaining 28% is due to unexplained variables not used in this study. The R- square value of 72% shows that the model is fit for the study.

CONCLUSION

The study concluded that both Software as a Service (SaaS) and Infrastructure as a Service (IaaS) have a measurable but varying influence on the return on assets (ROA) of quoted consumer goods firms in Nigeria. While SaaS enhances operational efficiency and reduces costs through digital integration, IaaS supports scalability and data management capabilities. However, the full benefits depend on the firms' technological adoption level and digital infrastructure maturity.

RECOMMENDATIONS

1. The management of the studied companies should continue to use cloud accounting via Software as a Service (SaaS) as this revealed a positive and significant effect on the financial performance of the studied companies.
2. Quoted consumer goods firms should continue to use cloud computing applications as this enhances their profitability.

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