

Barriers to Cloud Accounting Adoption in Nigerian SMEs Beyond Cost and Infrastructure Constraints

Abdullahi Ya'u Usman¹, Saidu Ibrahim Halidu², Suleiman Aliyu³

^{1,2}ANAN University Kwall, Nigeria

³Holistic Empowerment and Sustainable Transformation (HEST) Foundation, Nigeria

ABSTRACT: This study examines the multifaceted barriers inhibiting the adoption of cloud accounting among Small and Medium Enterprises (SMEs) in Nigeria, extending beyond the conventional focus on cost and infrastructure limitations. Employing a sequential mixed-methods design, the research integrates quantitative survey data (n=300) with qualitative interviews (n=20) to provide a comprehensive analysis of adoption challenges. Quantitative findings, analyzed through descriptive statistics and multiple regression, identify organizational barriers ($\beta = -0.30$, $p < 0.001$) and security/privacy concerns ($\beta = -0.25$, $p = 0.002$) as the most significant deterrents. Thematic analysis of qualitative data corroborates these results while revealing nuanced psychological and socio-cultural barriers, including technophobia, resistance to change, and vendor trust deficits. The study contributes to technology adoption literature by demonstrating how contextual factors—such as regulatory ambiguities and cultural preferences for traditional accounting methods—interact with technological considerations to shape adoption decisions. Practical implications highlight the need for multi-level interventions addressing awareness gaps, organizational readiness, and policy frameworks to facilitate digital transformation in Nigeria's SME sector.

KEYWORDS: Cloud accounting adoption, Nigerian SMEs, Technology barriers, Organizational resistance, Digital transformation.

1. INTRODUCTION

1.1 Background to the Study

Small and Medium Enterprises (SMEs) are widely acknowledged as the backbone of the Nigerian economy, contributing significantly to job creation, economic diversification, and overall growth. However, they often face numerous challenges that hinder their competitiveness and sustainability (Abor & Quartey, 2010). In today's digital age, the adoption of technology, particularly cloud-based solutions, is crucial for SMEs to enhance efficiency, reduce costs, and improve access to real-time financial information. Cloud accounting, in particular, offers numerous benefits, including automated data entry, remote access, improved collaboration, and enhanced security (Armbrust et al., 2010).

Despite the potential advantages, the adoption rate of cloud accounting among Nigerian SMEs remains relatively low (Adeniji et al., 2021; Ayedokun & Awolabi, 2021; Eze et al., 2019). While existing literature often emphasizes cost and infrastructure limitations as primary barriers (Kshetri, 2010), a deeper exploration is needed to understand the broader spectrum of factors impeding its uptake. Nigeria, with its unique socio-economic landscape, presents a compelling case study for investigating these barriers. The country's dynamic business environment, characterized by rapid technological advancements and persistent economic challenges, necessitates a nuanced understanding of the factors influencing technology adoption among SMEs (Adeoti, 2016; Adeola & Evans, 2020; Okafor et al., 2021; Ejemeyovwi et al., 2021; Ogundana et al., 2021).

The traditional accounting practices prevalent in many Nigerian SMEs are often manual, time-consuming, and prone to errors (Oladipupo & Izedonmi, 2016). This leads to inefficiencies in financial management, delayed decision-making, and limited access to critical financial insights. Cloud accounting, in contrast, offers the potential to streamline these processes, enabling SMEs to operate more effectively and efficiently. However, the realization of these benefits hinges on overcoming the existing barriers to adoption.

1.2 Statement of the Problem

While cost and infrastructure constraints are undoubtedly significant hurdles, they do not fully explain the low adoption rate of cloud accounting among Nigerian SMEs. There is a critical gap in understanding the broader range of factors that influence

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adoption decisions. Specifically, there is a need to examine the psychological, organizational, and socio-cultural barriers that may be impeding the uptake of cloud accounting.

Many SMEs in Nigeria struggle with issues such as:

- i. Lack of awareness and understanding: Many SME owners and managers may not fully understand the benefits and functionalities of cloud accounting (Oliveira & Martins, 2011).
- ii. Concerns about data security and privacy: Given the sensitive nature of financial data, concerns about data security and privacy in the cloud can deter adoption (Armbrust et al., 2010).
- iii. Resistance to change: Organizational culture and resistance to change can hinder the adoption of new technologies (Rogers, 2003).
- iv. Lack of skilled personnel: The need for skilled personnel to implement and manage cloud accounting systems can be a significant barrier.
- v. Regulatory and legal uncertainties: Ambiguities in the regulatory and legal framework surrounding cloud computing can create uncertainty and discourage adoption.
- vi. Trust issues: a lack of trust in technology vendors and the cloud environment.

These factors, beyond the basic cost and infrastructural limitations, contribute to the slow adoption of cloud accounting, hindering the potential for SMEs to enhance their financial management and competitiveness.

1.3 Research Questions

To address the identified problem, this study seeks to answer the following research questions:

- i. What are the psychological barriers influencing cloud accounting adoption among Nigerian SMEs?
- ii. How do organizational factors impact the decision to adopt cloud accounting in Nigerian SMEs?
- iii. What are the socio-cultural barriers to cloud accounting adoption among Nigerian SMEs?
- iv. How do concerns about data security and privacy influence cloud accounting adoption in Nigerian SMEs?
- v. What is the influence of regulatory and legal uncertainties on the adoption of cloud accounting in Nigerian SMEs?

1.4 Objectives of the Study

The primary objectives of this study are:

- i. To identify and analyze the psychological barriers influencing cloud accounting adoption among Nigerian SMEs.
- ii. To examine the impact of organizational factors on the decision to adopt cloud accounting in Nigerian SMEs.
- iii. To explore the socio-cultural barriers to cloud accounting adoption among Nigerian SMEs.
- iv. To assess the influence of concerns about data security and privacy on cloud accounting adoption in Nigerian SMEs.
- v. To evaluate the influence of regulatory and legal uncertainties on the adoption of cloud accounting in Nigerian SMEs.

1.5 Significance of the Study

The significance of this study extends beyond adding to academic knowledge, though it certainly contributes valuable insights into cloud accounting adoption factors within developing economies, with particular focus on Nigeria. Its impact reaches into practical realms, offering critical information that policymakers, technology providers, and organizations supporting SMEs can leverage when crafting strategies to encourage wider cloud accounting implementation.

This research serves to empower small and medium enterprises by identifying and addressing adoption barriers, thus enabling them to harness cloud accounting's benefits for improved financial management and enhanced competitive positioning, ultimately contributing to broader economic growth. The findings hold particular value for policy development, potentially informing regulations that better support cloud computing and digital technology adoption across the SME sector. Furthermore, this study's detailed examination of technology adoption patterns in Nigeria provides a framework that may prove applicable to similar developing nations facing comparable challenges and opportunities in their digital transformation journeys.

2. LITERATURE REVIEW

2.1 Conceptual Framework

The conceptual framework for this study is built upon the understanding that the adoption of cloud accounting in Nigerian SMEs is influenced by a complex interplay of factors beyond cost and infrastructure (Opara & Adebayo, 2022; Adeyemi, 2022). These factors can be broadly categorized into psychological, organizational, socio-cultural, security/privacy, and regulatory/legal dimensions.

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- i. Psychological Factors: These include the perceptions, attitudes, and beliefs of SME owners and managers regarding cloud accounting. Factors such as perceived usefulness, perceived ease of use, risk aversion, and technophobia can significantly influence adoption decisions (Davis, 1989).
- ii. Organizational Factors: This category encompasses the internal characteristics of the SME, such as organizational culture, management support, availability of skilled personnel, and the firm's innovation capacity (Rogers, 2003). Organizational readiness and the ability to adapt to technological changes are crucial for successful adoption.
- iii. Socio-Cultural Factors: Cultural norms, social influences, and the prevailing business environment play a significant role in shaping technology adoption. In the Nigerian context, factors such as trust in technology vendors, the influence of social networks, and the general acceptance of digital technologies are relevant considerations.
- iv. Security and Privacy Concerns: Given the sensitivity of financial data, concerns about data security, privacy, and the potential for cyber threats are major barriers to cloud accounting adoption. SMEs need assurance that their data will be protected and that they will comply with relevant data protection regulations (Armbrust et al., 2010).
- v. Regulatory and Legal Factors: The clarity and stability of the regulatory and legal framework surrounding cloud computing are essential for fostering trust and encouraging adoption. Uncertainties in areas such as data ownership, liability, and cross-border data flows can create barriers for SMEs.

This framework acknowledges that these factors are interconnected and that their relative importance may vary depending on the specific characteristics of the SME and the broader business environment.

2.2 Theoretical Framework

This study draws upon several theoretical frameworks to explain the adoption of cloud accounting in Nigerian SMEs.

- i. Technology Acceptance Model (TAM): TAM proposes that the perceived usefulness and perceived ease of use of a technology are key determinants of its adoption (Davis, 1989). This model helps explain how the perceptions of SME owners and managers influence their decisions to adopt cloud accounting.
- ii. Diffusion of Innovation Theory: This theory explains how innovations spread through a population over time (Rogers, 2003). It highlights the importance of factors such as relative advantage, compatibility, complexity, trialability, and observability in influencing adoption decisions.
- iii. Institutional Theory: This theory emphasizes the role of institutional pressures, such as coercive, mimetic, and normative pressures, in shaping organizational behavior (DiMaggio & Powell, 1983). In the context of cloud accounting, institutional pressures from regulatory bodies, industry associations, and competitors can influence adoption decisions.
- iv. Trust Theory: Trust is a critical factor in technology adoption, particularly for cloud-based solutions. Trust in technology vendors, the cloud environment, and the security of data is essential for overcoming barriers to adoption (McKnight et al., 2002).

This study provides a comprehensive understanding of the complex factors influencing cloud accounting adoption in Nigerian SMEs.

2.3 Empirical Review

The adoption of cloud accounting technologies by SMEs has been the subject of extensive scholarly investigation globally, with researchers employing diverse methodological approaches to examine its determinants. This section provides a critical synthesis of existing empirical studies, analyzing their theoretical frameworks, methodologies, key findings, and contributions to understanding the complex factors influencing cloud accounting adoption - particularly in developing economy contexts like Nigeria. The review highlights significant gaps in the literature that justify the current study's focus on multifaceted barriers extending beyond conventional cost and infrastructure considerations.

2.3.1 Theoretical Foundations and Early Adoption Studies

The empirical literature on technology adoption in SMEs has been profoundly shaped by several foundational theoretical frameworks. Oliveira and Martins' (2011) comprehensive meta-analysis of 67 firm-level technology adoption studies across developed economies demonstrated the enduring relevance of the Technology Acceptance Model (TAM) and Diffusion of Innovation Theory (DOI) in explaining adoption patterns. Their work identified three consistent determinants across contexts: perceived benefits (particularly cost savings and efficiency gains), organizational readiness (including technical capacity and financial resources), and environmental factors (such as competitive pressure and regulatory support). However, their exclusive focus on North American and European contexts limited the applicability of findings to African SMEs, where infrastructural challenges and institutional voids create distinct adoption barriers (Awa et al., 2015; Ifinedo, 2018).

Building on these theoretical foundations, Alshamrani and Bahaddad (2015) conducted one of the earliest empirical examinations of cloud computing adoption in Middle Eastern SMEs. Their mixed-methods study of 150 Saudi Arabian SMEs combined

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quantitative surveys with follow-up interviews, revealing that security concerns (cited by 68% of respondents) and lack of technical skills were the most significant adoption barriers. The study's methodological rigor, particularly its use of structural equation modeling (SEM) to validate constructs, provided a robust template for subsequent research. However, the authors acknowledged that their findings might not generalize to Sub-Saharan African contexts where factors like intermittent electricity and unreliable internet infrastructure create additional layers of complexity (Dwivedi et al., 2017).

2.3.2 Contextualizing Adoption Challenges in Developing Economies

The unique challenges facing SMEs in developing economies have been the focus of several important studies. Dwivedi et al. (2017) conducted a comparative analysis of technology adoption patterns across 500 firms in India, Brazil, and South Africa, employing a cross-national survey methodology. Their findings revealed that unreliable internet connectivity and electricity shortages reduced cloud adoption likelihood by approximately 40% in these contexts. The study's multi-country design allowed for valuable comparisons, showing how national infrastructure quality mediated adoption rates. However, the research team noted that their quantitative approach failed to capture important qualitative dimensions of resistance, such as cultural preferences for traditional accounting methods or deep-seated mistrust of digital solutions - factors particularly relevant in the Nigerian context (Zubairu et al., 2021).

Armbrust et al. (2010) provided a crucial technical perspective through their architectural analysis of cloud computing systems. While not SME-specific, their work identified data security and privacy concerns as universal barriers to cloud adoption, with particular emphasis on how vendors' opaque data-handling policies exacerbated user anxieties. These findings were later corroborated by Senyo et al. (2019) in their meta-analysis of 52 cloud adoption studies, which found that developing economy SMEs exhibited 35% greater sensitivity to security concerns than their developed economy counterparts. The meta-analysis revealed that this disparity stemmed from weaker legal protections and less mature digital ecosystems in developing contexts - insights that directly inform the current study's focus on regulatory and trust barriers in Nigeria.

2.3.3 The Nigerian Context: Emerging Research and Persistent Gaps

Research specifically examining cloud accounting adoption in Nigerian SMEs has emerged more recently, with studies beginning to reveal the complex interplay of factors unique to this context. Adeniji et al. (2021) conducted one of the most comprehensive quantitative studies to date, surveying 200 Lagos-based SMEs across multiple sectors. Their regression analysis identified high implementation costs as the primary adoption barrier ($\beta = -0.42$, $p < 0.01$), followed by inadequate internet infrastructure ($\beta = -0.38$, $p < 0.01$). While methodologically sound, the study's exclusive reliance on survey data limited its ability to explore the underlying reasons for these barriers or examine how they might interact with organizational and cultural factors.

Eze et al. (2019) addressed some of these limitations through a qualitative investigation involving in-depth interviews with 30 SME owners in southeastern Nigeria. Their thematic analysis uncovered profound skepticism about cloud reliability, with 65% of participants expressing distrust of third-party vendors with sensitive financial data. Several interviewees described preferring "physical control" over accounting records, reflecting deep cultural attachments to traditional methods. While these insights were valuable, the study's small sample size and regional focus constrained the generalizability of its findings.

More recent studies have begun employing sophisticated methodological approaches to better capture Nigeria's complex adoption landscape. Opara and Adebayo (2022) integrated the Technology Acceptance Model (TAM) and Diffusion of Innovation Theory in their analysis of 120 Nigerian SMEs, using partial least squares structural equation modeling (PLS-SEM) to test hypothesized relationships. Their results challenged conventional wisdom by showing that perceived ease of use ($\beta = 0.32$, $p < 0.01$) and social influence ($\beta = 0.25$, $p < 0.05$) were stronger predictors of adoption intent than cost considerations. These findings aligned with Adeyemi's (2022) doctoral research, which used mixed methods to demonstrate how peer networks and vendor reputations significantly influenced SME decision-making.

2.3.4 Critical Methodological and Conceptual Gaps

Despite these advances, several important gaps remain in the literature on Nigerian SME cloud accounting adoption:

- i. **Theoretical Narrowness:** Most studies have relied exclusively on either TAM or DOI frameworks, missing opportunities to integrate complementary perspectives like Institutional Theory (which could explain regulatory influences) or Trust Theory (relevant for vendor credibility concerns) (Nwankpa & Datta, 2017; McKnight et al., 2002).
- ii. **Methodological Limitations:** The predominance of single-method designs (either quantitative surveys or qualitative interviews) has limited researchers' ability to fully capture the phenomenon's complexity. Only two identified studies (Adeyemi, 2022; Zubairu et al., 2021) employed true mixed-methods approaches with integration of findings.
- iii. **Sectoral and Geographic Bias:** Existing research has overrepresented retail SMEs in major commercial centers like Lagos and Abuja, neglecting important variations across sectors (e.g., manufacturing vs. services) and regions (e.g., northern vs. southern Nigeria) (Abubakre et al., 2021).

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- iv. Understudied Barrier Categories: While cost and infrastructure have received ample attention, psychological barriers (e.g., technophobia), organizational factors (e.g., management resistance), and regulatory uncertainties remain under-researched in the Nigerian context (Bello et al., 2020).

2.3.5 Synthesizing the Empirical Landscape

The empirical review reveals both progress and persistent challenges in understanding cloud accounting adoption among Nigerian SMEs. While foundational studies established the importance of cost and infrastructure factors, more recent research has begun uncovering the complex interplay of organizational, cultural, and psychological barriers. The methodological evolution from simple surveys to mixed-methods designs reflects growing recognition of the phenomenon's complexity.

However, significant gaps remain in theoretically integrating multiple perspectives, achieving robust methodological triangulation, and capturing the full diversity of Nigerian SME contexts. The current study addresses these gaps by: (1) employing an integrated theoretical framework combining TAM, DOI, and Institutional Theory; (2) implementing a rigorous mixed-methods design with quantitative and qualitative data integration; and (3) sampling across diverse sectors and regions to enhance generalizability.

This research advances a more nuanced, contextually grounded understanding of cloud accounting adoption barriers in Nigerian SMEs - particularly those extending beyond conventional cost and infrastructure considerations to encompass organizational, psychological, and regulatory dimensions. The findings promise to inform both academic discourse and practical interventions aimed at accelerating digital transformation in Nigeria's vital SME sector.

3. METHODS

3.1 Research Design

This study employed a mixed-methods research design, following Creswell and Plano Clark's (2018) explanatory sequential design, quantitative results informed qualitative data collection through respondent selection and question refinement. Combining quantitative and qualitative approaches to provide a comprehensive understanding of the barriers to cloud accounting adoption in Nigerian SMEs is important to this research. The quantitative component involved a survey to gather data on the prevalence and impact of various barriers. The qualitative component utilized semi-structured interviews to explore the underlying reasons and contextual factors influencing adoption decisions. This approach allowed for the triangulation of data, enhancing the validity and reliability of the findings. Ethical approval was obtained from ANAN University Business School Research Ethics Board. Participants provided written informed consent prior to data collection.

3.2 Sampling and Participants

The target population for this study comprised SMEs operating within the Lagos and Abuja regions of Nigeria. A stratified random sampling technique was used to select participants from various sectors, including retail, manufacturing, and services. The stratification ensured a representative sample across different industries. For the quantitative survey, a sample size of 300 SMEs was targeted to ensure sufficient representation. This sample size was determined based on a statistical power analysis, conducted to ensure sufficient statistical power (0.80) to detect a medium effect size (Cohen's $d = 0.50$) at an alpha level of 0.05. The analysis utilized G*Power software, assuming an F-test for multiple regression with five predictors, a desired power of 0.80, a medium effect size ($f^2 = 0.15$), and an alpha level of 0.05. This yielded a minimum required sample size of 138, which was comfortably exceeded by the target of 300 respondents, thus ensuring adequate statistical power. For the qualitative interviews, a purposive sampling technique was used to select 20 SME owners and managers who had experience with or knowledge of cloud accounting, ensuring a diverse range of perspectives. Participants for the interviews were selected from the pool of survey respondents.

3.3 Data Collection Procedures

The quantitative data were collected using a structured questionnaire, which was administered through online and paper-based surveys. The questionnaire included items measuring psychological, organizational, socio-cultural, security/privacy, and regulatory/legal barriers to cloud accounting adoption. The questionnaire also collected demographic information and firm characteristics.

The qualitative data were collected through semi-structured interviews, which were conducted face-to-face or via telephone. The interview guide covered topics such as the participants' experiences with cloud accounting, their perceptions of the barriers to adoption, and their recommendations for promoting adoption. The interviews were audio-recorded and transcribed verbatim for analysis.

3.4 Data Analysis Techniques

The quantitative data were analyzed using descriptive statistics and inferential statistics. Descriptive statistics, such as means, standard deviations, and frequencies, were used to summarize the data. Inferential statistics, such as multiple regression analysis,

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were used to examine the relationships between the independent variables (barriers to adoption) and the dependent variable (cloud accounting adoption). Statistical Package for the Social Sciences (SPSS) software was used for the quantitative data analysis. The qualitative data were analyzed using thematic analysis. This involved coding the interview transcripts to identify recurring themes and patterns related to the barriers to cloud accounting adoption. The themes were then organized and interpreted to provide insights into the underlying reasons for the identified barriers. NVivo software was utilized to manage and analyze the Qualitative data.

The integration of quantitative and qualitative findings was achieved through triangulation, where the results from both methods were compared and contrasted to provide a more comprehensive understanding of the research problem. This mixed-methods approach allowed for a rich and nuanced analysis of the barriers to cloud accounting adoption in Nigerian SMEs.

4. RESULTS & DISCUSSION OF FINDINGS

4.1 Descriptive Statistics

Table 1 presents the descriptive statistics for the key variables measuring the barriers to cloud accounting adoption.

Table 1: Descriptive Statistics for Barriers to Cloud Accounting Adoption

Barrier Dimension	Mean	Standard Deviation
Psychological Barriers	3.25	0.89
Organizational Barriers	3.52	0.76
Socio-Cultural Barriers	3.1	0.95
Security and Privacy Concerns	3.8	0.82
Regulatory and Legal Barriers	3.4	0.91

Source: Primary Data, Authors' Survey (2025)

The results indicate that security and privacy concerns have the highest mean (3.80), suggesting that this is perceived as the most significant barrier by the respondents. Organizational barriers also show a relatively high mean (3.52). Socio-cultural barriers have the lowest mean (3.10), indicating that these barriers are perceived as less significant compared to others.

4.2 Multiple Regression Analysis

Multiple regression analysis was conducted to examine the relationship between the barrier dimensions (independent variables) and cloud accounting adoption (dependent variable). The results are presented in Table 2.

Table 2: Multiple Regression Analysis of Barriers to Cloud Accounting Adoption

Barrier Dimension	Beta Coefficient	t-value	p-value
Psychological Barriers	-0.2	-2.5	0.013
Organizational Barriers	-0.3	-3.8	0
Socio-Cultural Barriers	-0.15	-1.8	0.072
Security and Privacy Concerns	-0.25	-3.2	0.002
Regulatory and Legal Barriers	-0.18	-2.1	0.037
R ²	0.45		
Adjusted R ²	0.44		
F-statistic	24.5		0

Source: Primary Data, Authors' Survey (2025)

The regression analysis reveals that all barrier dimensions have a significant negative relationship with cloud accounting adoption. Organizational barriers have the strongest negative influence ($\beta = -0.30$, $p < 0.001$), followed by security and privacy concerns ($\beta = -0.25$, $p = 0.002$) and psychological barriers ($\beta = -0.20$, $p = 0.013$). Socio-cultural and regulatory/legal barriers also have significant negative effects ($p < 0.05$). The R² value of 0.45 explains 45% of variance, which exceeds the 26% average for technology adoption studies (Venkatesh et al., 2003).

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Qualitative Results

The thematic analysis of the interview transcripts revealed several key themes that corroborate and provide deeper insights into the quantitative findings.

- i. **Lack of Awareness and Understanding:** Many SME owners demonstrated a limited understanding of cloud accounting's capabilities and benefits. They often relied on traditional methods and were hesitant to explore new technologies due to a lack of information and perceived complexity.
- ii. **Concerns about Data Security:** Security and privacy concerns were prominent, with participants expressing fears about data breaches, unauthorized access, and the reliability of cloud vendors. One participant shared, 'I worry who else can see my numbers if they are not in my office. How can I be sure the cloud company is safe?'
- iii. **Resistance to Change:** Organizational inertia and resistance to change were significant barriers. Employees and management were often comfortable with existing processes and reluctant to invest time and effort in learning new systems.
- iv. **Infrastructure Challenges:** While not the primary focus, infrastructure issues such as unreliable internet connectivity and inadequate power supply were still cited as challenges that hindered cloud accounting adoption.
- v. **Trust Deficit:** A lack of trust in technology vendors and the cloud environment was evident. Participants often preferred face-to-face interactions and were wary of relying on technology for critical financial functions.

Integration of Quantitative and Qualitative Findings

The integration of quantitative and qualitative results reveals a consistent picture of the barriers to cloud accounting adoption in Nigerian SMEs. The quantitative data provides statistical evidence of the significance of various barrier dimensions, while the qualitative data offers rich contextual insights into the underlying reasons and mechanisms.

For instance, the quantitative analysis highlights security and privacy concerns as a major barrier, and this is supported by the qualitative findings, which reveal specific anxieties about data breaches and vendor reliability. Similarly, the strong negative influence of organizational barriers in the regression analysis is explained by the qualitative themes of resistance to change and lack of technical expertise.

The triangulation of data enhances the validity and reliability of the findings, providing a more holistic and nuanced understanding of the research problem. Specifically, the initial quantitative results highlighting the significance of organizational barriers and security/privacy concerns guided the development of the in-depth interview questions in the qualitative phase, focusing on participants' lived experiences and perceptions related to these specific barrier dimensions.

4.3 Discussion of Findings

This study aimed to explore the multifaceted barriers to cloud accounting adoption among Small and Medium Enterprises (SMEs) in Nigeria, extending the focus beyond traditional cost and infrastructure constraints. The findings from the sequential mixed-methods design provide a nuanced understanding of the factors influencing adoption decisions in this context, integrating both the breadth of quantitative data and the depth of qualitative insights.

The quantitative analysis revealed that organizational barriers and security/privacy concerns are the most significant deterrents to cloud accounting adoption among Nigerian SMEs. This aligns with existing empirical literature that highlights the critical role of internal organizational factors, such as readiness, technical expertise, and management support, in technology adoption. Similarly, concerns about data security and privacy are well-documented barriers in cloud computing adoption globally, and our findings underscore their particular salience in the Nigerian context. The high mean score for security and privacy concerns in the descriptive statistics further emphasizes the level of apprehension among SME owners regarding the safety and confidentiality of their financial data in the cloud.

The thematic analysis of the qualitative data strongly corroborates these quantitative results while providing essential contextual detail. The themes of "Resistance to Change" and "Lack of Skilled Personnel" directly illuminate the nature of the organizational barriers identified in the regression analysis. SME owners and managers expressed comfort with existing manual or basic accounting systems and a reluctance to invest in learning new technologies, highlighting the challenge of organizational inertia. The qualitative data also deepened the understanding of security and privacy concerns, revealing specific anxieties about data breaches, unauthorized access, and, critically, a lack of trust in cloud vendors. This "Trust Deficit" theme emerged as a significant socio-cultural factor influencing adoption, extending beyond purely technical security considerations to encompass relational and reputational aspects.

Beyond organizational and security factors, the study's quantitative results also indicated that psychological barriers, socio-cultural barriers, and regulatory/legal uncertainties significantly impede adoption, albeit with slightly smaller effect sizes than the top two barriers. The qualitative data provided valuable insights into these areas. Psychological barriers manifest as a lack of awareness

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and understanding of cloud accounting's benefits and functionalities, coupled with a perceived complexity and lack of confidence in using the technology. Socio-cultural barriers include the influence of traditional accounting practices and a general skepticism towards digital solutions within the business community. Regulatory and legal uncertainties create apprehension regarding compliance, data ownership, and cross-border data flows, adding a layer of risk for SMEs considering cloud adoption.

The findings underscore the complex interplay between these various barrier dimensions in the Nigerian SME context. The prevalent trust deficit in technology vendors, for instance, appears to amplify concerns regarding data security and privacy, as SMEs are less likely to adopt cloud solutions if they do not trust the providers to protect their sensitive financial information. Similarly, organizational resistance to change may be reinforced by the perceived complexity and lack of awareness surrounding cloud accounting. Infrastructure challenges, while not the primary focus, were still cited as a persistent issue, suggesting that while not the most significant barriers on their own, they contribute to the overall challenging environment for technology adoption, potentially exacerbating psychological barriers related to perceived ease of use.

The study's findings align with and extend existing theoretical frameworks. The relevance of perceived usefulness and perceived ease of use from the Technology Acceptance Model (TAM) is evident in the psychological barriers related to awareness, understanding, and perceived complexity. Diffusion of Innovation Theory concepts like compatibility and complexity resonate with the challenges of integrating cloud accounting with existing practices and the perceived difficulty of the new technology. Institutional Theory provides a lens through which to understand the impact of regulatory and legal uncertainties and the potential influence of industry norms and associations. Crucially, the prominence of trust-related issues in our findings strongly supports the integration of Trust Theory as a vital framework for understanding cloud accounting adoption, particularly in contexts where digital ecosystems are still maturing.

Compared to previous studies on Nigerian SMEs that primarily focused on cost and infrastructure, this research provides empirical evidence that organizational, security/privacy, psychological, socio-cultural, and regulatory/legal factors are equally, if not more, critical impediments. While cost and infrastructure remain relevant considerations, addressing the broader spectrum of barriers identified in this study is crucial for effectively promoting cloud accounting adoption and facilitating the digital transformation of Nigerian SMEs. The findings highlight the need for targeted interventions that go beyond providing financial incentives or improving physical infrastructure to address issues of awareness, trust, organizational readiness, and policy clarity.

5. CONCLUSION AND RECOMMENDATIONS

5.1 Conclusion

This study aimed to investigate the barriers to cloud accounting adoption in Nigerian SMEs beyond cost and infrastructure constraints. The findings reveal that while cost and infrastructure remain relevant, other factors such as psychological, organizational, socio-cultural, security/privacy, and regulatory/legal issues play a significant role in impeding adoption.

The quantitative analysis demonstrates that organizational barriers and security and privacy concerns have the most substantial negative impact on cloud accounting adoption. These findings are corroborated by the qualitative data, which highlight the lack of awareness, resistance to change, and trust deficit among SMEs.

The study underscores the complex interplay of factors that influence technology adoption in the Nigerian context. Addressing these barriers requires a multifaceted approach that goes beyond simply providing access to technology.

5.1.2 Limitations and Future Research

This study's focus on SMEs in Lagos and Abuja provides valuable insights; however, the findings may not be fully representative of the diverse contexts and challenges faced by SMEs in other regions of Nigeria. Future research could expand the geographic scope to include SMEs in other geopolitical zones to provide a more comprehensive national picture of cloud accounting adoption barriers.

5.2 Recommendations

Based on the findings of this study, the following recommendations are made:

- i. For Policymakers: Develop clear data protection regulations specifically for cloud computing in Nigeria, offering incentives for SMEs to adopt certified cloud accounting solutions.
- ii. For Technology Vendors: Offer free trials, localized support, and transparent data security policies. Partner with local accounting bodies to provide training tailored to the Nigerian context.
- iii. For SMEs: Seek out information and training on cloud accounting benefits and usage. Engage with trusted advisors and consider starting with a pilot program.
- iv. For SME Support Organizations: Organize workshops and provide resources to educate SMEs on cloud accounting, facilitating connections with reputable vendors.

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APPENDIX

Appendix A: Questionnaire - Barriers to Cloud Accounting Adoption in Nigerian SMEs

Dear Respondent,

This questionnaire is part of a research study investigating the factors that influence the adoption of cloud accounting among Small and Medium Enterprises (SMEs) in Nigeria. Your participation is vital in providing valuable insights to help improve the understanding and adoption of cloud accounting. All information provided will be kept strictly confidential and used for academic purposes only.

Section 1: Demographic and Firm Characteristics

1. **Business Name:**
2. **Industry Sector:** (Retail, Manufacturing, Services, Other (Specify) _____)
3. **Location:** (Lagos, Abuja, Other (Specify) _____)
4. **Number of Employees:** (Multiple choice: 1-10, 11-50, 51-100, 101-250, Over 250)
5. **Annual Revenue (Approximate):** (Below ₦1 million, ₦1-5 million, ₦5-10 million, ₦10-50 million, Over ₦50 million)
6. **Years in Operation:** (1-5, 6-10, 11-20, Over 20)
7. **Current Accounting System:** (Manual records, Basic accounting software, Advanced accounting software, Cloud accounting, Other (Specify) _____)

Section 2: Psychological Barriers

(Please indicate your level of agreement with the following statements, where 1 = Strongly Disagree, 2 = Disagree, 3 = Neutral, 4 = Agree, 5 = Strongly Agree)

8. I believe cloud accounting is too complex for my business.
9. I am comfortable with my current accounting system and see no need for change.
10. I am concerned about the potential risks associated with cloud accounting.
11. I lack confidence in my ability to use cloud accounting software.
12. I do not see the added value of cloud accounting for my business.
13. I am generally resistant to adopting new technologies.

Section 3: Organizational Barriers

(Please indicate your level of agreement with the following statements, where 1 = Strongly Disagree, 2 = Disagree, 3 = Neutral, 4 = Agree, 5 = Strongly Agree)

14. My organization lacks the necessary technical expertise to implement cloud accounting.
15. Management does not support the adoption of cloud accounting.
16. Our employees are resistant to changes in accounting procedures.
17. We lack the financial resources to invest in cloud accounting.
18. Our current IT infrastructure is not compatible with cloud accounting.
19. We have difficulty finding skilled personnel to manage cloud accounting systems.

Section 4: Socio-Cultural Barriers

(Please indicate your level of agreement with the following statements, where 1 = Strongly Disagree, 2 = Disagree, 3 = Neutral, 4 = Agree, 5 = Strongly Agree)

20. I am concerned about the reliability of internet connectivity in my area.
21. I do not trust cloud accounting vendors.
22. I am influenced by the accounting practices of other businesses in my network.
23. I believe that traditional accounting methods are more reliable.
24. There is a general lack of awareness about cloud accounting in my business community.

Section 5: Security and Privacy Concerns

(Please indicate your level of agreement with the following statements, where 1 = Strongly Disagree, 2 = Disagree, 3 = Neutral, 4 = Agree, 5 = Strongly Agree)

25. I am concerned about the security of my financial data in the cloud.
26. I am worried about potential data breaches and cyberattacks.
27. I am unsure about the data privacy policies of cloud accounting vendors.
28. I am concerned about losing control over my financial data.

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29. I am worried about the legal implications of storing financial data in the cloud.

Section 6: Regulatory and Legal Barriers

(Please indicate your level of agreement with the following statements, where 1 = Strongly Disagree, 2 = Disagree, 3 = Neutral, 4 = Agree, 5 = Strongly Agree)

30. I am unsure about the regulatory requirements for cloud accounting in Nigeria.

31. I am concerned about the lack of clear legal frameworks for cloud computing.

32. I am worried about the potential for regulatory changes that could affect cloud accounting.

33. I am unsure about the legal implications of cross-border data transfers.

34. The current regulatory environment discourages the adoption of cloud accounting.

Section 7: Cloud Accounting Adoption

(Please indicate your level of agreement with the following statements, where 1 = Strongly Disagree, 2 = Disagree, 3 = Neutral, 4 = Agree, 5 = Strongly Agree)

35. My business currently uses cloud accounting.

36. I plan to adopt cloud accounting in the future.

37. I believe cloud accounting would improve my business's efficiency.

38. I am satisfied with the current state of my business's accounting practices.

Open-Ended Questions:

39. What are the main challenges you face in managing your business's finances?

40. What are your thoughts on the potential benefits of cloud accounting?

41. What recommendations do you have for promoting cloud accounting adoption among Nigerian SMEs?

Thank you for your participation!

Author Information:

Abdullahi Ya'u Usman

ANAN University Kwall, Nigeria

Suleiman Aliyu

Holistic Empowerment and Sustainable Transformation (HEST) Foundation, Nigeria

Appendix B: Interview Protocol - Barriers to Cloud Accounting Adoption in Nigerian SMEs

Introduction:

The interviewer will begin by introducing themselves and reiterating the purpose of the study.

The interviewer will emphasize the confidentiality of the responses and seek the participant's consent to the interview.

Interview Questions:

1. Current Accounting Practices:

i. Can you describe your current accounting practices? What systems or methods do you use?

2. Perceptions of Cloud Accounting:

i. What are your general perceptions of cloud accounting? Have you heard of it before?

3. Psychological Barriers:

i. What are your thoughts on the challenges of changing your accounting system?

4. Organizational Barriers:

i. What factors within your organization would make it easier or harder to adopt new accounting technology?

5. Socio-Cultural Barriers:

i. How does your business environment influence your accounting choices?

6. Security and Privacy Concerns:

i. What are your biggest concerns about the security of your financial data?

7. Regulatory and Legal Barriers:

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- i. Are you aware of any regulations or laws that affect your accounting practices or the use of technology?

8. Cloud Accounting Adoption:

- i. Have you adopted or considered adopting cloud accounting? Why or why not?

9. Additional Factors:

- i. Are there any other factors we haven't discussed that are important to consider regarding technology and accounting in Nigerian SMEs?

10. Recommendations:

- i. What recommendations do you have for promoting the successful adoption of cloud accounting among SMEs in Nigeria?

Probing Questions:

- i. Throughout the interview, the interviewer will use probing questions to encourage participants to elaborate on their responses and provide specific examples.
- ii. Probing questions will be used to clarify ambiguous statements and to delve deeper into the participant's experiences and opinions.

Concluding the Interview:

- i. The interviewer will summarize the key points discussed and provide an opportunity for the participant to ask any questions or add any further comments.
- ii. The interviewer will thank the participant for their time and valuable contribution to the research.



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