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EFFECTS OF INFORMATION TECHNOLOGY UTILIZATION ON INTERNAL AUDIT EFFECTIVENESS AND MODERATING EFFECT OF MANAGEMENT SUPPORT IN ETHIOPIAN HIs

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Abstract

This study seeks to explore the relationship between “ITU”,"IAE", and “Top Management Support”. The investigation utilized an explanatory research design and incorporated qualitative data. This study focuses on the Southern Cluster Public Universities as its target population. Every internal auditor was conducted via a questionnaire and subsequently analyzed using SPSS 21. Data ran through a linear regression model. The results show that the use of IT has a beneficial effect on the “IAE” and that top-level management support moderates them. It is recommended that both management and the government should facilitate the setting up and use of technologies, such as Audit Management Software, to promote internal audit functions, reduce corruption and irregularities in operation.

Keywords: Internal Audit Efficiency, Top Management Support, Technology.

1. INTRODUCTION

Organizations in the modern day are increasingly turning to automation and digitization to help them achieve their goals of running more effective and efficient operations. Automating auditing operations via technology enriches perspectives, preserves time, boosts efficiency, and lets management concentrate on essential tasks. Data storage, collection, transmission, and analysis are commonplace tasks in many businesses, and information technology encompasses all these activities...

The efficiency of internal audits is one of the most crucial concerns in keeping the government accountable and responsible. Government performance is checked by examining the budget. An effective audit adds value and consults the public to sustain effectively; thus, improving the government's efficiency is undeniable. Access, allocation, and exploitation of technology determine the success of internal auditing. Automating critical audit functions, such as data provision and testing, allows auditors to concentrate on more valuable activities, including data interpretation and strategic analysis, enabling audit teams to save costs without compromising quality. Furthermore, auditors can do audits remotely, eliminating the requirement for their physical presence, thanks to IT capabilities that enable remote access to audit systems and data (Chi et al., 2024).

One of the cornerstones of effective internal audit is the use of information technology to carry out auditing duties in a timely and precise manner, as stated by the IIAs. Data

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progression, especially accounting data, is the backbone of an auditor's work. IT use guarantees that internal auditors may manage and gather evidence at every phase of an audit, in addition to preparing an audit result (IIA, 2012). While auditing a unit, an auditor will gather data about its operations, look for possible failure points, and implement controls to either catch or prevent errors. In order to be effective auditors must use information systems (M. Krishna Moorthy & et.al, 2011).

Businesses' reliance on IT systems is growing, necessitating new methods for auditors to follow. Almost every auditing procedure is affected by technology. The auditor who achieves success through advanced technology in their audits will gain significant benefits in terms of efficiency and effectiveness (Fitrawansyah, 2015).

1.2 Statement of Problem

Today, the world is observing a significant evolution in the role modern technologies play across various sectors of economic and social life in different countries. The principle of emphasizing information and technology as fundamental factors of progress and development has become widely accepted. Technology and information are essential tools for public and private companies to execute their activities swiftly and accurately. The internal auditor operates as an autonomous and impartial agency, delivering guarantees and advisory services to improve the institution's value and operational efficacy. Therefore, any internal auditor must be adept at employing accessible electronic data. The utilization of technology represents a significant area within accounting and auditing information system research. Recently, technology has become increasingly vital across all sectors(Mishra, 2014).The progression of information technology in the current technologically oriented period has profoundly influenced the operational methods of corporate organizations in both developed and emerging nations. Effective audits without using technology is difficult (Smidt et al., 2019).The study (UTAMA, 2022) proclaimed that the exertion of information technology in the audit process enhances integrity and reduces both the cost and time required to conduct audits and reach conclusions. Information technology is vital in auditing, as it enhances the most critical standards. The analytical review has emerged due to advancements in it and the utilization of electronic evidence since it aims to prevent inaccuracies in financial accounts (Madhar & Almaktoomi, 2022).

The study in Ethiopia underscores that IT induces substantial transformations in internal auditing and enhances the quality of internal audits by elevating the standard of several components. Auditors reduce the time spent verifying material and ensuring the accuracy of mathematical computations in office accounting by utilizing information technology accounts (Jemaneh Deribe & Getachew Regasa, 2014). The study asserts that higher education institutions did not effectively execute information technology in internal auditing functions (Demeke & Kansal, 2019).

(Salehi & Husini, 2011), assert that the exercise of information technology greatly influences the success of internal audits, including audit quality, reporting efficiency, and communication. Software packages, including electronic systems and planning applications, facilitate enhancements in internal auditing activities. The study in the Saudi

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public sector indicates that Information Technology is essential for internal audit functions; nevertheless, its use in internal auditing is insufficient, and internal audit departments frequently lack adequate IT resources (Almahuzi, 2020). The audit function is ineffective due to the inadequacy of staff in utilizing the information system and conducting data analysis and management advised to upgrade the effectiveness of the audit function (Lotto, 2014).

(AminuHammayo et al., 2022) asserts numerous factors influence IAE; nevertheless, information communication technology does not impact audit quality

Auditors must carefully comprehend the risks associated with information technology, as it significantly impacts the effectiveness of internal audits (Ramazanova & Nurgaliyeva, 2023).Managerial support, independence, organizational culture, and ethics are significant impede audit effecience (Yanti et al., 2022.More research shows that things like size, how well internal and external audits are coordinated (Lihuan, 2022), competence and objectivity Zulkifli Baharud-din, Alagan Shokiyah, 2012) and the professionalism and size of local governments (Ahmad et al., 2010) are hampered elements for internal audit functions productivity. A study seeks to uncover characteristics that hinder the success of internal audits in Oman. It finds that audit scope and expertise affect success, but management response does not. To reach their conclusion, the researchers polled 208 PASI staff members for the survey. They suggest that employees should be more aware of the need to cooperate with internal audit staff (Shamki & Amur Alhajri, 2017).

A study done in Nigeria found that internal quality, which includes the scope of work, independence, communication skills, staffing, and staff expertise, as well as management support (funding, responses to audit findings, and staff training), are factors that affect how well internal audits work. In contrast, audit attributes and organizational settings are pertinent but not central factors in assessing internal audit effectiveness. The investigation employed semi-structured interviews and questionnaires to gather relevant data (Ethel et al., 2021).

The audit function is suboptimal due to challenges related to competence, audit quality, and independence. The sample utilized and estimated consists of 100 internal auditors from auditor inspectorates as respondents(Usman & Rahman, 2019). The other study also agree that competence infacts Internal audit productivity(Zakaria et al., 2020)

The study in Indonesia indicates that competence, communication, and audit work positively influence internal audit effectiveness; however, independence does not. The study displayed that auditors should possess technical expertise and related non-technical competencies in their audit domain.

We obtained quantitative data via a questionnaire to examine the issue (Setyaningrum & Kuntadi, 2019).Other studies show that corruption and weak internal control are challenges for local governments that lead to internal audits in effective IA activity. The study also highlights impediments such as competence and independence (Saputra et al., 2020).

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Study used survey methodology and a descriptive verification strategy in the local government of Java Island, Indonesia to determine the impeding factors of IAE. Based the statistical analysis, drawn. SEM partial least squares (PLS) , the study highlight the significant impact of management's backing and the internal auditors' competence and impartiality on the effectiveness of the internal audit function (Gamayuni, 2018).

Prior research has mostly ignored the impact of IT use in favors of examining independence, competency, size, impartiality, and audit quality as potential roadblocks. The researcher observes that the influence of ITU is now insufficiently recognized. This study sought to assess the effect of IT utilization and the moderating effect of top management assistance to address the existing knowledge gap.

1.3 Objectives

1.3.1 General Objective

The general objective of this study is to determine the effects of IT utilization on Internal audit effectiveness, Top management as a moderator.

1.3.2 Specific objectives

1) To determine the effect of ITU on Internal Audit Effectiveness
2) To examine Top Management Moderates ITU and IAE

2. LITERATURE

2.1 Information Technology Utilization

(Roy et al., 2005) define IT as "*Any equipment or system responsible for data manipulation; also refers to the disciplines of science and engineering that interact with these systems and data*".

"Information technology" refers to any activity that involves information processing and integrated communication through electronic equipment. It includes many different types of technologies that work with data, such as information systems, industrial process automation, computer communication between organizations, and personal use of computer resources.

Today, the swift transformations in the business landscape necessitate that firms adapt and pursue innovative strategies to compete and distinguish themselves from rivals. The increasing strategic utilization of IT arises from a shift in the perception of information's significance within enterprises.

Information technology is today seen as an essential instrument for driving business, and its utilization is a significant determinant of organizational performance, both in terms of survival and enhanced competitiveness(Victoria, 2020).

Information technology is ubiquitous and essential for auditors to assess and report on data and information. A vast quantity of data and information is readily accessible solely through computers.

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Physical reviews, inflexible audit programs, and unsupportive information systems and technology are things of the past; thanks to modern audit technologies, auditors are free to apply their judgment and critical faculties. Utilizing CAAT to support the audit process yields more benefits (David, 2009). As (Pedrosa & Costa, 2012) recent audit standards advocate utilizing CAATs to enhance efficiency and effectiveness throughout the planning, execution, reporting, and follow-up stages of the audit. The Institute of Internal Auditors advocates for its members to employ technology in executing internal audit functions.

The IIA's IPPF asserts that "in exercising due professional care, internal auditors must contemplate the utilization of technology-based audit and other data analysis methodologies" (1220.A2). Internal auditors utilize technology to the fullest extent feasible to enhance the efficiency and efficacy of internal audit procedures. (Salehi & Husini, 2011) claims that the usage of IT determines the quality and structure of internal audits, as well as their planning, methodologies, and reporting.

As (Al-Hanini, 2011) ,Information technology enhances the quality of auditing services, preparing for audits, performing analytical procedures, and executing the auditing process and paperwork. He also claims that using technology in auditing is challenging for several reasons. The primary reasons are the inability to utilize advancement and companies that require auditing services rely solely on manual accounting systems.

The importance of IT audit quality has increased with additional spending on IT and a variety of new legislation. Independence and Business Process Knowledge are the most highly ranked criteria influencing IT audit quality(Stoel et al., 2012).The research conducted by (Alkebsi & Aziz, 2017) demonstrated that the usage of information technology greatly influences the effectiveness of internal audits.

2.2 Internal Audit Effectiveness

Effectiveness and efficiency are "*the extent to which predetermined objectives are arrived at.*" The description is similar to an internal audit. Internal auditing must set performance metrics and corresponding measurement criteria suitable for its environment to assess the extent of objective attainment for the internal audit functions(IIA, 2010).

Researchers claim that Internal audit impeded by many elements, some of them are; Independence and competence(Dada & Adebowale, 2023; David & Ntegwa, 2024; Lubis, 2021; Yulisfan, 2023), Management support(Dawuda, 2010; Karrar,S.&Elbashir, 2018; Nagriwum, 2023), Risk Management, IA size, competency, management support, EA and AC cooperation, follow-up process and control environment(Steven, 2022), audit quality(Ethel et al., 2021; Mihret, D. T., & Tekle, 2010).

2.4 Hypothesis

Ha1: Information Technology Utilization significantly and positively affect internal audit effectiveness

Ha2: Top Management moderates the relation

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2.4 Conceptual Frame

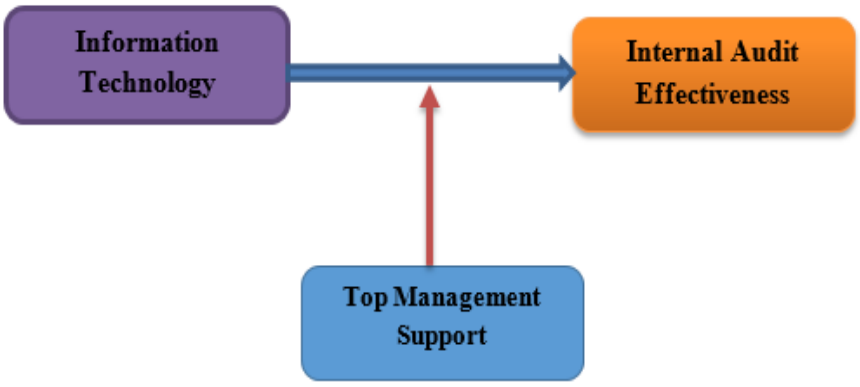

Figure 1: Conceptual Frame

3. RESEARCH METHODOLOGY

The research primarily employed an explanatory design and collected quantitative data from the respondents. The researcher intentionally selected the Southern Cluster Public Universities (SNNPR). All 120 internal auditors from 10 universities in the study area were taken through the census method. Likert scale questionnaires were distributed to internal auditors to gather relevant and sufficient data. Regression model was used and the data was analyzed using SPSS version 21. After the pilot test, Cronbach's Alpha was applied to check if the results were valid and reliable. This study made use of the multiple linear regression technique and ensured that the multiple linear regression model's assumptions were correct.

Model Specification

$$IAE = \beta_0 + \beta_1 IT + \beta_2 TS + \beta_3 (ITU * TS) + \varepsilon$$

Where: IAE is Internal audit effectiveness (DV)

β_0 is the intercept (the predicted value of DV, IDV and Moderator (TS) are zero).

β_1 is the coefficient for ITU (Information Technology Usage)

β_2 is the coefficient for TS (Top Management Support)

β_3 is the interaction coefficient

ε *is the error term*

3.1 Reliability and Validity

Two methods for assessing the effectiveness of a procedure in measuring a construct are validity and reliability. Reliability refers to consistency, while validity pertains to accuracy. This study implements a pilot survey by disseminating 10 questionnaires to academic personnel with research and industrial expertise.

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Academicians provide specific feedback to revise questions and flows. Following the revision of the questionnaire, validity was assessed via alpha testing. A commonly accepted threshold for a robust Cronbach's alpha is 0.7 or greater; hence, a number beyond 0.7 is acceptable, indicating strong internal consistency among a collection of items on a scale.

Table I: Validity test

Description	Alpha Value
ITU	0.8260
TS	0.7880
IAE	0.8540

Source: Researcher computation from SPSS Output

Table I demonstrates that the independent factors, IT, the moderating variable, and the dependent variables possess alpha values exceeding 0.7. According to the general principle, the variables are strongly consistent and valid.

3.2 Diagnostic Test

Normality

To check normality, the study used histogram. A histogram is a graphical representation of data that helps visual assessment of a dataset's normalcy by comparing its curve. The pattern of the histogram bar shows if the data is close to a normal distribution. A roughly symmetrical, bell-shaped curve means the data has met the criteria, while large deviations from this shape mean that the data is not(Rani Das, 2016). Figure 2 displayed that the data are normally distributed.

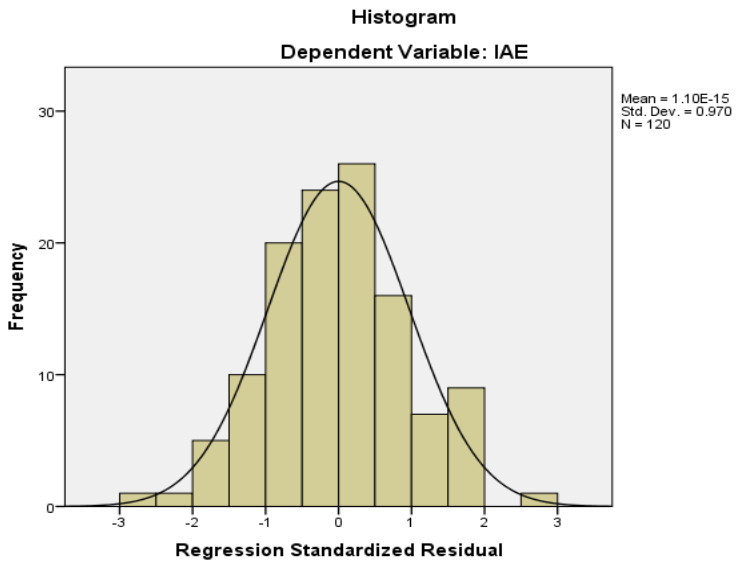

Fig 2: Normality Distribution Curve

Source: SPSS output (2024)

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Linearity

In regression, the linearity assumption posits the relationship between the predictor variable(s) and the outcome variable must be linear. It means that the change in the outcome variable is directly related to the change in the predictor. Therefore, Figure 3 Shows that the relationship is linear.

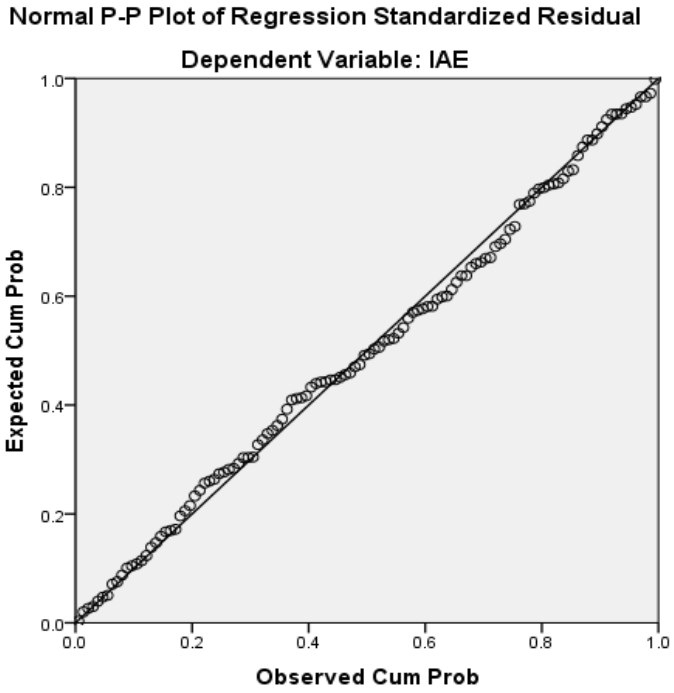

Figure 3: Linearity Test

SPSS output (2024)

Multi-Collinearity

Multicollinearity happens when more than one variable in the regression exists. The variables are related to the dependent variable and each other. Multicollinearity renders several significant variables under examination statistically insignificant. A core assumption in regression models is that independent variables should not display a correlation with one another(Shrestha, 2020). The study uses a VIF score for assessment purposes. A score exceeding ten (10) indicates substantial multicollinearity, according to rule of Thumb. Hence the VIF value is less than 2, indicates that there is no issues (see Table IV)

Autocorrelation

When two time intervals are consecutive, the degree to which the same variables are more linked is called autocorrelation. It measures the relationship between the original and lagged forms of a variable's value in a time series. If the Durbin-Watson test statistic

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falls between 1.5 and 2.5, there is likely no substantial issue with autocorrelation. The Value in this study is consistence with the rule. Therefore, no series auto correlation according to next Table.

3.3 Regression Analysis

Table II: model Summary

R	R^2	Adjusted R Square	Std. Error	Change Statistics					Durbin-Watson
				R Square Change	F Change	df	df2	Sig. F Change	
.483[a]	.233	.228	.80152	.233	45.808	2	120	.000	1.959

The data shown in Table II indicates that the R square value of the model is 233. The Independent Variable (ITU) accounted for 23.3% of the variance in the dependent variables, while 76.7% was attributed to other factors.

Table III: ANOVA[a]

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	20.241	2	10.120	8.901	.000[b]
	Residual	133.024	117	1.137		
	Total	153.265	119			
a. Dependent Variable: IAE						
b. Predictors: (Constant), ITU_TS, ITU						

The above Table indicates that the model comprises two predictors: IT_TS and IT. The F-statistic (8.901) is statistically significant ($p < 0.001$, indicating that the regression model, in its entirety, is statistically significant and correlated with “IAE.”

Table IV: Model Summary[a]

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.	Collinearity Statistics	
		B	Std. Err	Beta			Toleranc	VIF
	(Constant)	3.738	.042		88.116	.000		
	IT	.159	.041	.189	3.885	.000	.770	1.299
	IT__TS	.079	.036	.111	2.200	.029	.714	1.401
a. Dependent variable: IAE Source: SPSS out put								

The data presented in Table IV indicates that the beta value of 0.1590 suggests a 15.90% increase in the dependent variable for each unit increase in IDV. The usage of IT has a significant impact on the IAE, as indicated by a P value of less than 0.05.

The analysis of the moderation variable in the above table and Figure indicates that Senior Management Support enhances the relationship between ITU and IAE, evidenced by a P value of 0.029(See Fig 4). Generally, both alternative hypotheses are accepted.

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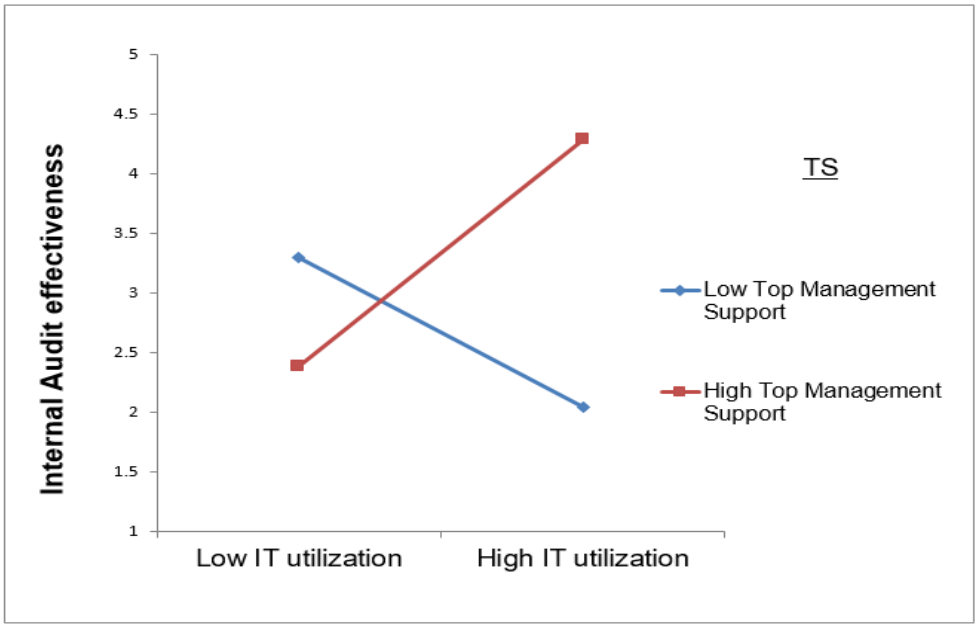

Fig 4: Moderation attribute

CONCLUSION AND RECOMMENDATION

The study concluded that Information Technology usage impedes the IAE (P=0.000). A one-unit increment in ITU accelerated 15.90 per cent of IAE. The data indicates that top management moderates the relationship between independent and dependent variables.

The university management should support internal audit units by allocating a budget for the adoption of computer-aided audit techniques and training staff in new technologies and innovations. Additionally, the government should develop strategies and software to assist university audit teams with technological support.

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