

## DETERMINANTS OF GENERALIZED AUDIT SOFTWARE (GAS) ADOPTION BY EXTERNAL AUDITORS IN NIGERIA

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### Abstract

*This study focuses on small and medium sized audit firms in the North Eastern Nigeria. Registered auditors licensed by ICAN and ANAN have been selected as a sample, The objective of the study is to Determine Generalized Audit Software (GAS) Adoption by External Auditors in Nigeria. The research framework was developed based on the Technology-Organization-Environment (TOE). Using the TOE framework as a theoretical lens, quantitative data was sought from a survey of external auditors through self-administered questionnaires while SEM PLS and descriptive analyses were employed for the purpose of data analyses. This study tested the hypothesis between variables by using path analysis, while the dependent variable in this study is the adoption of audit technology which refers to audit technology used to support audit process. While, the independent Variables has three sets, the first set of independent variables is the technological context proxies by Relative advantage, and Technology comparability adopted for measuring technological context. The second sets is the Organisational Context proxies by Top Management commitment and Human resources IT competency. The Environmental context is the last set of Independent Variables i.e competitive pressure and professional Accounting Body are their proxies. The findings of the study revealed that competitive pressure, human resource competency, and technology compatibility positively influence audit technology adoption, while professional accounting body affiliation, relative advantage, and top management commitment do not significantly influence it. This imply that audit firms can focus more on enhancing competitive pressure, human resource competency, and technology compatibility to promote audit technology adoption effectively. The findings also revealed a positive relationship between Audit technology adoption and Generalized Audit software. The findings offer valuable insights to management, policy makers and regulators on ways to improve the adoption and use of GAS particularly by external. GAS developers should collaborate with external auditors to enhance the compatibility of GAS applications. This research contributes to existing adoption theory by extending the understanding of the impact of factors unique to GAS adoptions.*

**Keywords:** Tax evasion, Generalized Audit Software, External Auditors, ANAN, ICAN

### INTRODUCTION

Technology advancements has provided opportunities for auditors (external or internal) to use new tools in the audit process, as most accounting transactions are now computerized. Audit accounting data also expected to be computerized. This technology seems to be mandatory for auditor to adopt in any audit firm. Example of a big audit firms are KPMG, Delloite,

Enron.com, (PWC) Price water and Cooper. Moreover, in today's global business environment, advances in client information technology (IT) are rapidly intensifying the need for audit firms to employ various computer-assisted auditing tools and techniques (CAATs). One of the most commonly and widely used types of CAATs, in recent years, is generalized audit software (GAS) such as Audit Command Language (ACL), Interactive Data Extraction and Analysis (IDEA) CA's Easytrieve, Statistical Analysis System (SAS), and Statistical Package for Social Sciences (SPSS) (Debreceeny et al, 2018 and Singleton 2016). These software packages are employed by auditors to perform specific audit routines such as: browse, analyze, sort, summarize, stratify, sample, apply calculations, convert, and carry out other operations of data extraction and data analytics to audit a full set of client data, as opposed to relying on sampling (Ahmi and Kent 2019). Despite the widely adopted Information Technology (IT) applications in today's businesses; the functionality and benefits of GAS products; and the given support of audit standards to employ GAS, the relevant literature suggests that the extent to which external auditors adopt GAS still remains relatively low and under-investigated (Debreceeny et al. (2018), Mannita and Nieschwietz (2020) Ahmi and Kent (2019). Therefore, adoption of Information Communication Technology (ICT) can directly impact audit firms and its judgment and ultimately audit efficiency and effectiveness (Akinleye and Olanipek, 2019) Moreover, the importance of Generalized audit software (GAS) in Nigeria is lowering audit cost, increasing audit quality and productivity as noted by (Otete, 2020) and their wide usage in developed countries. Widuri, (2016) and Khamis (2021). Contended that, due to the recent rapid changes in technology most small and medium enterprises (SMEs) opt for paperless transactions. Oktaviani (2017) stated that, investing money in accounting software will increase efficiency more especially in the audit firm.

Chen and Wan et al (2018), stated that The dynamic and progressive digitization of the business environment due to the development has fundamentally changed the approach and manner of auditing and thus necessitated the need for the audit profession to follow the same by adopting IT in the audit process Hussain et al (2022) argued that effective organisations rely heavily on IT to manage daily transactions and accounting records. Ahmi and kent (2019) stated that however, the goal of an auditor is to provide an opinion to the stakeholders that those accounting records are prepared in a true and fair way. To achieve this goal, they have to validate the accuracy of the financial records and the reliability of the systems that process and store those transactions (Flowerday, 2016). As more of the evidence they use becomes electronic and paperless, auditors must change their audit techniques however, the focus of the audit should shift from manual detection to technology-based prevention (Ahmi, 2016).

This research focuses on Generalized Audit Software (GAS) Adoption by external auditors in Nigeria because it is an emerging issues most often used by auditors to automate audit tasks in developed countries. Widuri, (2016) suggest that most previous studies that examined the use of GAS focused on developed countries while research in the context of developing countries is limited, except in the case of Widuri (2016) who studied the use of GAS using a qualitative approach. The function of GAS is growing along with the development of information technology is changing a lot of business processes that was previously paper based documents into data based or digital data. Audit process conducted by auditors using GAS is expected to be more rapid, precise and accurate.

This study intends to fill the gap in the research literature by evaluating the Determinants of Generalized Audit Software Adoption by external auditors. Technology Organisation and Environment (TOE) is a firm-level adoption framework that was developed by Tornatzky and

Fleischer (1990). TOE proposed the importance of various contextual factors in the adoption of technological innovations Chukwuani and Egiyi (2020) The TOE framework is widely employed in the IT/IS literature and has been used to determine adoption factors in various IT contexts Lee and Tajudeen (2020) The TOE framework is relevant to study GAS adoption because it extends beyond the technology paradigm to include organizational and environmental perspectives Kaplan, (2019) therefore, the motivation for this study originated within the context and aim to fill the gap in the normative and empirical literature.

Technology adoption in business seems compulsory in most organisations in this era. This is not only to makes the business process easier and faster, but there are lots of other advantages that people cannot imagine especially if the particular assignment is done manually. However, audit practices are slow in adopting changes. External auditors are not adopting the use of GAS more especially in Nigeria even the specific application has been designed for their audit work (Ahmi and Kent 2019, Wudiri, 2016). In Nigeria Majority of small and medium sized audit firms are not using software but Ms Excel or Ms Word. Non availability of trained audit assistance for auditing financial statements of a company using audit software is also lacking. Although there is nothing wrong with the traditional audit practices, it will still impact the audit efficiency and effectiveness. Since most of the business entities, are now being fully computerised and paper-based audit evidence is ever reducing and expect their auditors to either keep audit fees constant or reduce them. (Ahmi, and Kent, 2019). Many businesses use information technology (IT) to process their transactions; the auditing profession is faced with a need to give increased guidance for audits conducted in an IT environment. Moreso, Today's reality requires organizations to engage in the process of adopting technology to perform better in line with the challenges of globalization. The use of GAS has been introduced to aid auditors in this regard. Auditors are therefore encouraged to employ technology-based audit tools in carrying out their engagements to match up with the practices of their organisation.

However, with the enormous support and recommendations from the professional bodies and regulators for the adoption and utilisation of GAS in audit engagements, prior empirical evidence suggests a slow pace in the adoption process particularly among external auditors (Abou et al, (2015), Ahmi, (2016) and Li et al 2018) An overwhelmingly body of literature that examined the technology-based audit tools adoption were conducted in advanced economies such as the UK, Australia, Singapore and Malaysia (Ahmi, and Kent, (2019) Li et al, (2018) Mahzan et al, (2019) and Smidt, (2018). Regardless of the increasing calls to adopt GAS in other geographical contexts particularly some African countries, researchers are yet to respond to these calls. Though few scholars in Africa have tried to ameliorate this dearth of research particularly in Egypt (Abou et al (2015), Hair et al, (2017).

The use of GAS typically requires some computer training. Auditors need to know at least the basic knowledge about database and data management Statistical knowledge also has to be there as it involves thorough analytical data analysis.

Accounting information systems data is continually exposed to many risks and threats. For example, (Mahzan et al (2016) Every day, reports can be found in accounting and financial publications about computer related data errors, incorrect financial information, Therefore, it is motivating to examine GAS adoption in the Nigerian context and the adoptions of technology in the audit profession has substantially lagged behind the development and utilization by management (Lowe et al, 2018) tools such as GAS or any CAATs, it is expected to be helpful and will enhance the effectiveness and efficiency of the auditing.

However, It is important to investigate the usage and practices of GAS. Nigeria, which is one of developing countries, is expected to have numbers of GAS adoption among external auditors.

The objective of the study is to Determine Generalized Audit Software (GAS) Adoption by External Auditors in Nigeria. The specific objectives are

## LITERATURE REVIEW

### 2.1 Conceptual Review

#### External Auditing and Technology

The digitalization of the electronic audit evidence and the high quality assurance standards set by the regulators has necessitated small and medium enterprises to adopt audit software [Ahmi, \(2016\)](#) [Bradford, \(2020\)](#) [Ghani, \(2016\)](#), [Jaber and Wadi, \(2018\)](#) [Widuri \(2017\)](#) and [\(2016\)](#). In the existing literature a number of pertinent studies were identified. For instance, [Rosli, \(2019\)](#) Suggested that in developing a comprehensive audit technology adoption framework by incorporating client's system complexity and professional accounting body support that enhances the original Technology-Organization-Environment framework. [Ahmi \(2016\)](#) in their study found that concerning seventy three per cent of external auditors figured not use of Generalized audit software system, this is due to the Perceived regulated advantages of thing about utilization of Generalized audit software system for auditing small and medium sized clients. Whereas some respondents recognized the benefits of Generalized auditing software system, they were defer by what they believed to be high implementation costs; important learning curve and adoption process; and lack of easiness of using – they showed a preference for using ancient manual auditing methods instead. [Lehey and Beasley \(2019\)](#), Identified in their study that in traditional audit methods shows the bias of experimenter and template as a major problems in the manual audit methods and it shows through an empirical example that shows that communication by computerized environment will increase audit efficiency and increase sample size and greatly mitigate these concerns. . This study differs from earlier studies in the following ways. The researcher investigated the adoption of GAS by external auditors, whereas [Balios et al, \(2020\)](#) sought to investigate the impact of big data and data analytics on external auditing. [Lehey and Beasley \(2019\)](#) investigated the use of big data analytics in external auditing from a contingency theory approach. [Khamis \(2021\)](#) investigated the implications and impact of CAATs on the efficiency and effectiveness of the auditing process as well as various accounting decision-making processes. [Albawwat and Yaser \(2021\)](#) conducted a descriptive study in Jordan to investigate the perceived ease of use, usefulness and contribution to audit quality of various CAATs types: assisted, augmented and autonomous. Further, [Ahmi \(2016\)](#) in his study, the literature capitalizes the Microsoft Excel's facilities of aggregating and analysing data from databases, starting with the 2010 version of Office [Ahmi, \(2016\)](#) in his research focused on small and medium-sized audit firms in the UK whereas most other GAS studies have examined firms such as Enron.com, Delloite, and Price water and Cooper( PWC). Registered statutory auditors have been selected as a sample. [Braun and Davis \(2018\)](#) in his study he provides that adoption of Audit control language have potential benefit to the auditors for auditing financial statements of their clients; however, the auditors at the same lacking the actuality of using technical abilities or computer application. It also, showed that the auditors surveyed were expressed a desire to increase audit skills by increasing Audit control language training. [Kuruppu and Oyelere, \(2017\)](#) was opined and analyzed that it provide new insights into the perceived value of incorporating CAATs into the curriculum, which ultimately has a bearing on both curriculum development and instructional material, [Trpeska et al. \(2017\)](#) has

studied relating to employer expectation in order to improve the universities studies in accounting education

Given the advancements and versatility of information technology, a number of organizations have invested in electronic systems to account for their transactions. Consequently, there has been a proliferation of accounting software ranging from the basic to the advanced ERP systems. Therefore, there is more of digital documentation of sales, purchases, expenses and various journal entries that feed into the General Ledger and eventually the financial statements. The large volume of accounting transactions and the pressure to complete the audit within tight deadlines have made it imperative for Small and medium enterprises to adopt Generalized Audit Software (GAS). Audit software helps the auditor accomplish tasks much faster and accurately (Braun and Davis, 2018). These techniques enable the auditor to detect misstatements in the financial statements and if the whole population of transactions can be covered using CAATs, then the extent of misstatement can be determined more accurately. Some studies on the issue of audit software adoption have been undertaken using different frameworks, one of which is the Technology, Organization and Environment (TOE) model. In Indonesia, in-depth interview with a number of Small and Medium sized enterprises revealed that the non-availability of auditors with information technology (IT) skills was one of the factors stifling adoption (Jaber and Wadi, 2018). The authors also highlighted the needs of the client and its size as a second factor. Regarding the environmental factors, the support from the professional body and the firm itself impacted the level of adoption of audit software. However, regulatory pressure was cited as one of the reasons for forced adoption of PCAS audit software in Tanzania after quality assurance of sampled audit files revealed several deficiencies (Katamba, 2017). Studies have shown that those Small and Medium size enterprises that had adopted audit software had registered some benefits. These include the ability to detect material misstatements, detect systemic control deficiencies and fraud. However, the tendency was to avail the software to information technology auditors as opposed to the entire group of auditors (Bradford, 2020). Training of audit teams should focus on the underlying usefulness of audit software to the audit. Unfortunately, most Small and medium enterprises focus their training on the International Financial Reporting Standards(IFRS), ISAs and less on IT/GAS training. Only one-third of the Small and medium sized enterprises in East Africa dedicated budget and time on IT/GAS training (Otete, 2018). If Small and medium sized enterprises accumulates a critical mass of auditors using audit software and are satisfied, the higher the perception that GAS contributes positively to the quality of their audits and the overall rating of the firm Elefterie and Badea, (2016) Handoko, 2018, Kim, 2016, Pedrosa, 2020). The adoption of GAS varied from firm to firm and other medium sized firms implementing the tools better than their smaller counterparts. Big companies used more complex tools like embedded audit modules, parallel simulation and test data (Ghani, 2016). It was noted that financial resources of a firm, the partner's expertise and client nature of operations affect speed of adoption of audit software Lowe (2018) and Tarek et al, (2017). The slow adoption by other firms is due to the fact that usage of GAS and audit software is not compulsory, but encouraged. CAATs help the auditor with accumulation of digital audit evidence, sample selection, testing whole population (if necessary) and reduced hours on the audit assignment. Microsoft Excel remained the most widely used GAS, followed by AC Land IDEA. Others software noted among firms that audited financial statements of banks included Case Ware, Auto Audit, and Team Mate Katamba, (2017) some audit clients do not use any accounting software. To promote the adoption of audit software and GAS, the effort expectancy must be reduced significantly. This means that the tools must be easy to learn and apply. Secondly, there should be no performance expectancy gap in that the tool should be seen to improve performance at individual auditor level and the firm as a whole. Thirdly, the Small

and medium enterprises should provide a facilitating environment through acquiring the tools, promoting their use in the firm (appreciation and endorsement) by allowing staff to learn the technology [Mansour, \(2016\)](#) [Razi and Madani, \(2013\)](#) and [Siew, \(2020\)](#).

[Ahmi, \(2016\)](#) GAS is a tool used by auditors to automate audit tasks. Since most accounting transactions are now computerized, accounting data is also expected to be computerized as well. Previous research has shown evidence that many external auditors have adopted GAS. For example, [Otete \(2020\)](#) state that GAS is widely used by external auditors in the UK.

There is a growing trend of using technology in auditing in the UAE. The automation of many tasks that are currently performed by humans, such as data entry and analysis, is the primary reason for its growing popularity. This has made audits much more efficient and cost-effective, providing audit teams with greater insights into the business they are auditing ([Hassan, 2022](#)). Another benefit of using technology in auditing is that it can help to reduce the risk of human error. By automating certain tasks, audit teams can easily identify and correct any mistakes that may be made. This is particularly important in cases where the accuracy of financial data is crucial ([Omoteso, 2017](#))

[Chukwuani and Egiyi \(2020\)](#) investigated the impact of CAATs on the accounting field. By doing this, they demonstrated the amount of development in the accounting sector regarding the automation of the accounting process. They concluded by outlining the role that accountants/auditors play in contemporary automation and how accountants/auditors in the twenty first century can adjust to the industry's pervasive automation. In a study on Malaysian firms using various accounting software, [Lee and Tajudeen \(2020\)](#), found that CAATs use is not limited to large firms. They also realized that businesses were employing accounting software to save invoice images and fully automate the information collection process.

[Deniz and Sorenson \(2022\)](#) mentioned that many businesses are either adopting GAS applications or considering their implementation for enterprise processes, which is relevant to financial statement information. That means auditors may soon be required to understand how GAS processes can impact the substance underlying the financial information. [Solaimani et al, \(2020\)](#) examined the connection between corporate control and CAATS in the UAE emerging market.

## **2.2 Computerised Assisted Audit Tools and Techniques (CAATTS) Adoption**

IT has transformed the means and manner in which organisations conduct their affairs [Appelbaum, \(2017\)](#). In light of this development, there has been a clarion call on auditors to adopt technology-based audit tools in their engagements with these firms to enhance their effectiveness and efficiency. Prominent among these technology-based audit tools are CAATT. [Braun and Davis \(2018\)](#) defined CAATT as “any use of technology to assist in the completion of an audit”. They are the systems and techniques used by auditors to “extract data, test data, discover and analyse patterns to identify anomalies for the purpose of planning and performing the audit”. The literature on technology application in the audit profession has been quite extensive [Wudiri, \(2016\)](#) however, little attention has been focused on GAS adoption factors by external auditors. Prior studies have investigated the behavioural intent to adopt GAS in audit engagements. [Widuri, \(2016\)](#) in a study on adoption of GAS among external auditors concluded that GAS adoption follows a two-stage approach; first, the need for suitable

environmental factors to be present and secondly, the existence of organisational and technology factors. Technology adoption by external auditors has also received little attention in literature. Few studies on technology adoption by external auditors have focused on investigating their adoption decisions (Li et al, 2018, Mahzan and Lymer (2018). Mahzan and Lymer (2018) explored the predictors for the use of GAS among internal auditors. The study modelled a theoretical framework for successful GAS adoption through the lens of the (UTAUT) and suggested that performance expectancy, the effect of externalities, facilitating conditions, training availability and compatibility of the software with other departments' systems are the factors influencing internal auditors' intention to adopt GAS. Gonzalez, (2019) also examined the intention of external auditors to adopt continuous auditing using the UTAUT as the theoretical lens.

The results of showed that effort expectancy and social influence are significant factors to positively influence the intention to use continuous auditing. Performance expectancy and facilitating conditions however were not found to be significant to influence internal auditors' intention to adopt continuous auditing. The results however presented inconsistencies in literature with regards to the elements that predict auditor's intention to adopt technology-based audit tools particularly even though both studies employed the same theory. Furthermore, the extant literature on the adoption and utilisation of GAS show that the rate of adoption and utilisation has been slow particularly in the external audit settings albeit with the support of standards and professional bodies. Also, Li et al, (2018) concluded that the extent of audit analytics utilisation by external auditors was low and usage limited to basic features. Thus, even though firms incur huge amounts to procure these technology-based audit tools, their acceptance among external auditors is fairly low. The study assessed the acceptance of audit analytics at the organisational level and suggested that it is vital to study the adoption of audit IT at the organisational level and support technology adoption, and implementation by external auditor (Li et al, 2018). Curtis and Payne (2018) intimated that firm resources and characteristics and individual perceptions about the technology may influence the acceptance of GAS by auditors. Following this review, the study employs an institutional approach to investigate the extent of acceptance of GAS and factors that affect their acceptance by external auditors. It is crucial to state that the determinants of GAS acceptance have been fairly discussed in the literature particularly by internal auditing and from the perspective of a developing economy. For instance, Abou-El-Sood, (2015) found that a greater proportion external auditor surveyed prefer firm-tailored audit software to vendor software such as Audit Command Language (ACL) and Caseware IDEA. Also, utilisation of the audit tools was limited to basic features such as sampling, working papers and ageing analysis (Abou-El-Sood, 2015). With the paucity of studies by external auditor in Nigerian context, this study, building on previous works using the TOE framework, investigates the extent of GAS adoption by external auditor and for a successful implementation in their quest to augment employing technology within their audit engagements

## METHODOLOGY

This study examined the influence of adoption of audit software by audit firms' professional auditors. To ease the estimation procedure, this study used a purposive sampling technique to select the required respondents for the survey (Mustapha et al, 2022). The sampling technique is applied by selecting professional auditors from various audit firms such small and medium

sized audit firms in North east part of Nigeria. The total number of population for the survey is 110 auditors from professional auditing/ accounting firms, which are selected as the target respondents. The rationale for chosen the respondents is because of their experience and basic knowledge in auditing, use of audit software and Ms Office in their practical applications within the selected auditing firms. Through this medium, this study has developed a sustainable professional experience with the respondents to enhance the quality of the questions and consequently the analysis, and to allow for follow-up questions and clarifications where needed. Respondents were able to explain their views in details and discussed several issues which may be sensitive on a confidential basis. The aim of using the questionnaire method in this current study is to examine whether adoption of audit software has influences on audit firms

### 3.1 Sampling Technique

The primary data collection instrument is questionnaires. Questionnaires are considered the appropriate in addressing the research questions and hypotheses. The questionnaire was adapted and designed from a review of prior literature on the TOE framework and contain questions on the constructs to be examined. The instrument was structured in three parts and composed as follows: a section that was dedicated to eliciting responses on the demographic profile of the firm, the determinants of GAS adoption by the external auditor and the factors that influence the adoption of GAS based on the constructs in the conceptual framework

## DATA ANALYSIS

The SEM PLS was used for the purpose of analysing the data obtained from the respondents.

Which is useful for research that has a relatively small sample size (Kramer,2016).

Since a quantitative approach was adopted, data for the study was also be analysed quantitatively using SEM PLS and descriptive analysis. A detailed discussion of the data analysis tools and measures follows below

## RESULTS.

### Model Reliability Analysis.

**Table 1: Model Reliability Analysis**

Constructs	Cronbach's alpha	Composite reliability
Audit Technology Adoption	0.907	0.935
Competitive Pressure	0.709	0.798
Human Resource Competency	0.766	0.787
Professional Accounting Body	0.892	0.933
Relative Advantage	0.839	0.900
Technology Compatibility	0.854	0.899
Top Management Commitment	0.873	0.918

Table 1 presents the results of the model reliability analysis based on the Cronbach's alpha and composite reliability of the seven constructs within the study. The Cronbach's alpha reliability

index values range from 0.709 to 0.907. This indicates higher internal consistency reliability of the constructs. Similarly, the composite reliability values range from 0.787 to 0.935 and that reflects much higher reliability index value of the study measurement model. Generally, the seven constructs all together demonstrate high levels of internal consistency and reliability, with Audit Technology Adoption and Professional Accounting Body showing the highest levels of reliability, and Human Resource Competency showing the lowest. The model used in the study shows a high reliability index across all the seven constructs of the study

### Convergent Validity Assessment

Table 2 presents the Average Variance Extracted (AVE) values for the seven constructs of the study within the context of convergent validity assessment. Among the study constructs, Professional Accounting Body exhibits the highest AVE value of 0.822, followed by Audit Technology Adoption with a value of 0.782, and Relative Advantage and Technology Compatibility sharing the same AVE value of 0.751. Competitive Pressure shows somewhat lower AVE value of 0.677, while Human Resource Competency exhibits the lowest AVE value of 0.562. However, all the study constructs have AVE values above the benchmark of 0.50. The findings based on the study’s constructs under consideration demonstrate acceptable convergent validity, with higher AVE values indicating a greater proportion of variance explained by the latent constructs. Thus, the convergent validity of the study is established and found to be appropriate for measurement model assessment

**Table 2: Convergent Validity**

Constructs	Average variance extracted (AVE)
Audit Technology Adoption	0.782
Competitive Pressure	0.677
Human Resource Competency	0.562
Professional Accounting Body	0.822
Relative Advantage	0.751
Technology Compatibility	0.751
Top Management Commitment	0.789

### Discriminant Validity: Fornell and Larcker Criterion

**Table 3: Discriminant Validity: Fornell and Larcker Criterion**

Constructs	ATA	CP	HRC	PAB	RA	TC	TMC
Audit Technology Adoption	<b>0.884</b>						
Competitive Pressure	0.485	<b>0.823</b>					
Human Resource Competency	0.711	0.437	<b>0.75</b>				
Professional Accounting Body	-0.131	0.169	-0.141	<b>0.907</b>			
Relative Advantage	-0.159	-0.108	-0.256	-0.042	<b>0.867</b>		
Technology Compatibility	0.075	-0.117	-0.235	0.105	0.518	<b>0.867</b>	
Top Management Commitment	-0.053	0.08	0.116	0.145	-0.115	-0.137	<b>0.889</b>

Table 3 presents the results of the discriminant validity analysis based on the Fornell and Larcker criterion. The table displays the square root of the average variance extracted (AVE) values for each construct along the diagonal and the correlations between constructs below the diagonal values. Based on the result obtained, the square roots of the AVE values (in bold) are

higher than the correlations between constructs across the respective rows and columns which indicate a satisfactory discriminant validity. Specifically, each construct's square root value exceeds its correlation with other constructs and that indicate that each construct shares more variance with its respective items with its parent construct more than with items from other constructs. Thus, the discriminant validity of the study using the Fornell and Larcker criterion is established.

### Variables Multicollinearity Assessment

Table 4 presents a summary of variables related to multicollinearity within the constructs in relation to Audit Technology Adoption. The constructs exhibit low Variance Inflation Factor (VIF) across all the study constructs. Specifically, the variables include Competitive Pressure (1.33), Human Resource Competency (1.417), Professional Accounting Body (1.157), Relative Advantage (1.434), Technology Compatibility (1.434), and Top Management Commitment (1.06). The values denote the VIF showing low extent of multicollinearity among the study constructs. Normally a VIF value exceeding 10 means a significant multicollinearity presence, while values below 5 are considered acceptable. However, the constructs of the study exhibit low multicollinearity and appeared to be relatively independent. This imply that there is the absence of multicollinearity between the constructs of the study.

**Table 4: Variables Multicollinearity Summary**

Constructs	Audit Technology Adoption
Competitive Pressure	1.33
Human Resource Competency	1.417
Professional Accounting Body	1.157
Relative Advantage	1.434
Technology Compatibility	1.434
Top Management Commitment	1.06

## DISCUSSION AND CONCLUSION

In an era of rapid technological advancements, the corporate environment has witnessed a surge in innovation investments in an attempt to fully automate the business processes. The auditing profession has therefore been challenged to also invest in technology to be able to conduct effective and reliable audits. This has necessitated the advent of GAS, a technology-based audit tool to assist auditors carry out their functions effectively and efficiently in these technology environments. However, prior empirical literature asserts that these tools enhance the work of the auditor, the adoption rates is very low particularly by external auditors whiles there is a paucity of literature studying the adoption from a developing country perspective. It is against this background and problem that this study seeks to examine the Determinants of Generalized Audit Software (GAS) Adoptions by External Auditors in Nigeria and also investigating the factors influencing adoption from the view of technological context, organisational context and environmental context. Specifically, the two objectives were identified in an attempt to achieve the research purpose. First, the study sought to examine the significance of technological factors on GAS adoption by external auditor in Nigeria. Secondly, to investigate the factors that influence GAS adoption by external Auditors. There is a conceptual framework based on the TOE framework from the review of extant theoretical and empirical literature as the foundational theory in an attempt to achieve the objectives of the study. Hypotheses were further proposed and empirically tested using data obtained using self-administered questionnaires. Data obtained was analysed using SEM PLS.

## SUMMARY OF KEY FINDINGS OF THE STUDY

Thus, the findings revealed that competitive pressure, human resource competency, and technology compatibility positively influence audit technology adoption, while professional accounting body affiliation, relative advantage, and top management commitment do not significantly influence it. This implies that audit firms can focus more on enhancing competitive pressure, human resource competency, and technology compatibility to promote audit technology adoption effectively. The results from the study indicated a fairly high GAS adoption rates by external Auditors. The structural analyses from SEM PLS indicated a positive relationship between technological readiness, organisational readiness and environmental readiness to adopt GAS.

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