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Cloud-based accounting challenges and integration amongst accounting and finance professionals in Nigeria

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Abstract: Although the emergence of cloud accounting (CA) has gained high momentum considering the enormous benefits it presents in all walks of human life, its integration into the financial operations and decision-making processes of firms in Nigeria remains limited due to various challenges. Consequently, this research is motivated to investigate the extent to which challenges related to security issues (SI), compatibility issues (CS), internet reliability issues (IR), subscription costs (SS), training costs (TC), and regulatory ambiguities (RA) affect CA integration in Nigeria. In light of this, questionnaires were administered to accounting and finance professionals in Asaba, Agbor, Abraka, and Ozoro in Nigeria. Data were analyzed using Partial Least Squares (PLS) with the aid of SmartPLS. Out of the 400 questionnaires distributed, 356 were retrieved and used for the analysis with the aid of SmartPLS. Prior to conducting the PLS analysis, the Kaiser-Meyer-Olkin (KMO) and Bartlett's test of sphericity (BTS) were conducted. Overall, both KMO and BTS are used to test the suitability of the factor analysis. SPSS was used to conduct both preliminary tests. The PLS estimate reported that security issues (SI), compatibility issues (CS), internet reliability (IR), and regulatory ambiguities (RA) significantly deter CA integration. However, a moderate increase in both subscription costs (SS) and training costs (TC) increases CA integration. Therefore, the study concludes that high security issues (SI), compatibility issues (CS), internet reliability (IR), and regulatory ambiguities (RA) significantly deter CA integration, but a moderate rise in subscription costs (SS) and training costs (TC) increases CA integration. To address the security issues, the study suggests that Nigerian businesses need to conduct regular security audits and that accounting and finance professionals need to collaborate with credible CA service providers. Lastly, accountants and finance analysts need to invest in multiple computer hardware such as switches, routers, and other network gadgets.

Keywords: *Accounting & finance professionals, Cloud accounting integration, Cloud-based accounting challenges.*

1. Introduction

Over time, cloud accounting (CA) has gained high momentum considering the enormous benefits its presents in all walks of human life [1]. In no doubt, its emergence has redefined how accounting and finance professionals analyze their financial data [2, 3]. In line with Shim, et al. [4] submission, CA integration enhances firm's decision making process as it offers seamless scalability, remote accessibility at low cost, and operational efficiency Dasgupta, et al. [5] and Gill, et al. [6]. Igbinenikaro and Adewusi [1] added that, though CA is highly scalable, it offers high predictable and dependable subscription-based pricing system than manual accounting system. Ultimately, the CA integration into business operations simplifies business operations, increase accuracy, supports sustainability goals, and

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also provides firms with a competitive edge as it promotes digital workflows and reduces reliance on manual accounting system [7, 8]. Consequently, firms are tailoring towards the integration of CA into their business model [9]. Specifically, CA presents a unique opportunities for Nigerian firms to streamline their financial operations, improve their decision making process and also contribute meaningfully to the growth of the Nigerian economy while ensuring that their financial operations and decision making process aligns with global technological trends [5, 6, 10].

Still, the integration of CA into the financial operations and decision making processes of firms in Nigeria remains limited due to various challenges. Notable among these challenges are security issues, compatibility issues, internet reliability issues, subscription costs, training costs, and regulatory ambiguities. Specifically, security challenges such as data privacy breaches and cyber-attacks reduce the extent of integration of CA [11, 12]. This challenge is further compounded by low enforcement mechanisms in place and poor implementation of data protection laws [13]. Another major challenge which hinders full integration of CA is huge compliance costs [14]. This challenge is further heightened by huge legal consultation fee, huge system updates, and huge compliance audits that one need to meet with the dynamic legal requirements. Again, high training costs, high subscription fees, internet reliability and regulatory ambiguities compounded by high skill gaps, high infrastructure gaps, and inconsistent policy implementations further hinders full integration of CA [10, 15-17].

Given the critical nature of these identified challenges, it is highly imperative to understand how Nigerian accounting professionals perceive and integrate CA into their financial operations and decision making processes. This understanding will guide policy makers/regulatory authorities, Nigerian businesses, accounting and finance professionals on how best to mitigate the challenges which deters CA integration in Nigeria. Also, the current study stands out as it provides useful insights on how security issues (SI), compatibility issues (CS), internet reliability issues (IR), subscription costs (SS), training costs (TC) and regulatory ambiguities (RA) uniquely impact the extent accounting and finance professionals integrates to their financial operations and decision making processes. Observably, existing CA integration studies predominantly focused mainly on cloud accounting drivers, benefits, challenges and prospects cloud accounting integration without providing useful insights on understanding how security issues (SI), compatibility issues (CS), internet reliability issues (IR), subscription costs (SS), training costs (TC) and regulatory ambiguities (RA) jointly impact the extent accounting and finance professionals integrates into their financial operations and decision making processes (see the studies of Briglauer, et al. [15]; Gutta [16]; Colangelo [17]; Singh, et al. [10]; Habibzadeh, et al. [13]).

In light of the above, the study seeks to examine the extent security issues (SI), compatibility issues (CS), internet reliability issues (IR), subscription costs (SS), training costs (TC) and regulatory ambiguities (RA) affect CA integration in Nigeria. Consequently, the study seeks to answer the following research questions:

RQ1: To what extent do security issues (SI) affect CA integration in Nigeria?
RQ2: To what extent do compatibility issues (CS) affect CA integration in Nigeria?
RQ3: To what extent does internet reliability (IR) affect CA integration in Nigeria?
RQ4: To what extent do subscription costs (SS) affect CA integration in Nigeria?
RQ5: To what extent do training costs (TC) affect CA integration in Nigeria?
RQ6: To what extent do regulatory ambiguities (RA) affect CA integration in Nigeria?

To address these six pertinent questions, questionnaires were administered to accounting and finance professionals in Asaba, Agbor, Abraka and Ozoro, Nigeria. Data were analyzed using Partial Least Square (PLS) through the aid of SmartPls 4. It is therefore expected that the findings will provide actionable recommendations that are targeted at addressing the challenges which deters full integration of CA in Nigeria.

The structure of this paper is as follows. The subsequent section provides a detailed background on cloud-based accounting technology and adoption models relevant to this study, followed by a presentation of the research model and hypotheses development. Then, the methodology used in this

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study, along with data analysis and results, are presented. Finally, the paper concludes with a discussion of the findings, implications, and recommendations for future research.

2. Literature Review

Cloud-based accounting (CA) involves the use of internet-hosted accounting software to input, process; store and manage accounting information in the cloud. Compared to the traditional accounting systems (TAS), which rely on localized software installations, CA enable individuals and corporate firms to access financial data, generate financial reports, store and manage data in the cloud at a low cost. Major reasons why CA is preferred over traditional accounting system (TAS) is traced to include cost-effectiveness, scalability, automated backups, regulatory compliance, enhanced security, environmental suitability, integration with other business packages such as payroll software and ability to support remote or hybrid work environments. However, the extent of the integration of CA integration is factored by security issues (SI), compatibility issues (CS), internet reliability issues (IR), subscription costs (SS), subscription costs (SS), training costs (TC) and regulatory ambiguities (RA).

Furthermore, the Technology-Organization-Environment (TOE) theory was considered the most appropriate theory to further this study since it provides useful insights on the three (3) key factors that have the capacity to either deter or increase the extent of CA integration. This theory developed by Tornatzky and Fleischer [18] stresses that CA integration is factored by technological (T), environmental (E) and organizational (O) dimensions [19, 20]. Key issues which the technological dimension considers are security concerns, internet reliability, and high subscription costs while the environment (E) dimension focuses on regulatory ambiguities and inadequate internet infrastructure as key issues deter CA integration. However, the organization (O) dimension stresses that skill gaps deter CA integration. However, the Overall, these three (3) dimensions provide a comprehensive lens for examining the extent of CA integration.

Predominately, CA studies focused mainly on cloud accounting drivers, benefits, challenges and prospects cloud accounting integration. Specifically, Noch [21]; Gutta [16]; Igbinenikaro and Adewusi [1]; Tian, et al. [22]; Mujalli, et al. [23]; Ajayi-Nifise, et al. [24]; Briglauer, et al. [15] and Colangelo [17] focused on the challenges associated with CA integration. Nevertheless, these studies failed to collectively examine the extent security issues (SI), compatibility issues (CS), internet reliability issues (IR), subscription costs (SS), training costs (TC) and regulatory ambiguities (RA) affect the extent accounting and finance professionals integrates CA into their financial operations and decision making process. Hence, the current insightful research however expanded the scope of earlier studies by offering a more thorough understanding on how security issues (SI), compatibility issues (CS), internet reliability issues (IR), subscription costs (SS), subscription costs (SS), training costs (TC), regulatory ambiguities (RA) uniquely impact the extent accounting and finance professionals integrates cloud accounting into their business model. Table 1 presents the summary of related studies.

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Table 1.
Summary of Related Studies.

S/N	Study	Focus	Findings
1.	Donbraye [25]	CA adoption among SMEs in SSA.	IT infrastructure issues, poor electricity and internet connectivity issues are major issues facing the CA integration.
2.	Habibzadeh, et al. [13]	Cybersecurity, data privacy, and policy issues.	Security challenges heightened by data privacy breaches and cyber-attacks reduce the extent of integration of CA.
3.	Ogborigbo, et al. [11]	Security challenges posed by CA integration.	Data security, data privacy and data loss reduce the extent of integration of CA
4.	Ukeje, et al. [26]	CA integration and Information security and privacy challenges.	Information security and privacy are major challenges which reduce the extent of CA integration.
5.	Ogundipe [27]	Conceptualizing cloud computing in financial services with emphasis on its opportunities and challenges.	Although CA integration is highly beneficial, regulatory compliance, data security concerns and infrastructure limitations reduces CA adoption significantly.
6.	Hamundu, et al. [28]	CA adoption intention with emphasis on Indonesian MSMEs.	Perceived compatibility, complexity, and owner-manager knowledge reduces the extent of CA adoption significantly concerns.
7.	Hamzah, et al. [14]	CA adoption intention	Compatibility is a major determinant of CA adoption and integration.
8.	Colangelo [17]	Fair share of network costs and regulatory ambiguity with emphasis on net neutrality mistakes.	High network cost reduces CA adoption integration and that regulatory myopia further heighten it.
9.	Briglauer, et al. [15]	Socioeconomic benefits of high-speed broadband availability and service adoption.	High-speed broadband is highly beneficial and that it increases service adoption but high traffic reduces service adoption.
10.	Tian, et al. [22]	Influencers of blockchain and cloud-based business sustainability.	Regulatory ambiguity reduces cloud-based business sustainability and integration significantly.
11.	Mujalli, et al. [23]	CA adoption drivers in Saudi Arabia	Regulatory ambiguity is a key factor which reduces CA integration in Saudi Arabia.
12.	Ajayi-Nifise, et al. [24]	CA adoption drivers in US Accounting system.	Regulatory ambiguity is a key factor which reduces CA integration in US accounting system.
13.	Igbinenikaro and Adewusi [1]	Policy frameworks for regulating fintech innovations.	Regulatory ambiguity and uncertainty deters CA integration.
14.	Noch [21]	Challenges and prospects in CA integration	Regulatory ambiguity, uncertainty and interoperability issues deters CA integration.
15.	Gutta [16]	Systematic review on cloud architectural approaches.	High costs reduces cloud integration but moderate costs increase the extent of integration.

Consistent with the TEO model and the empirical review, a conceptual model was developed. The estimate is presented in Figure 1.

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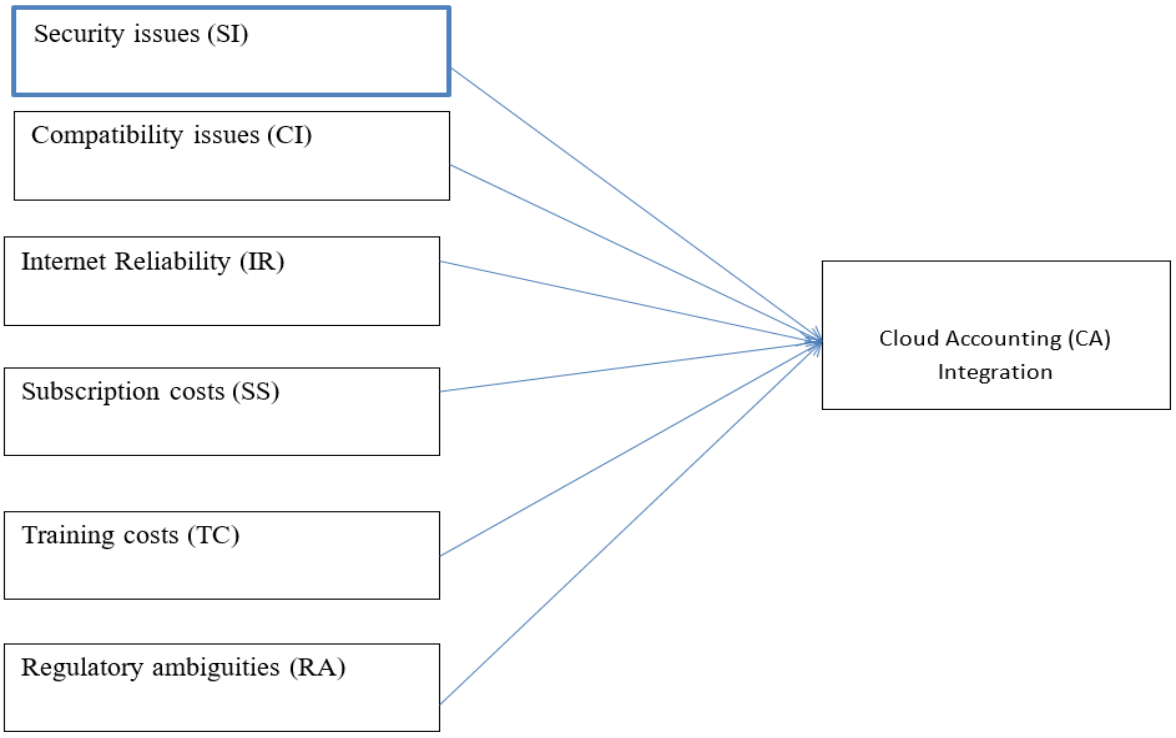

Figure 1.
Challenges Associated with CA Integration.

3. Methodology

The study used the quantitative data to analyze the survey responses statistically. With this, the research gain generalizable insights on the extent of integration of cloud-based solutions among finance and accounting professionals. The respondents willingly participated, and the data collected were mainly for research/academic purposes. The respondents were all assured of their privacy. Roberts and Allen [29] maintained that the principle of confidentiality and anonymity are paramount ethical consideration in research. Thus, once the principle of confidentiality and anonymity were upheld and every other ethical standard are satisfied, this improves the research's integrity.

Using the simple random sampling strategy, 400 questionnaires were sent via a Google form invite link sent via emails and WhatsApp of the potential respondents. However, 356 questionnaires were retrieved. Specifically, the respondents cut across Agbor, Asaba, Ozoro and Abraka. The choice of the population is to get a varied perspective on the subject. The retrieved 356 questionnaires constituted the sample size (N=356). The response rate of this survey was 89% suggesting that the retrieval process is efficient. Specifically, the respondents' demographic profile revealed 83.43 percent were males while 16.57 percent were females suggesting that the discipline has more male professionals than females. Furthermore, majority of our respondents falls with age 31 to 40 years category. Also, most respondents' highest academic degree is MSc/MBA while their least academic degree is BSc. Also, there is high rise in the numbers of those that batch doctorate degree (PhD/DBA). Overall, 33.15 percent have been working below five years, 45.79 per cent of the survey object have work experience between five to ten years while 21.07 percent have work experience over ten years. The basic information of the profile of the survey object is evident in Table 2.

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Table 2.
Profile of the Survey Object.

Parameters	Categories	Frequency (F)	Percentage (%)	Parameters	Categories	Frequency (F)	Percentage (%)
Gender (Sex)	Males	297	83.43	Age (Years)	31 to 40 years	131	36.80
	Females	59	16.57		41 to 50 years	154	43.26
					>50 years	71	19.94
Academic Qualification (Highest)	BSc	178	50.00	Working Experience (Length of Service)	< 5 years	118	33.15
	MSc/MBA	127	35.67		5 to 10 years	163	45.79
	PhD/DBA	51	14.33		>10 years	75	21.07

All the construct measurement were adapted from extant studies and were measured on a scale of 1 to 5 where 5 represent strong disagreement while 5 represent strong agreement.

Table 3.
Questionnaire Item Development.

S/N	Constructs	Numbers of Items	Source
1	Security Issues (SI)	5	Ogborigbo, et al. [11]
2	Compatibility Issues (CS)	5	Hamzah, et al. [14]
3	Internet Reliability (IR)	5	Colangelo [17]
4	Subscription Costs (SS)	5	Kumar, et al. [30]
5	Training costs (TC)	5	Kumar, et al. [30]
6	Regulatory Ambiguities (RA)	5	Tian, et al. [22]
7	Cloud Accounting Integration (CAI)	5	Ighosewe, et al. [31]

To ensure that the questionnaire is valid and reliable, the questionnaire was pre-tested. First, the contents of the questionnaire was validated using previous research instruments that have been validated. Then next stage was the administering of the questionnaire to three (3) accounting experts and three (3) high ranked bankers with 15 years cogent experience to face validate the questionnaire. Observably, all their comments were noted and were used to correct the wordings of the questionnaire. This is with the intention to ensure that the wordings of the questionnaire are clear, precise and also suit the objective of the research. To further ensure that the instruments are internally consistent, the questionnaire was shared to 20 respondents. . As evidenced in Table 4, all the constructs reported Cronbach Alpha (**α**) and rho values above the permissible value of 0.80 as recommended by Hair and Alamer [32] and validated by Sarstedt, et al. [33].

Furthermore, the study analyzed the data using partial least squares PLS. The estimation test follows dual-step analytical procedures. The first analytical procedure is to test the measurement model. Specifically, the measurement model was tested and then structural model was tested subsequently. Specifically, the measurement model tested the constructs' reliability and validity. Six (6) quality criteria were tested in line with the studies of Ononye, et al. [34]. The quality criteria are standardized factor loading (SFL), composite reliability (CR), Average Variance Extracted (AVE), variance inflation factor (VIF), Fornell-Larcker Criterion (FLC). Specifically, the SFL was used to test for item reliability, CR tested for construct reliability (internal consistency), AVE tested for convergent validity, VIF tested for multi-collinearity among latent variables while FLC for testing discriminant validity. Their permissible thresholds, implications and sources are presented in Table 6:

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Table 4.
Permissible thresholds, Implications and Sources.

S/N	Measurement Model	Permissible Threshold	Implication	Source
1	SFL	>0.707	Constructs are reliable	Fornell and Larcker [35]
2	CR	>0.70	Each construct are internally consistent and reliable	Hair, et al. [36]
3	AVE	>0.50	Constructs attained discriminant validity.	Hair, et al. [36]
4	VIF	≤ 5.0	Multicolinearity problems was recorded	Ononye, et al. [34]
4	VIF	≤ 3.3	Common Bias does not pose any challenge	Ononye, et al. [34]
5	FLC	>0.70	Each constructs are distinct	Hair, et al. [36]

Having confirmed that the model is appropriate for the analysis and is of high quality, the next test is to proceed to the structural model (inner model). The two tests conducted are path analysis and goodness of fit (GoF) using a bootstrapping procedure with 5000 subsamples. Specifically, the path analysis was used to determine the path coefficients (β) and test the formulated research hypotheses (p-value) while the GoF is to determine the dataset predictive value. The three (3) GoF tests conducted are: coefficient of determination (R^2), standardized root mean square residual (SRMR), and normed fit index (NFI). Justifiably, R^2 with a permissible value of 0.25 suggests the path model has a meaningful predictive power; NFI permissible value of < 0.01 and SRMR value of <0.08 suggests that model fits well [37, 38]. The statistical software used to test both the measurement and structural model is SmartPLS version 4.0.9.6. Justifiably, this statistical software is highly advantageous to researchers as it estimates complex models with several latent variables, indicator variables, and structural paths without necessarily deviating from the assumptions of the normality of the sourced data [39].

Prior to conducting the PLS analysis, two preliminary tests were conducted. The two (2) tests are Kaiser-Meyer-Olkin (KMO) and Bartlett's test of sphericity (BTS). While the KMO was used to test for sampling adequacy of the data set, the BTS tested for sphericity (i.e. factorability) of the dataset. While a KMO value of 0.70 is considered adequate, BTS p-value< 0.05 (5%) is highly desirable [36]. Overall, both KMO and BTS are used to test the suitability of the factor analysis. The SPSS was used to test both preliminary tests.

4. Result and Discussions

4.1. Preliminary Tests

Table 5 accounts the two (2) preliminary tests. These two (2) sets tested for dataset factorability tests are KMO and BTS. Observably, security issues (SI), compatibility issues (CS), internet reliability issues (IR), subscription costs (SS), training costs (TC), regulatory ambiguities (RA), and cloud accounting integration (CIA) have KMO values of 0.824, 0.786, 0.753, 0.705, 0.701, 0.759, 0.863 and 0.746, respectively above the permissible cut off value of 0.70. Meanwhile, their respective p-values are below 5% suggesting that the datasets have common variance, are strongly related to their latent constructs and are suitable for factor analysis. It is on this strength that, the insightful research proceeds to the dual-step PLS analytical procedures which are measurement model (outer model) and the structural model (inner model).

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Table 5.
Dataset Factorability Tests.

S/N	Constructs	KMO Values (>0.70)	BTS (<0.05)
1	Security Issues (SI)	0.824	0.0000
2	Compatibility Issues (CS)	0.786	0.0030
3	Internet Reliability (IR)	0.753	0.0064
4	Subscription Costs (SS)	0.705	0.0017
5	Training costs (TC)	0.759	0.0000
6	Regulatory Ambiguities (RA)	0.863	0.0000
7	Cloud Accounting Integration (CAI)	0.746	0.0001

4.2. Measurement Model

Table 6 evidenced that the item (indicator) correlations exceeds the permissible value of 0.707 recommended by Hair, et al. [39] implying that each constructs are highly reliable. Similarly, the CR coefficient values above the permissible value of 0.70 as recommended by Hair, et al. [37] and validated by Sarstedt, et al. [33] and Shmueli, et al. [38]. This further suggests the measuring scales are internal consistent and precise. Further, all the constructs reported AVE coefficient values above 0.50. Observably, security concerns reported AVE coefficient value of 0.709, security issues (SI) reported AVE coefficient value of 0.626, internet reliability (IR) reported AVE coefficient value of 0.652, subscription costs reported AVE coefficient value of 0.626, training costs (TS) reported AVE coefficient value of 0.642 and regulatory ambiguities reported AVE coefficient value of 0.639.

Furthermore, the security issues (SI), internet reliability (IR), subscription costs, training costs (TS) and regulatory ambiguities reported VIF values of 1.230, 1.534, 2.429, 1.374, 2.510 and 1.815 suggesting that the dataset are free from multi-collinearity problem [40].

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Table 6.
Quality Criteria.

S/N	Constructs	Item Correlations	SFL >0.707	A	Rho	CR >0.70	AVE >0.50	VIF
1	Security Issues (SC)	SI1	0.864	0.912	0.915	0.942	0.709	1.230
		SI2	0.978					
		SI3	0.809					
		SI4	0.957					
		SI5	0.746					
2	Compatibility Issues (CS)	CI1	0.707	0.832	0.836	0.891	0.626	1.534
		CI2	0.790					
		CI3	0.813					
		CI4	0.732					
		CI5	0.891					
3	Internet Reliability (IR)	IR1	0.879	0.894	0.896	0.939	0.652	2.429
		IR2	0.873					
		IR3	0.859					
		IR4	0.836					
		IR5	0.894					
4	Subscription Costs (SS)	SS1	0.887	0.891	0.903	0.937	0.580	1.374
		SS2	0.802					
		SS3	0.813					
		SS4	0.944					
		SS5	0.870					
5	Training Costs (TS)	TS1	0.758	0.846	0.882	0.915	0.642	2.510
		TS2	0.794					
		TS3	0.812					
		TS4	0.857					
		TS5	0.909					
6	Regulatory Ambiguities (RA)	RA1	0.846	0.824	0.830	0.893	0.639	1.815
		RA2	0.791					
		RA3	0.707					
		RA4	0.765					
		RA5	0.843					

Note: Abbreviations: α = Cronbach's alpha CR= Composite Reliability derived from FL, and AVE = Average Variance Extracted

Table 7.
FLC Test.

S/N	Constructs	1	2	3	4	5	6	7
1	Security Issues	0.780						
2	Compatibility Issues	0.130	0.732					
3	Internet Reliability	0.088	0.127	0.732				
4	Subscription Costs	0.095	0.101	0.152	0.782			
5	Training costs	0.024	0.087	0.032	0.093	0.784		
6	Regulatory Ambiguities	0.781	0.153	0.0636	0.058	0.041	0.712	
7	Cloud Accounting Integration	0.057	0.010	0.001	0.055	0.065	0.022	0.735

As presented in Table 7, the FLC test clearly evidenced that the diagonal values are higher than the off-diagonal values (i.e. inter-correlation values) suggesting that each construct is highly distinct, internally precise, consistent, and are not highly correlated with the others. By extension, discriminant validity was attained. Overall, the quality criteria estimate confirmed the measurement model is appropriate for the analysis and is of high quality.

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4.3. Structural Model

Having confirmed that the model is appropriate for the analysis and is of high quality, the next step is to determine the path coefficient and test the formulated research hypotheses having confirmed the fitness of the dataset. The three (3) tests used to determine the predictive quality of the dataset are R^2, NFI and SRMR. The SRMR value of 0.063 reported in Table 8 is below the permissible value of 0.08 suggesting that model fits well [37, 38]. Also, the NFI value of 0.8984 is close to 1 suggesting that the dataset fits the model satisfactorily [41]. Similarly, the R^2 value of 44.92 percent suggests that security issues (SI), compatibility issues (CS), internet reliability (IR), subscription costs (SS), subscription costs (SS), training costs (TC), regulatory ambiguities (RA) accounts for 44.92 percent variation in cloud accounting integration (CAI). The R^2 value of 44.92 percent suggests that model is robust and fits the path analysis well. The adjusted R^2 value of 0.4312 (43.12%) further confirmed that the model has a moderate predictive power.

As expected, security issues (β=-0.195 & p=0.016), compatibility issues (β=0.185 & p=0.025 = 0.185), internet reliability (β=0.582 & p=0.000), subscription costs (β=0.601 & p=0.000), training **costs** (β=0.483 & p=0.002), regulatory ambiguities (β=0.592 & p=0.000) are all statistically significant. Overall, the result confirmed that all the latent variables are predictors of CAI.

Table 8.
Structural Model Estimates Dependent Variable: Cloud Accounting Integration (CAI).

Hypothesis	Path Relationships	β (p-value)	Conclusion
H1	Security issues (SI)	-0.195 (0.016**)	Supported
H2	Compatibility issues (CS)	-0.185 (0.025**)	Supported
H3	Unreliable internet connections (UR)	-0.582 (0.000*)	Supported
H4	Subscription costs (SS)	0.601(0.000*)	Supported
H5	Training costs (TC)	0.483 (0.002*)	Supported
H6	Regulatory ambiguities (RA)	-0.592 (0.000*)	Supported
R^2= 0.4492 (44.92%); Adj. R2=0.4312 (43.12%); SRMR=0.063; NFI=0.898			

Note: *significant at 1% and ** significant at 5%

5. Discussions and Implications

This study focused on the challenges accounting and finance professionals in integrating cloud accounting packages. The six (6) challenges identified are: security issues (SI), internet reliability (IR), subscription costs, training costs (TS) and regulatory ambiguities. These six key challenges formed six testable research hypotheses. The research hypotheses were testing using the structural model. As expected, security issues served as a major factor which deters full integration of CA in Nigeria (β=-0.195 & p=0.016). By implication, the rising cases of data breaches, unauthorized access to sensitive financial data, data losses and the security issues which data migration presents hampers full integration of CA in Nigeria. This issue is caused by either mistake or service disruption [42]. Still, the research further confirmed that security issues are major issues which hinders full integration of CA in Nigeria not-withstanding the benefits inherent in the integration of CA. Hence, integration of CA can increase, if measures are in place to address the issue of data breaches, unauthorized access to key financial data, data losses amongst other key security issues associated with the integration of CA in Nigeria.

Again, the study stressed that high compatibility issues/challenges undermine the integration of CA into the operations of Nigerian firms significantly. Various attestable compatibility issues include but are not limited to data format, software version, platforms and API incompatibility. These compliance issues are further compounded by system complexity, huge data volume compliant and security integration. Hence, the full potentials of CA can be unleashed if attention is placed on addressing this issue.

To further encourage the full integration of CA amongst finance and Accounting professionals, the Nigerian regulatory authorities should provide grants to accounting firms that invest in CA. From the accountant and financial analysts' viewpoint, they are advised to designate more funds on off and on the

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job training courses. By adopting this strategy, the benefits inherent in the integration of CA will outweigh training costs thereof.

Furthermore, the study confirmed that the more internet connections becomes more unreliable, the lesser the integration of CA among accounting and finance professionals. Also, the extent of such integration is highly significant. Nevertheless, this challenge is further compounded due to the frequent power outages, huge costs of maintaining solar panels, and poor network coverage. This suggests that for the benefits of CA integration to out-weigh the cost associated with CA integration, accountants and financial analysts need to address the unreliable internet connections.

As expected, H4 evidenced that moderate increase in subscription costs does not hinder the integration of CA. Justifiably; subscription costs (SS) reported a positive coefficient value of 0.601 and p-value of 0.000. The argument here is that while moderate SS is permissible, high SS hinders accounting and finance professionals from fully integrating CA into their business model since high SS may make accounting and finance professionals to allocate their limited resources to CA integration thereby hindering its effectiveness. The implication of this result ot accounting and finance professionals is that if CA service providers offers scaling pricing models which fits into the business growing needs, the moderate rise in SS will not deter CA integration.

Additionally, the study evidenced that moderate rise in training does not hinder CA integration in Nigeria. However, high training costs have the tendency to reduce the extent of CA integration. The implication is that while moderate permissible, high training costs have high tendency to dissuade firms from investing in CA notwithstanding the benefits inherent in CA integration. Hence, the full potentials of CA can be unleashed if attention is placed on addressing this issue.

Lastly, the study confirmed that high regulatory ambiguities reduces the extent in which accounting and finance professionals integrates CA into their business model significantly (β=−0.592 and p=0.000). This challenge is further amplified by lack of clear regulatory guidelines and high compliance. By implication, clear regulatory guidelines increases confidence in CA integration, minimize compliance risks and other associated costs. Hence, the full potentials of CA can be unleashed if attention is placed on addressing this issue.

Overall, the outcome of this research aligns with findings of Noch [21]; Gutta [16]; Igbinenikaro and Adewusi [1]; Tian, et al. [22]; Mujalli, et al. [23]; Ajayi-Nifise, et al. [24]; Briglauer, et al. [15]; Colangelo [17] in terms of statistical significance but differs in terms of direction since subscription and training costs did not reduce CA integration.

6. Conclusions, Recommendations and Future Directions

This study submits that the need for Nigerian firms to increase the bandwith as this will encourage stable internet, and offline options could help under-resourced regions. This study is therefore novel as it first to place emphasis on accounting and finance professionals in the Nigerian context. The study used the quantitative data to analyze the survey responses statistically. Using the simple random sampling strategy, 400 questionnaires were sent via a Google form invite link sent via emails and WhatsApp of the potential respondents. However, 356 questionnaires were retrieved. Specifically, the respondents cut across Agbor, Asaba, Ozoro and Abraka. All the construct measurement were adapted from extant studies and were measured on a scale of 1 to 5 where 5 represent strong disagreement while 5 represent strong agreement. To ensure that the questionnaire is valid and reliable, the questionnaire was pre-tested. Meanwhile, the study analyzed the data using partial least squares PLS. The estimation test followed the dual-step analytical procedures: measurement and structural model. The two tests conducted are path analysis and goodness of fit (GoF) using a bootstrapping procedure with 5000 subsamples. Prior to conducting the PLS analysis, two preliminary tests were conducted. The two (2) tests are Kaiser-Meyer-Olkin (KMO) and Bartlett's test of sphericity (BTS). Overall, both KMO and BTS are used to test the suitability of the factor analysis. The SPSS was used to test both preliminary tests. Consequent upon the various result, the study concludes that high security issues (SI), compatibility issues (CS), internet reliability (IR) regulatory ambiguities (RA) deters CA integration

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significantly but moderate rise in subscription costs (SS), training costs (TC) increases CA integration. Hence, the following submissions were made:

i. To address the security issues associated with the integration of CA, Nigerian businesses needs to adopt two approaches. First, conduct regular security audit. This is with a view to detect potential security threats, weakness in the system, networks and the CA applications. Secondly, there is need for accounting and finance professionals to collaborate with credible CA service providers.

ii. To address issues that may emanate from increased traffic, accountants and finance analysts need to invest in multiple computer hardware such as switches, routers and other network gadgets. Also, they need to increase their broadband and also use a cost efficient cloud-based network management platform to manage their network connections.

iii. To increase the extent accounting and finance professionals integrates CA into their business models, CA service providers should offers scaling pricing models which fits into the business growing needs.

iv. To further encourage the full integration CA amongst accounting and finance professionals, the Nigerian regulatory authorities should provide grants, tax incentives and subsidies to accounting firms.

v. Accountant and financial analysts are advised to allocate more funds on off and on-the job training courses. By adopting this strategy, the benefits inherent in the CA integration will out-weigh the cost thereof.

Although this study contributes meaningfully to extant empirical discourse, it is still not without limiting factors. First, the research was only confined to accounting and finance professionals in Delta state, Nigeria. Given the relevance of the topic, future researches need to consider other professionals. Also, the research was limited to questionnaire. To get a more robust analysis, future research need to consider mixed research method. Furthermore, the research did not consider how cultural variations influence the decision of accounting and finance professional to integrate CA. Hence, the study submits that future researchers need to examine the extent cultural variations influence the decision of accounting and finance professional to integrate CA in the Nigerian context. Lastly, to further get a wider research output, studies on systematic review on the trends and prospects of CA integration in emerging countries should also be welcome.

Transparency:

The authors confirm that the manuscript is an honest, accurate, and transparent account of the study; that no vital features of the study have been omitted; and that any discrepancies from the study as planned have been explained. This study followed all ethical practices during writing.

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