

# Effect of Auditor Proficiency and Audit Quality on Internal Audit Effectiveness in Nigeria's Federal Public Service

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## Abstract

The internal audit function, with clearly defined competence and process requirements, has despite its presence within the operations of federal public sector organizations in Nigeria being unable to check the rising cases of frauds and financial improprieties which have continuously been highlighted against them. Furthermore, sufficient attention has not been given to related control issues regardless of the increasing use of information technology (ICT) in public sector operations. The study investigates the effects of competence; the role of ICT; and the quality of internal audit on internal audit effectiveness in Nigeria's federal public service which is charged with the responsibility of the management of over half of the public revenues accruing to the Nigerian federation but with particular reference to 28 self-accounting federal public organizations operating in the North East Geo-Political Zone. Primary data was obtained from 139 valid responses out of 148 questionnaires administered on the internal auditors of such organizations. Partial least square structural equation modeling (PLS-SEM) was employed as the technique of data analysis to test the relationships. The finding of this study revealed that competence and the quality of internal audit showed positive and significant influence on internal audit effectiveness. Information and Communication Technology (ICT) however showed positive but insignificant contribution. The study recommends an effective compliance with minimum entry requirements in the employment and deployment of Internal Auditors; a review and continuous improvement of operating regulations and standards; as well as the deployment of appropriate ICT audit tools and continuous training of internal audit staff by the relevant government offices (Offices of the Accountant General and that of the Head of Civil Service of the Federation – OAGF & OHCSF; and the Nigerian Information Technology Development Agency - NITDA).

**Keywords:** Internal Audit Effectiveness, Competence, ICT, Quality of Internal Work, Public Sector

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## 1. Introduction

Government auditing, considered as the cornerstone of public sector governance, provides an unbiased, objective assessment of how public resources are responsibly and effectively managed to meet intended results. Effective audit practices in the public sector have, thus, become very crucial by ensuring that leaders are held accountable and the credibility and appropriate behavior of officials is promoted (Nwaobia, Ogundajo & Nizonyima, 2016). The internal audit function which is established to ensure adherence to regulations, laid down procedures, policies and plans had, traditionally, served as a simple administrative procedure comprised mainly of checking the accuracy of transactions, pre-payment verifications, counting of assets and reporting on past events to management (Khoury, 2011). With the rapid growth of the public sector coupled with concerns over organizational control and supervision (Abu-Azza, 2012); the resultant complexities had necessitated the quest for higher level of transparency and demonstration of accountability. The importance of internal audit had, therefore, correspondingly increased as a major factor in enhancing the quality of internal control and public sector management (Unegbu & Kida, 2011).

The public sector has been defined as governments and all publicly controlled or publicly funded agencies, enterprises, and other entities that deliver public programmes, goods, or services (IIA, 2011). The public sector within the Nigerian federal structure comprises of the three tiers of government namely the federal government, the thirty-six state governments, and the seven hundred and seventy four local governments which discharge their responsibilities through the operating organs such as the ministries, departments and agencies, corporations and institutions (Omolehinwa & Naiyeju, 2011). The federal government, in line with the provisions of the Nigerian constitution, is vested with the responsibility of the management of over half (precisely 52.6%) of the total revenues accruable to the federation. Its various organs are empowered to keep detailed records of all receipts and payments; maintain full set of accounts (Federal Treasury Accounting Manual, 2006); and must have in place an internal audit unit (Financial Regulations, 2009).

### 1.1 Statement of the Problem

Though the importance of internal audit effectiveness cannot be over emphasized, sufficient attention has generally not been given to this area of study. Studies conducted in developing nations have documented mixed and inconclusive findings mainly as a result of cultural dissimilarities and methodological differences (Abu-Azza, 2012; Tackie, Marfo-Yiadom & Achina, 2016; Baheri & Nurkholis, 2017). Related to the Nigerian public sector,

however, only a few empirical studies have been conducted (Badara, 2015) mostly in sub-national jurisdictions and without attention given to the rising role of information technology (ICT) despite its increasing use in public sector operations (Babatunde, 2013). Risks associated with technology-driven measures such as the introduction of the Government Integrated Financial Management Information System (GIFMIS) and the Integrated Payroll and Personnel Information System (IPPIS) etc; require that auditors must respond (Abu-Musa, 2008) and re-align their auditing tools and techniques to such developments (Eze, 2016).

Furthermore; despite the existence of the internal audit function within the federal public sector set up, it has been unable to check the increasing rate at which frauds and financial improprieties occur (Amaechi & Chinedu, 2017). Irregularities, including loss of assets from theft, fraud and negligence; revenue understatement and non-disclosures; misapplication of funds; and extra-budgetary expenditure have continuously been highlighted against various ministries, departments and agencies of government in the annual reports of the Auditor General of the Federation (2012 – 2016). Weaknesses in the internal control systems of Nigerian public institutions with several occurrences of fraud, misappropriation, irregularities (Kehinde, Ayoib & Popoola, 2016); have also been noted with indications that the internal audit function is merely tolerated in compliance to regulations (Achua & Alabar, 2014).

This study, therefore, seeks to investigate the effects of internal auditors' proficiency and the quality of their work on internal audit effectiveness in Nigeria's federal public service in the North East geo-political zone; one of six such zones recognized for administrative and political expediency and is motivated by the provisions of the Financial Regulations of the Federal Government of Nigeria (2009) which guides the conduct of government's financial operations; the Federal Treasury Accounting Manual (2006), a policy and procedure guideline for accounting operations; and the International Standards for the Professional Practice of Internal Audit – ISPPA (Attribute Standards 1200 and 1300 on Proficiency and Due Professional Care; and Quality Assurance and Improvement Programme respectively).

## 1.2 Research Questions

The study had sought to find answers to the following research questions:

1. To what extent does internal audit competence significantly affect internal audit effectiveness in federal public sector organizations in North East, Nigeria?
2. Does information and communication technology significantly influence internal audit effectiveness in federal public sector organizations in North East, Nigeria?
3. Does quality of internal audit work have a significant effect on internal audit effectiveness in federal public sector organizations in North East, Nigeria?

## 1.3 Research Hypotheses

The study will therefore test the following null hypotheses:

**HO1:** Internal auditor's competence does not significantly influence internal audit effectiveness in federal public sector organizations in North East, Nigeria;

**HO2:** There is no significant effect between Information and communication technology and internal audit effectiveness in federal public sector organizations in North East, Nigeria.

**HO3:** Quality of internal audit work does not have a significant effect on internal audit effectiveness in federal public sector organizations in North East, Nigeria;

## 2. Literature Review

### 2.1 Internal Audit Effectiveness

Internal audit effectiveness is the extent to which the internal audit function's *raison d'être* is met by achieving the intended outcome it is supposed to bring about (Mihret & Yislaw, 2007). An internal audit is therefore effective to the degree (including quality) to which the objectives set upon for the function are met (IIA, 2010). Dellai and Omri (2016) had cited Dittenhofer (2001) to define internal audit effectiveness as the achievement of the objectives and goals of the internal audit function which ultimately is the creation of added value to the organization. The provision of value-added services has, thus, been considered as the very purpose of the audit profession and that an internal audit that fails to generate net benefits to its organization cannot be considered to be effective (D'Onza, Selim, Melville, & Allegrini, 2015). Cohen and Sayag (2010) had, in support of the arguments of Albrecht, Howe, Schueler and Stocks (1988), concluded that the effectiveness of internal auditing is not a computable reality but is rather determined by subjective evaluation assigned by management. This implies that the success of any internal audit can only be measured against the expectations of relevant stakeholders requiring the development of systematic and generally valid measures by which internal audit effectiveness can be determined (Schneider, 1984; Dittenhofer, 2001). The Federal Treasury Accounting Manual (2006), a policy and procedure guideline for accounting operations elaborates that the objective of internal audit in federal public service is to ensure that a sound and adequate internal control framework is established; an efficient and effective system of operations is

maintained; processes and procedures are improved; organizational assets are protected; fraud, misappropriation and irregular expenditure are prevented; and the accuracy and integrity of the accounting and management information is guaranteed.

## 2.2 Internal Audit Competence

Competence in relation to internal audit staff, according to Chambers (2014), means the possession of the intelligence, education and training which comes from long and intensive preparation and the commitment to continued study, to be able to add value to the organization through performance (Kabuye, Nkundabanyanga, Opiso & Nakabuye, 2017). The International Standard for the professional practice of Internal Audit 1200 (IIA, 2016) requires that internal auditors shall engage only in services for which they have the necessary knowledge, skill and experience; performed in accordance with standards and must, continually, improve their proficiency as well as the effectiveness and quality of their services. It further provided that an internal audit function should have competent leadership which requires that the head of internal audit should be knowledgeable of applicable audit standards; be professionally qualified and competent to manage the audit function; and must be able to independently and effectively recruit, retain and manage highly skilled and competent staff with necessary qualification and complying with minimum continuing education requirements established by relevant professional and organizational standards without undue managerial influence. The Financial Regulations of the federal government of Nigeria (2009) requires that a suitably competent accountant is placed directly in charge of the internal audit unit of self-accounting organs of government. The Federal Scheme of Services (2000) provides that the minimum entry requirement into the accountant cadre of Nigeria's federal civil service is by the possession of a degree or higher national diploma in accountancy from a recognized university or polytechnic; or the possession of a professional qualification from any of the recognized accounting bodies. Studies conducted to determine the relationship between competence and internal audit effectiveness in the public sector in Libya (Abu-Azza, 2012); Nigeria (Badara, 2015); and Indonesia (Baheri & Nurkholis, 2017) had revealed positive and significant results. Arena and Azzone (2009) had concluded that skilled auditors are more able to provide advice to improve internal control system, complete audit tasks, and find consistent solutions based on previous experiences to deal with complex and conflicting situations. Competence will thus be considered in the context of the skills acquired through academic and professional qualifications, experience in internal audit operations and the continuous training and development to which the internal auditors are exposed to. Arguments have, however, been put forward that internal auditors commonly address fraud risks, compliance issues, and a myriad of operational issues that may be unrelated to accounting but requiring analytical/critical thinking ability, data mining skills, business acumen and information technology skills (Agunbiade, 2017) and as such professionals with varied resumes and expertise will enhance the value of the organization (Ayeni, 2017).

## 2.3 Information and Communication Technology (ICT)

Organizations have, increasingly, become dependent on information technology in view of its ability to increase the speed of processing transactions, accuracy and the competitive advantage it offers in terms of operational efficiency, cost savings and reduction of human errors (Abu-Musa, 2008). The extent of automation can extend to such a level that human interference can be limited to promulgation of policies and review of results. The increasing use of information technology for the conduct of operations and recording of transactions in both the private and the public sectors has opened new frontiers for risks including the loss of computer assets, errors in record keeping, increased risk of fraud, loss of data, privacy violations and disruption of operations (Abu-Musa, 2008). The use of ICT tools and procedures, therefore, become vital in the control of organization's operations. The functions of key stakeholders in internal control have been acknowledged to improve with the usage of ICT tools and techniques. Inevitably, the role of the internal auditor on issues of control and security becomes very critical as organizations become vulnerable to hackers and other external threats. Attribute Standard 1200 (2016) requires that internal auditors must have sufficient knowledge of key information technology risks and controls and available technology-based audit techniques to perform their work. Lotto (2014) opined that organizations whose systems are computerized can mainly improve the internal audit function by directing efforts at the intensive training of staff in information technology. Unegbu and Kida (2011) had, thus, emphasized the need for auditors to acquire knowledge and skills in electronic data processing in order to improve their performance. Information and Communication Technology (ICT) will, in the context of this study, refer to the use to which information technology is put in the internal audit processes within the organization; the ability of the internal audit function to use such technology for its tasks; its ability to audit computer based systems; and how the use of technology is able to improve the effectiveness of the internal audit function. The Nigerian Information and Communication Technology Policy (2012), which aims at fully integrating information and communication technologies into Nigeria's socio-economic development with a view to transforming the country into a knowledge-based economy, had sought to promote the effective use of ICT in governance within all sectors of the economy. Specifically, it had provided for coordination amongst ministries, offices and agencies in respect of ICT services in order to

eliminate overlaps, create efficiency, reduce expenditure and encourage a holistic planning of ICT deployments, capacity building and utilization but had, belatedly, only proposed for consideration the draft for information system audits (NITDA, 2019).

#### 2.4 Quality of Internal Audit Work

Abu-Azza (2012) described quality as the performance of the internal audit function in terms of its application of International Standards for the Professional Practice of Internal Audit (IIA, 2008 – revised 2012) for audit related services which require that the internal auditor plans and performs audit work in such a way as to arrive at useful findings and recommendations. Quality of audit work is, thus, the degree of excellence achieved when the audit work is performed according to standards (Tackie et al, 2016). The Financial Regulations (2009) of the Federal Government requires the internal auditor to prepare a detailed annual audit programme, covering all the records of the organization, which defines the scope of the audit tasks and the outline of the tests and checks to be carried out during the course of the audit. The Federal Treasury Accounting Manual (2006) sets out a sequence of qualitative processes which seek to make the internal audit function effective and include the preparation of an audit plan, a statement of objectives to be attained, an outline of the steps necessary to reach them as well as communicating the results through a good internal audit report. Badara (2015) and Tackie et al (2016) had reported the positive significant influence of the quality of audit work on internal audit effectiveness in sub-national public sector operations in Nigeria and Ghana. Quality, thus, becomes an essential ingredient permeating through the entire chain of processes within the internal audit cycle and will, in the context of this study, derive from the internal audit operator's perceptions regarding the extent to which the internal audit plan and programme are clearly articulated based on professional standards and procedure to audit significant areas within the organization; the significance and effective communication of the audit findings; the follow-up actions embarked upon to ensure corrections are made; and the performance, by internal audit, of other activities outside the scope of its primary responsibility. In view of the failure associated with the controls within the public sector resulting in rising cases of corruption and the lack of official adoption of the internal standards for the professional practice of internal audit in Nigeria's public service, one may argue as to whether the findings and recommendations of internal audit had indeed been effective.

#### 2.5 Theoretical Framework

##### 2.5.1 Institutional Theory

DiMaggio and Powell (1983) suggest that as a result of institutional pressures and a desire to compare with other organizations in a similar environment, organizations tend to adopt similar characteristics through three mechanisms of isomorphism (Barac et al, 2016). Coercive isomorphism results from pressures exerted by prevailing laws and regulations. Normative isomorphism results from formal education and the growth of professional networks. Mimetic mechanisms occur when organizations respond to uncertainty and copy successful role models. Evidence of the application of institutional theory in Internal Audit research abound. Abu-Azza (2012) noted that universities and professional training institutions are important for the development of organizational norms among professional managers and their staff within organizations. A likely consequence of the resultant increased proficiency within organizations is enhanced conformity to internal audit standards. Mihret et al (2010) argued that there is a positive relationship between compliance with standards and organizational goal achievement which could be used to evaluate internal audit effectiveness.

### 3. Research Methodology

#### 3.1 Research Design

The study employed cross-sectional survey research design to assess internal audit effectiveness in federal public sector organizations operating in North East Nigeria.

#### 3.2 Population and Sample Size of the Study

The target population of this study comprises of the 235 internal auditors of the 28 federal public sector organizations operating in North Eastern Nigeria. The sample size of 148 internal auditors was determined using the Taro Yamane's statistical formula (1967) at 95% level of confidence and 5% error with the samples chosen using the simple random sampling technique. A rule of thumb suggests that a minimum sample size for PLS path modeling estimations should be equal to ten times the largest number of structural paths directed at a particular construct in the inner path model (Barclay, Higgins, & Thompson, 1995) or a minimum of 70 in a model with a maximum of 5 arrows pointing at a latent variable (Marcoulides & Saunders, 2006).

#### 3.3 Method of Data Collection

The data for this study was collected through the administration of a structured questionnaire on the determined sample of 148 internal auditors. The questionnaire elicited responses through the internal auditors' perceptions

that seek to derive a measure of internal audit effectiveness and of the five factors considered in this study that influence it. The questionnaire was validated through the Content Validity Ratio (CVR) as proposed by Lawshe (1975), and items whose values fall below the acceptable range were removed. Harman's Single Factor Score (HSFS) test was carried out and a single factor which accounted for 39.219% of the covariance and signifies the absence of common method bias was reported from the factor analysis (Podsakoff, Mackenzie, Lee & Podsakoff, 2003).

#### 3.4 Measurement of Variables

Measures of the variables were adapted from the studies of Cohen & Sayag (2010); Alshbiel & Al-zeaud (2012); Alzeban & Gwilliam (2014); Badara & Saidin (2014); Lotto (2014); Badara (2015); and Dellai & Omri (2016). Internal audit effectiveness was measured by a defined objective for internal audit; a suitable plan to achieve such objective; regular review of procedures; completion of approved tasks; accuracy and justification of findings; significance of findings; timeliness of reports; follow-up process for corrective action; and the positive effect of findings on decision process. Competence was measured by educational and professional qualifications of internal auditors; the extent of their experience; and the training and development they are exposed to. ICT was measured by modern technology availability; its impact on audit work; ability to use it; and ability to audit computer-based systems. Quality of audit work's measure was by audit plan quality; compliance with standards and procedure; quality of reports; regular follow-up actions; and performance of other activities outside the plan.

#### 3.5 Technique of Data Analysis

The technique used in the analysis of the data is the partial least squares structural equation modeling (PLS-SEM) wherein the correlations between the constructs and their observed variables are calculated, and linear regressions between constructs are made (Ringle, Silva & Bido, 2014). It is, particularly, useful where the need of the study is to predict a large set of dependent variables from a large set of independent variables and is preferred for the analysis because it has the advantage of simultaneously estimating the relationships between the constructs through the structural model and the relationship between the indicators and the constructs through the measurement model (Samani, 2016). Further justifications for the use of PLS include its ability to work with non-normal data; utilization with smaller sample sizes; consideration of predictive accuracy; focus on theory development and its application even where correct model specification cannot be ensured (Wong, 2013; Hair, Sarstedt, Hopkins & Kuppelweiser, 2014). Data collected for the study were analyzed using SPSS Version 23 to determine the descriptive statistics while Smart 2.0 PLS-SEM M3 software was used to assess the measurement and structural models.

### 4. Findings and Discussions

#### 4.1 Response Rate

Non response bias could be categorized as unusable answers which occur when respondents refuse to participate or when they refuse to answer particular questions but continue with others (Samani, 2016). One of the best ways to guard against non-response bias is to keep the rate of non-response below 30% (Armstrong & Overton, 1977). A response rate of 139 representing 93.92% obtained thus implies there are no issues of non-response bias. The general assumption is that the higher the response rate, the lower the potential of non-response error. The high response rate is attributable to the utilization of research assistants in the distribution and collection of the questionnaires across the target organizations. Higher response rates in any survey research lead to larger data samples and statistical power and tend toward findings that have greater credibility among stakeholders (Baruch & Holtom, 2008).

#### 4.2 Data Screening and Preliminary Analysis

It is essential for data collected for multivariate analysis to be examined and screened in order to satisfy the underlying assumptions for the application of data analysis techniques. Missing data, which occur when a respondent either purposely or inadvertently fails to answer one or more question(s), were identified based on indicator variable and replaced with mean values as they all fall below 5% per indicator (Hair et al, 2014)

#### 4.3 Demographic Profile of the Respondents

From Table 1, it can be deduced that, in terms of skill, the higher rates of respondents indicate that internal audit departments of the organizations comprise mainly of members of staff that possess professional and academic qualifications which both improve on their effectiveness. The age composition and varied work experience implies that, in addition to mental maturity attained with age, the majority of the respondents had been in the system long enough to appreciate the operational dynamics and comment on audit activities. The responses from internal auditors serving in different organizations indicate exposure to audit in various fields and organizational settings.

Table 1: Respondent's Profile

		Frequency	Percentage
Age	20-29	6	4.3%
	30-39	56	40.3%
	40-49	63	45.3%
	50-59	14	10.1%
	Above 60	0	0
		<b>139</b>	<b>100%</b>
Academic Qualification	SSCE	1	0.7%
	Diploma	15	10.8%
	Bsc/HND	100	71.9%
	Masters	23	16.6%
Field of Study	Accounting	129	92.8%
	Management	4	2.8%
	Economics	3	2.2%
	Others	3	2.2%
Professional Certification	ICAN	2	1.4%
	ANAN	61	43.9%
	Others	7	5.0%
	None	69	49.7%
Internal Audit Experience	Less than 5 years	32	23.0%
	5-10 years	84	60.4%
	11-15 years	10	7.2%
	16-20years	9	6.5%
	Above 20 years	4	2.9%
Organization Type	Agricultural Colleges	9	6.5%
	River Basin Authorities	6	4.3%
	Polytechnics	18	12.9%
	Colleges of Education	11	7.9%
	Universities	36	25.9%
	Teaching/Tertiary Hospitals	56	40.3%
	Others	3	2.2%

Source: SPSS Version 23 Output, 2019

#### 4.4 Correlation Analysis

Correlation matrix reveals the strength and direction of the relationship between all pairs of variables used in the regression model. A rule of the thumb is that if pair-wise correlation between two repressors is in excess of 0.8, then multicollinearity could pose a serious problem (Gujarati, 2004). The correlation coefficients in this study all fall below that threshold.

Table 2: Correlation Matrix of Dependent and Independent Variables

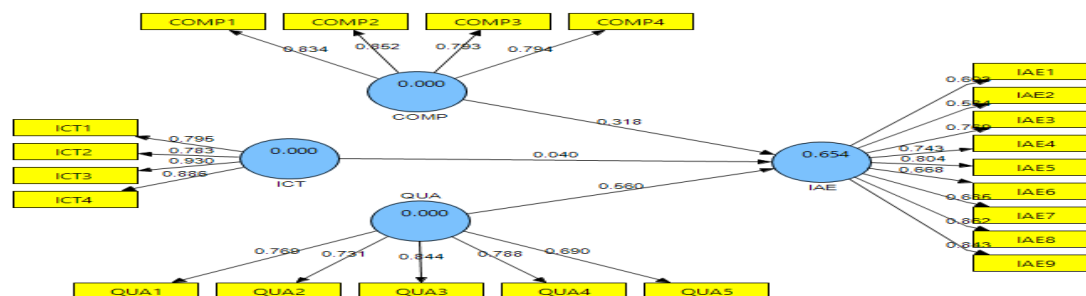
Variables	IAE	COMP	ICT	QUA
<b>IAE</b>	<b>1.0000</b>			
<b>COMP</b>	0.6562	<b>1.0000</b>		
<b>ICT</b>	0.4911	0.5360	<b>1.0000</b>	
<b>QUA</b>	0.7599	0.5656	0.5013	<b>1.0000</b>

Source: SmartPLS 2.0 output, 2019

#### 4.5 Assessment of the Measurement Model

The measurement model is illustrated in picture 1 below

Picture 1: Measurement Model



Source: SmartPLS 2.0 output, 2019

#### 4.5.1 Internal consistency/Composite Reliability

The internal consistency/composite reliability refers to the extent to which all items on a particular scale measure the same concept. The values for the latent variables examined in this study, presented in Table 3 all fall above the suggested threshold of 0.70 (Wong, 2013; Ringle, et al, 2014) thus indicating higher levels of reliability.

Table 3: Composite Reliability for Latent Variables

Variable	Number of Items	Composite Reliability Values
Internal Audit Effectiveness (IAE)	9	0.9124
Internal Audit Competence (COMP)	4	0.8904
Information & Communication Technology (ICT)	4	0.9125
Quality of Internal Audit Work (QUA)	5	0.8763

Source: SmartPLS 2.0 output, 2019

#### 4.5.2 Convergent Validity

Assessment of convergent validity assessment was made by examining the Average Variance Extracted (AVE), a measure of how much, on average, the variables correlate positively with their respective constructs (Ringle et al, 2014). The AVE values related to the variables of the study were found to be in excess of the acceptable minimal threshold of 0.5 (Hair et al, 2014).

#### 4.5.3 Discriminant validity

Discriminant validity measures the extent to which a particular latent construct is different from other constructs. The results of the Fornell and Larcker's (1981) criteria in table 4 revealed that the square roots of the AVE of the constructs (shown as bold diagonal elements) were in excess of the correlation values with other construct values except that between QUA and IAE which is slightly higher but accepted as suggested by Ringle et al (2014).

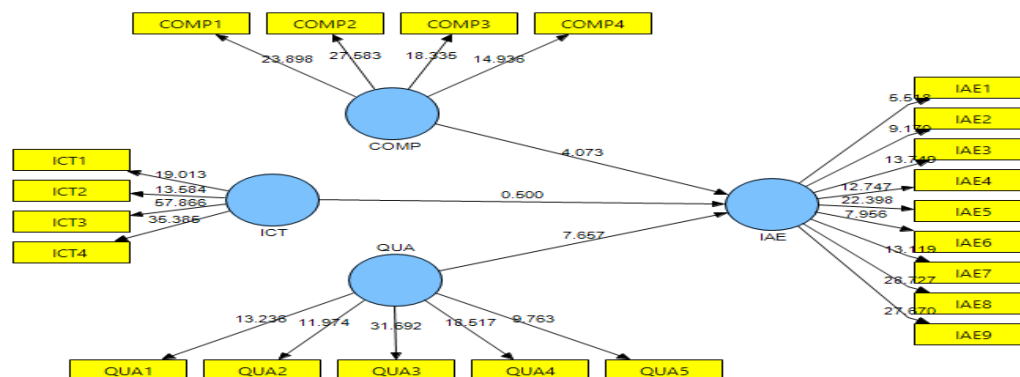
Table 4: Latent Variable Correlations and Square Roots of AVE

Variables	IAE	COMP	ICT	QUA
<b>IAE</b>	<b>0.7352</b>			
<b>COMP</b>	0.6562	<b>0.8187</b>		
<b>ICT</b>	0.4911	0.5360	<b>0.8507</b>	
<b>QUA</b>	0.7599	0.5656	0.5013	<b>0.7663</b>

#### 4.6 Assessment of the Structural Model

The structural model is illustrated in picture 2 below

Picture 2: Structural Model



Source: SmartPLS 2.0 output, 2019

#### 4.6.1 Estimation of Path Coefficients and Analysis of the Structural Model

The path coefficients were estimated through bootstrapping procedure, a re-sampling technique that draws a large number of subsamples from the original data; estimates models for each subsample to determine the significance of each indicator weight; computes a standard error of each model parameter; and determines the significance of each parameter (Hair et al, 2014). The number of bootstrap cases was set at 139 which is the equivalent of the number of valid observations from the data set while the number of bootstrap subsamples were set at 5,000 (Wong, 2013; Hair et al, 2014).

Table 5: Path Coefficient Estimates and Analysis of the Structural model

Hypotheses	Hypotheses Path	Path Coefficient	t-statistics	p-value	Hypotheses Result	(Q <sup>2</sup> )	(R <sup>2</sup> )
HO1	COMP -> IAE	0.3181	4.0038	0.008	Rejected	0.429	0.654
HO2	ICT -> IAE	0.0398	0.4997	0.508	Fail to Reject		
HO3	QUA -> IAE	0.5600	7.5598	0.000	Rejected		

Source: SmartPLS 2.0 output, 2019

From the assessment in table 5; two of the null hypotheses were rejected while the study failed to reject one. The model demonstrates that 65.4% of IAE variance was explained by the model as confirmed by the coefficient of determination (R<sup>2</sup>) which indicates the predictive power of the exogenous latent variables on the endogenous latent variable. The balance of 41.6% is explained by other factors outside the model. The predictive relevance using the Stone-Geisser's cross-validated redundancy Q<sup>2</sup> is determined through the blindfolding procedure where Q<sup>2</sup> value greater than zero indicates the path model's predictive relevance (Hair et al, 2014) as confirmed in this study.

#### 4.7 Discussion of Findings

From the analysis conducted and the findings arrived at, reasonable conclusions were statistically and empirically made related to the factors under consideration that determine the effectiveness of internal audit in self accounting federal public sector organizations in North East Nigeria.

Firstly, competence was found to have positive significant impact on internal audit effectiveness. The study therefore, concludes that the competence associated with the internal audit function as reflected in the extent of educational and professional qualification of the internal auditors; their level of experience; and their exposure to continuous training and development is one of the strong determinants in ensuring the effectiveness of the internal audit function in federal public sector organizations.

Secondly, Information and communication technology showed a positive but insignificant relationship with internal audit effectiveness. Though ICT is considered important; its effect could be hindered by a number of ICT related vulnerabilities which are noted to exist in Nigeria's public sector. These include the failure to prevent one user from gaining access to other user's information; the improper grant of access to users to perform functions above their level; lack of skills for security violation reporting and mitigation (Wolfpackrisk & Digital Jewels - Nigerian Cyber Threat Barometer Report, 2014); lack of required ICT infrastructure; and resistance to change by public officials among others which have negatively affected E-Governance and public service delivery (Abasilim & Edet, 2015).

Thirdly, the quality of internal audit work was found to positively and significantly influence on internal audit effectiveness. This implies that the application of standards and regulations towards arriving at useful audit findings and recommendations is very important and thus the conclusion of its consideration as one of the key determinants of the effectiveness of the internal audits function.

### 5. Conclusion and Recommendations

Studies on policies that seek to improve the effectiveness of the internal audit function and public sector governance would be of great importance and the findings will certainly have some implications. Consequently, the following recommendations are made:

- i. Compliance with the minimum entry requirement into the Accountant Cadre by the Offices of the Head of Civil Service and Accountant General of the Federation in the deployment of internal auditors as well as their continuous training and development.
- ii. Provision of adequate and appropriate ICT audit tools coupled with greater attention towards the security management of the ICT applications in use as well as the continuous capacity building for internal auditors on ICT tools usage and the audit of computer based systems by the Office of the Accountant General of the Federation (OAGF) and the National Information Technology Development Agency (NITDA) in order to mitigate the increasing risks and vulnerabilities associated with the use of Information and Communication Technology (ICT) in public sector operations.
- iii. Continuous improvement of internal audit operating standards and the official recognition of the Institute of



Internal Auditors as a regulatory body by the Accountant General of the Federation.

One of the major limitations of the study is that it focused on the perceptions of only internal auditors in federal public sector organizations operating in North Eastern Nigeria. This limits the generalization of the findings to other public sector organizations within the federal; state and local government set-ups. Though internal auditors are major participants in the operations of the internal audit function and thus contribute to its effectiveness; the perceptions of other stakeholders such as management and regulators may provide a different point of view.

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