

## **Information Technology in Audit Processes. An Evidence from Small Audit Firms in Gombe Metropolis**

**Macmilan Ahmadu**

Biliri Local Government Finance and Economic Planning Department,  
Gombe State Nigeria. +2348039565751  
amcmilan98@Gmail.Com

**Taimin, Audu Ardo**

Kwasi Kindiyo Ward Cham, Balanga Lga, Gombe State, Nigeria. +2348169609006  
audutaimin86@Gmail.Com

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### **ABSTRACT**

*The use of Information Technology (IT) is becoming increasingly popular in business. The role of IT now hold ace in contemporary business around the world. From sole proprietorship to the desk of the corporate executive IT has completely taken the place or satisfactorily complimented manual data processing. The rapid changes and application of technology have motivated accounting firms to invest in technology to ensure that they are up to date with the current technology. In accounting, technology is broadly used in recording, bookkeeping, generating financial reports, auditing and designing a better costing system for an organization. This study evaluates the determinants of technology adoption among small audit firms in Gombe metropolis. The study adopted the descriptive survey research design and the primary means of data collection was questionnaire administered on audit firms. Descriptive statistics and regression analysis were used to analyse the data. The findings showed among others that individual intentions significantly influence the adoption of technology in small audit firms. The study recommended that principal audit partners should increase their commitment and readiness to provide trainings as well as infrastructure for audit technology adoption by their firms.*

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**Keywords:** IT, CAAT, CIS

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### **INTRODUCTION**

#### **1.1 BACKGROUND OF THE STUDY**

In business, the usage of information technology (IT) is growing in popularity. IT today plays a key part in modern business across the globe. IT has totally replaced or satisfactorily complemented human data processing at all levels of business, from sole proprietorship to the corporate executive desk. Computerized Information Systems (CIS) are increasingly a must for

businesses. Transaction efficiency has resulted from this, and operational skill has increased cost reductions.

The computer has been one of the most significant technological advancements since the 1990s. Business, research, engineering, and health are just a few of the human activities that have been significantly impacted by technology. The introduction of IT has altered how many corporations used to run their operations. Nowadays, businesses view IT as a tool that helps them get a competitive advantage over their rivals in the market (Ahmad, 2006). The management has continually discovered new methods to use the computer and its accompanying systems to support operational efficiency and as a tool for decision-making. IT systems support a wide range of functions. The type and style of business operations have an impact on how auditing companies approach their work. Since many firms utilize computers, external auditors are expected to integrate technology to ensure audit effectiveness in order to adapt to the rapidly changing technology element. (Yang & Guan, 2004; Ismail & Abidin, 2009). The development of advanced computerized accounting information systems, such as enterprise resource planning and electronic data interchange, by many firms has made audit work more difficult. Traditional auditing methods, such as auditing around the computer to manually review printed documents, have gradually given way to auditing with and through computers. The usage of information technology and information systems in corporate operations is currently being audited by auditors. Therefore, incorporating IT into audit has become essential, for instance using computer assisted audit technology (CAAT) to increase the competitiveness of audit firms and the efficiency of audit services (IFAC, 2011). The way external audits are carried out has fundamentally changed as a result of the advancing technological sophistication and the business's gradual digitization. Due to the widespread usage of accounting information systems, audit firms are now required to build specialized teams and improve individual technical and analytical skill sets in order to assess the efficiency of computer systems during engagements. With the aid of audit Technology adoption, the demand for dependable, pertinent, and quick audit results may be met. However, there has been little to no investment in adopting new technologies, particularly in the Gombe metropolis's small audit companies. This trend, together with its effects on local small audit firms in Gombe, makes this study crucial.

There are a number of elements that have been found that could affect how audit firms employ IT. For instance, a person's propensity for taking risks versus being risk-averse may influence the decision to use audit technologies. Another issue that affects the adoption of IT in small audit firms is organizational structure. The size of the organization has repeatedly been identified as a predictor of technology adoption; organizational structure has to do with size, readiness, and top management commitment. Functional structures are lacking in small audit firms and this also has some influence in technology adoption which adversely affects audit efficiency in most of this small firms. When adopting an accounting software program, perceived cost is another element to take into account. Given the high expense of technology, features including cost, ease of use, backup recovery availability, assistance, and tutorials must be carefully considered. Additionally, the efficient and successful completion of an audit assignment is reflected in the technology's performance, thus it is crucial to measure how well technology is used at a reasonable cost. Last but not least, there is the environmental influence, which has to do with the type of clientele around the company and how successfully those clients have adopted technology in the course of

operating their enterprises. The more complex a commercial transaction, the more environmental influences the client's AIS will be. Consequently, the higher complexity of client's AIS, the more necessary for audit firm to adopt IT in other to ensure an efficient audit of the client's AIS. Invariably, the client's business complexity affects audit firm's intention to adopt technology. The majority of empirical research has focused on the adoption of technology by audit firms and how this improves audit efficiency, particularly among large and medium-sized audit firms in Nigeria. However, there has been little to no research on the factors that influence the adoption of IT by small audit firms in Nigeria, particularly those located in the Gombe metropolis.

Determinants of technology adoption among small audit businesses in Gombe state, Nigeria, are therefore examined in this study. It focuses on the effects of organizational size, perceived cost, and environmental factors on small audit firms' adoption of technology.

### **Objectives of the Study**

The main objective of this study is to analyse the determinants of technology adoption among small audit firms in Gombe metropolis. The specific objectives are to:

- i. To examine the extent of organizational structure influence on the adoption of technology in small audit firms.
- ii. To assess the level of influence of perceived cost on the adoption of technology in small audit firms.
- iii. To examine the extent of environmental influence on the adoption of technology in small audit firms.

### **Research Hypotheses**

Based on the specific objectives of this study, the following null hypotheses were formulated.

**H<sub>01</sub>:** Organizational structure does not significantly influence the adoption of technology in small audit firms

**H<sub>02</sub>:** Perceived cost has no significant influence on the adoption of technology in small audit firms

**H<sub>03</sub>:** Environmental influence does not significantly affect the adoption of technology in small audit firms.

## **2.0 LITERATURE REVIEW**

### **2.1 Concept of Information Technology**

IT has several different definitions. The International Federation of Accountants Education Committee's (IFAEC, 2001) definition was used in this study since it is thorough and eye-catching. Information technology (IT) is defined by IFAEC (2001) as the hardware and software products, information system operations and management processes, IT controls frameworks, and the people resources and skills necessary to develop, use, and regulate these products and processes to generate the necessary information.

This demonstrates IT as a broad phrase encompassing computer gear, software, people, procedures, and information produced to support operations and decision-making in a business.

### **2.3 Small Audit Firms in Nigeria**

The medium-sized accounting firms and all other firms outside of the big four are also considered minor audit firms. These firms provide a combination of audit, tax, and consulting services. Some

people may focus more on one area than another, but they nevertheless serve clients from a variety of industries and solve a wide range of issues. Despite the fact that the number of audit firms has significantly increased recently, four of the biggest auditing firms in Nigeria—KPMG, Ernst & Young (EY), Deloitte, and PricewaterhouseCoopers (PwC), all of which have international backgrounds—remain dominant in the industry. These four firms are the auditors of practically most of the publicly traded companies in Nigeria. All of the listed firms in Nigerian stock exchange's main market are handled by the big four except for some relatively few firms. Most small audit firms in Gombe conducted computer audits for their clients. These audit firms that conducted computer audits had some characteristics: were foreign (international) controlled and used international guidelines from their principal audit firms elsewhere or relied on guidelines from certain international organizations. The most commonly pursued computer-auditing objective was protective auditing followed by efficiency and effectiveness auditing.

#### **2.4 Organizational structure influence on technology adoption**

Organizational structure defines how activities such as task allocation, coordination and supervision are directed toward the achievement of organizational aims. Organization's size has been frequently recognized as a precursor to technology acceptance (Zhu, Kremer & Xu, 2003). Larger firms may have more capital and human resources to ensure that technology can be well adopted. Janvrin, Bierstaker & Low, (2008). Noted that the big four audit firms' acceptance of technology usage is higher than small sized audit firms. Hence, it is anticipated that audit firm's intention to adopt technology will be affected by audit firm's size. Also, firm's readiness can be depicted by the firm's financial and technical resources (Iacovou, Benbasat & Dexter, 1995). These resources are used to promote organization's readiness by preparing the organization with technological equipment and creating working atmosphere to support technology acceptance. As asserted by Curtis and Payne (2008), if public accounting firm has a pressure on its budget, it would create a possibility of technology resistance in the firm. Readiness among public accounting firms varies in meeting new challenges. Firms that offer new services to customers are more ready for new challenges (Salleh, Rose, Kumar & Peng, 2007).

#### **2.5 Perceived cost on technology adoption**

Among the studied characteristics that influence technology adoption in small audit firms, one of the most important is cost. In this context, cost is not the actual price of adoption, but rather the perception of that cost to the adopting parties. A decision to adopt new technology depends on the cost perceived by the decision makers. The adoption would thus take place when perceived benefits exceed perceived costs (Hall & Khan, 2003). Janvrin et al. (2008) pointed out that small audit firms possibly are not able to race with big firms on IT investments, resulting in possible economic obstacles to access as well as audit effectiveness and efficiency issues. Big 4 firms have the financial capabilities to buy and implement more advanced IT and use IT specialists to a better extent than small audit firms. Taylor and Murphy (2004) have suggested that high set-up and on-going costs could be barriers to the implementation of technology in small audit firms.

Big 4 firms have the abundant resources that may qualify them to buy advanced information technologies and utilize IT specialists greater than non-Big 4 firms. Consequently, these resources available to promote and facilitate and improve the audit process, will lead to well audit quality. When adopting accounting software package, technology characteristic such as price, easy to use, availability of backup recovery, guidance and tutorial must be well-thought out (Rushinek &

Rushinek, 1995). In addition to that, cost effective use of technology is also important to be measured because it is an indicator to the performance of the technology (Tan, Teo & Lai, 2011). It is clear from the foregoing that, information technology can improve the productivity of the firm and reduce its operating costs, while at the same time increase revenue of the firm.

## **2.6 Environmental Influences on Technology Adoption**

Environmental context refers to the part in which a firm conducts its business including its industry, competitors, and dealings with the government (Tornatzky & Fleischer 1990). Changes in IT technologies are pervasive; they increasingly influence businesses as a whole, and business processes in particular. Most of audit firms' clients use AIS to record, process and disseminate accounting information to stakeholders. Client's AIS must be audited to ensure that business transactions are correctly processed and reports are accurately generated. The higher business transactions take place, the more complex client's AIS will be. Consequently, the higher complexity of client's AIS, the more necessary for audit firm to adopt technology to audit the client's AIS. (Rosli et al. (2012). One of the main subjects of auditor is the auditee or client. Client's system must be audited to ensure that business transactions are correctly processed and reports are accurately generated.

Professional accountants often play important roles as managers, advisors and assurance providers in the adoption, deployment and use of various information technologies by organizations of all types and sizes. Society expects professional accountants who accept an engagement or occupation to have the competence to perform the required work.

## **2.7 Theoretical framework**

### **2.7.1 Technology-Organization-Environment framework (TOE)**

Tornatzky and Fleischer (1990) developed TOE framework to addresses technological, organizational and environmental influence on firm's adoption of technology. Technological context refers to the technology characteristics, e.g. in the case of CAATs adoption, audit firm has to assess technology cost-benefit, technology-task fit and risk. Decision to use CAATs depends on whether the technology matches audit tasks with consideration of cost-benefits and the potential risks of using the technology. Organizational context refers to the organization measures such as firm size, the centralization, formalization and complexity of managerial structure, the quality of human resource and availability of resources. While in environment context, TOE requires that organization has to conduct its business within its industry, competitors, suppliers and government. The TOE relates to the current study as it talks about variables such as organization structures, perceived cost and environmental influence as factors to consider on technology adoption among small audit firms. For this study, TOE framework is applied because it addresses the adoption of technology from firm's level. Technology-Organization-Environment framework (TOE) includes variables such as organization structures, perceived cost and environmental influence as factors to consider on technology adoption, this framework is applied because it addresses the adoption of technology from firm's level.

## **2.8 Empirical Review**

Mazlina and Soh (2017) carried out a study on information technology in audit processes: Evidence from Malaysian audit firms. The study highlights the usage of information technology for auditors at different levels and positions in audit firms in Malaysia. Questionnaires were distributed to external auditors in Klang Valley. Descriptive statistics and regression analysis were

used to analyze the data. The result indicated that information technology is widely used in the audit processes, especially to generate the audit working papers and audited financial statements and to select samples during audit processes. The results also indicated that information technology is mainly used by the senior auditors and audit managers in their organizations.

Nwakoby, Ezejiofor and Nwoye, (2015). examined the application of Information and Communication Technology (ICT) in efficiency and speeding up of accounting practice in Nigeria and how this has ensure efficient delivery of accounting works. Survey method was adopted and questionnaire was the major source of data collection. The ANOVA statistics were used to test the formulated hypotheses with the aid of SPSS version 20.0. The findings revealed that the application of ICT has positive effect on efficiency of accounting practice and ensure timely delivery of accounting works in Nigeria. Adeyemi, Mohammed, Ogundeji, and Tijani (2014) assessed the perception of compliance personnel over audit technology tools implementation in Nigeria. The study provides an empirical analysis of input supplied by a sample of 173 professional auditors across 67 companies from 5 major sectors of the Nigerian Stock Exchange. Subjects were tested of their perception on the application of audit technology tools in automated controls monitoring of financial transactions processing and assurance reporting. The results of the study suggested that internal auditors and audit departments in Nigerian companies are not making substantial use of available tools in audit firms that have adopted technology. Internal auditors mostly have adopted audit software on an ad hoc basis with some repetitive use. The study also discovered that the most significant factors inhibiting the use of technology tools in other sectors were audit software inaccessibility and training costs alongside lack of senior management support. Terry (2014) explored the usage and impacts of Information Communication Technology (ICT) on the accounting profession in Barbados, a Small Island Developing State (SIDS). The study found that local accounting professionals have been slow in adopting advance ICT techniques with the top six usage of ICT being; writing letters, emailing and communicating, data entry, assisting in the reconciliation of bank statements, and production of financial statements and preparing working papers. Furthermore, the findings from the content analysis of the study indicated that respondents perceived both positive and negative impacts of ICT. Kimanywenda (2011) examined the effect of computer technology on the effectiveness of audit firms in Uganda. The study found that using computers in auditing lead to the effectiveness of audit firms in terms of; improving the quality of audit work, accelerating the speed of delivery of audit reports and entry of new clients. The findings from the research also revealed that there is a strong relationship between computer technology and the effectiveness of audit firms as all the respondents agreed that the relationship does exist. Vasarhelyi and Halper (2010) used the modified Delphi method to predict the effect of technological changes in auditing in the next ten years, which will determine how the audit will be done and the level of training needed for auditors. One of the key findings in that study was the need to shift from the current sampling-based audit to a model that includes continuous monitoring of all transactions, error reporting and immediate response. They found that the development of such an audit will reduce the time necessary in identifying risks, since external auditors will rely on the work of internal auditors, and allow more time for interpretation of the results.

### **3.1 RESEARCH METHODOLOGY**

This study adopted a descriptive survey research design because it provide quick inexpensive, efficient, and accurate means of assessing information about the population. The study involved

gathering data from various audit firms to describe what influences their adoption of technology in audit works. The population of the study includes all the senior partners and their employee's in small audit firms located in Gombe state. The sample size of 167 was arrived at and the primary source of data was employed through the use of questionnaire which is gathered from small audit firms through the administration and collection of structured questionnaires.

### 3.2 METHOD OF DATA ANALYSIS

For the purpose of this study, descriptive statistics and regression analysis using SPSS version 22.0 was employed to establish the relationship between the variables in the study. Furthermore, the multiple regression analysis was used to test the relationships between the variables. The empirical model for the study is specified as;

#### Regression Analysis

$$AAF_i = \beta_0 + \beta_1 OS_i + \beta_2 PC_i + \beta_3 EI_i + U_i$$

Where AAF = Adoption of Technology by small Audit firms

OS = Organisational structure

PC= Perceived Cost

EI= Environmental Influence

U= error term

### 4.1 Data Presentation and Analysis

This section presents the data and the analysis of the data. It begins with the questionnaire response rate, demographic characteristics of the respondents and descriptive statistics

#### Questionnaire response rate

The data on the questionnaire response rate is presented in table 1

**Table 1: Questionnaire response rate**

Response	Frequency	Percentage (%)
Number returned	135	81
Number not returned	32	19
<b>Total</b>	<b>167</b>	<b>100</b>

A total of one hundred and sixty-seven (167) copies of the questionnaire were administered to small audit firms out of which one hundred and thirty-five (135) were completed and returned for analysis.

#### 4.2 Descriptive Statistics

The descriptive statistics of the study variables is presented in table 3

#### Table 2: Descriptive Statistics

	N	Minimum	Maximum	Mean	Std. Deviation
AAF	135	1.00	3.20	1.8711	.38359
OS	135	1.40	3.20	1.9985	.41931
PC	135	1.20	3.00	2.0193	.41886
EI	135	1.40	2.80	2.1113	.35111
Valid N (listwise)	135				

Source: Researchers computation from questionnaire using SPSS 22.0 version

Table 2 shows the descriptive statistics for the variables used in this study. The variables are classified into dependent; technology adoption (AAF) and independent variables (factors that determine technology adoption); organisational structure (OS), perceived cost (PC) and environmental influence (EI)). The descriptive statistics shows that major factor determining technology adoption is environmental influence (EI) with a mean value of 2.11 which is the highest compared to the other factors. This is closely followed by perceived cost with a mean value of 2.019. Consequently, organisational structure is the other factor that determines technology adoption by small audit firms.

#### 4.3 Regression Results

The regression result of the study is presented in table 3.

**Table 3: Regression Coefficient**

Model	Unstandardized Coefficients		Standardized Coefficients	T	Sig.	Collinearity Statistics	
	B	Std. Error	Beta			Tolerance	VIF
(Constant)	0.459	0.203		2.256	0.026		
1 OS	0.260	0.091	0.284	2.837	0.005	0.500	2.001
PC	0.150	0.086	0.162	1.741	0.084	0.577	1.734
EI	0.483	0.099	0.439	4.853	0.000	0.612	1.633

a. Dependent Variable: AAF

Source: SPSS 22.0



Table 3 shows the regression coefficients of the four variables used as determinants of technology adoption by small audit firms. The predictor variable, Organisational structure (OS) has a positive influence on adoption of technology by small audit firm. This means organisational structure has an increasing effect on the adoption of technology by small audit firm i.e. a well-structured organisation will be prompted to adopt technology for its audit activities. Organisational structure enhances the level of technology adoption by small audit firms in Gombe Metropolis by 26%.

The relationship between perceived cost and technology adoption by small audit firms in Gombe Metropolis in Gombe state is positive but insignificant as revealed by the coefficient value of 0.150 and p-value of 0.084 which exceeds the 0.05 level of significance. It means that perceived cost has an increasing effect on technology adoption by small audit firms in Gombe Metropolis. This is because, if the cost perceived by the audit firms for adopting technology is high, they may not be motivated to adopt technology and if low, they may be pushed to adopt it. The coefficient value of perceived cost brings about an increase of technology adoption by small audit firms in Gombe Metropolis by 15%. The effect of environmental influence on technology adoption by small audit firms in Gombe Metropolis is positive and significant. This implies that improved environmental influence, increases the level of technology adoption by small audit firms in Gombe Metropolis in Gombe state. Environmental factor influences on technology adoption by small audit firms in Gombe Metropolis by 48.3%.

#### **4.4 Test of Hypotheses**

##### **4.4.1. Influence of Organisational Structure on Technology Adoption**

The hypothesis one is restated as follows:

**Ho1:** Organizational structure does not significantly influence the adoption of technology in small audit firms

From the table 3, the p-value of organizational structure is 0.005. Given that the p-value 0.005 is less than the significant level of 0.05, the null hypothesis is therefore rejected which means that organizational structure does significantly influence the adoption of technology in small audit firms.

##### **4.4.2. Effect of perceived cost on Technology Adoption**

The hypothesis two is restated as follows:

**Ho2:** Perceived cost has no significant influence on the adoption of technology in small audit firms

Since the p-value for perceived cost is 0.084, which is greater than the significant level of 0.05, the null hypothesis is upheld, hence, it is inferred that perceived cost has no significant effect on the adoption of technology in small audit firms.

##### **4.4.3. Effect of Environmental Influence on Technology Adoption**

The hypothesis three is restated as follows:

**Ho3:** Environmental influence does not significantly affect the adoption of technology in small audit firms.

From the table 3, the p-value for environmental influence is 0.000, which is less than the significant level of 0.05. Therefore, the null hypothesis is rejected while alternate is accepted, and is concluded that environmental influence does significantly affect the adoption of technology in small audit firms.

#### **4.5 Discussion of Findings**

From the test of hypothesis one it was found that organizational structure does significantly influence the adoption of technology in small audit firms. This is supported by the assertion that larger firm may have more capital and human resources to ensure that technology can be well adopted. Big four audit firms' acceptance of technology usage is higher than small and medium sized audit firms (Janvrin, Bierstaker & Low, 2008).

Hypothesis two found that perceived cost has no significant role on the adoption of technology in small audit firms. This is inconsistent with the findings of Tan, Teo and Lai, (2011) that cost-effective use of technology is also important to be measured because it is an indicator to the performance of the technology.

Hypothesis three found that environmental influence does significantly affect the adoption of technology in small audit firms. As asserted by Janvrin et al. (2008), client's IT complexity is found to be associated with audit firm's IT usage. The higher the complexity of client's AIS, the more necessary for audit firm to adopt ITs to audit the client's AIS.

#### **5.5 Conclusions and Recommendation**

The advent of IT has changed the way many organizations used to follow to conduct their businesses. Companies now consider IT as business enabler through which they obtain competitive superiority in the market place over and above their competitors. Competence in IT is very important for professional accountants because of its widespread use in the business world and its ability to enhance the effectiveness and efficiency of the auditing profession. This study shows that technology adoption is important to the performance of small audit firms work in Gombe Metropolis. Based on the findings and conclusions, it is recommended that:

- i. The IT tools should be designed to be user friendly and less complex so that it could be easily accepted in audit firms. The compatibility of the technology should be made clear with audit firms' existing systems and match with audit tasks that need to be accomplished.
- ii. For managers and owners of small and medium audit firms, the need to adopt information technology in auditing that will ensure they enhance audit quality is imperative. Adequate resources should be budgeted and invested in IT for audit work. The cost can be recoup from the audit fee charge to clients.
- iii. Management should acquire technology tools relevant to peculiar business processes where they are not already in place and where they are, they must set-up an inventory of technology tools creating a matrix aimed at linking tools to business processes. And also vendor should provide quality technical support, on-going maintenance and trainings to audit firms' employees.

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