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Perceptions of Artificial Intelligence in Enhancing Fraud Detection and Internal Controls in Public Universities in Ghana

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Abstract: This study investigates the perceptions of internal auditors regarding the effectiveness of Artificial Intelligence (AI) in detecting fraudulent activities and strengthening internal control systems within public universities in Ghana. While AI is being increasingly integrated into audit practices globally, its application and perceived impact in public sector institutions, particularly in developing countries, remain underexplored. Ghanaian public universities, facing resource constraints, bureaucratic inefficiencies, and weaknesses in audit frameworks, present a compelling context for examining AI's role in improving governance and transparency. A mixed-methods approach was employed, combining survey data from 176 internal auditors with qualitative insights from six audit leaders. The Technology Acceptance Model (TAM) and Agency Theory were applied to analyze the perceived usefulness (PU) of AI and its potential to mitigate information asymmetry. Results reveal that internal auditors generally regard AI as highly effective in enhancing fraud detection, particularly in terms of real-time anomaly identification, increasing accuracy, and reducing false positives. AI's contribution to strengthening internal control mechanisms was also recognized, though challenges related to limited technical training, suboptimal integration of audit and IT systems, and underutilization of advanced AI tools were identified. The study highlights the need for focused auditor training, improved inter-departmental collaboration, and institutional policies that foster AI adoption. These findings contribute to the growing body of literature on the role of AI in public sector auditing, particularly in Sub-Saharan Africa. By integrating quantitative and qualitative data, the study offers a comprehensive analysis of AI's perceived effectiveness in addressing governance challenges in Ghana's higher education sector, filling a significant gap in existing research.

Keywords: AI; Fraud detection; Internal controls; Public universities; Ghana

JEL Classification: M42; M15; O33; D83; H83; D83

1. Introduction

The rapid integration of Artificial Intelligence (AI) into auditing practices is redefining how internal auditors detect fraudulent activities and strengthen internal controls across institutions globally. In the context of public universities in Ghana, where accountability, transparency, and prudent financial management are paramount, AI presents a compelling opportunity to overcome longstanding audit challenges. These institutions often operate under limited resources and face complex regulatory demands, making the adoption of technology-driven audit tools essential for enhancing governance and financial oversight (Abdullah & Almaqtari, 2024; Amoako et al., 2023).

AI technologies, including machine learning, natural language processing, and predictive analytics, are now capable of detecting anomalies in real time, automating audit tasks, and supporting continuous monitoring of transactions (Amoako et al., 2023; Tetteh et al., 2022). These features are particularly useful in environments where human-led audits are often constrained by time, scope, and subjectivity. Despite these global advancements, the practical implementation of AI in internal audit functions remains limited in many developing contexts,

including Ghanaian public universities, due to technical, organisational, and human resource challenges (Ganapathy, 2023; Goto, 2022).

Universally, empirical research in most advanced countries has documented AI's contributions to continuous auditing, real-time fraud detection, and predictive risk analytics in both public- and private-sector audits (Dahabreh, 2023; Mohammed & Rahman, 2024; Nyang, 2024; Yaseen & Al-Amarneh, 2025). However, these studies are largely systems-oriented, emphasising technological implementation rather than auditors' behavioural responses or perceptions. Moreover, very few international studies examine AI within the context of public higher education (Nurmuhammedovna, 2025), an environment characterised by complex governance, budgetary accountability, and decentralised operations. While there is broad recognition of AI's transformative potential in combating financial fraud and enhancing governance globally, including in low- and middle-income countries, much of the literature is either theoretical or focused on the private sector and high-income contexts. Studies frequently overlook public sector nuances in African regions, such as resource constraints, regulatory variability, and cultural adaptation to technology, which are especially significant in public universities (Adam & Fazekas, 2021; Raja & Raja, 2023).

Previous studies have explored the broader impact of AI on auditing in developed countries (e.g., Australia, China, and Oman), focusing on efficiency gains, risk assessments, and auditor perceptions (Arthur, 2022; Wassie & Lakatos, 2024). However, these studies often overlook the unique challenges of public sector institutions in Africa, where bureaucratic inefficiencies, data fragmentation, and inadequate technological infrastructure significantly affect audit practices (Wassie & Lakatos, 2024). While some local research has acknowledged AI's potential in Ghanaian auditing contexts (Amonkwandoh, 2021), there is a notable gap in empirical evidence concerning how internal auditors in public universities perceive the effectiveness of AI in detecting fraud and improving internal controls.

This study fills this knowledge gap by evaluating how internal auditors in Ghanaian public universities perceive the effectiveness of AI in fraud detection and internal control functions. Drawing on an integrated framework that combines the Technology Acceptance Model (TAM) and Agency Theory, the study captures both individual and organisational dimensions of AI adoption. TAM explains how perceived usefulness (PU) and ease of use influence auditors' willingness to embrace AI tools (Davis, 1989; Owusu-Afriyie et al., 2024), while Agency Theory provides a complementary lens to understand how AI reduces information asymmetry between management and auditors through real-time, data-driven insights that enhance accountability and governance (Thottoli et al., 2022). By applying these two theoretical perspectives concurrently, the study extends existing literature on AI adoption in auditing by linking behavioural acceptance factors with institutional accountability outcomes within the context of developing-country higher education.

By focusing on the perceptions of those directly involved in auditing, this research provides practical insights into how AI can be leveraged to improve public sector governance in Ghana. It also contributes to the growing body of literature on AI adoption in auditing, particularly within the under-researched context of African higher education institutions. Ultimately, the findings have implications for policy formulation, auditor training, and cross-functional collaboration aimed at fostering technology-enabled accountability systems.

2. Literature Review

2.1 Theoretical Framework

AI has increasingly been positioned as a transformative tool in internal auditing, particularly in enhancing fraud detection and internal controls within public institutions. The theoretical underpinning of this study draws on 2 well-established models, namely the TAM and the Agency Theory. Each offers distinct insights into the acceptance, application, and strategic importance of AI in internal audit environments.

The TAM (Davis, 1989) posits that PU and perceived ease of use are critical to a user's willingness to adopt new technologies. Applied to internal auditing, this suggests that auditors are more likely to embrace AI tools when they find them intuitive and beneficial in detecting anomalies and streamlining audit tasks. Research by Amoako et al. (2023) and Tetteh et al. (2022) supports this, showing that auditors in developing countries, including Ghana, accept AI tools more readily when they are accompanied by user training and institutional support.

Agency Theory (Eisenhardt, 1989), concerned with reducing information asymmetry between principals (management) and agents (auditors), suggests that AI enhances transparency by offering real-time, data-driven insights that limit managerial discretion and reduce the scope for fraud.

This model combines TAM and Agency Theory to describe the behavioural and organisational dynamics of AI adoption in internal auditing. On the left, the constructs of TAM, Perceived Ease of Use, and PU together influence AI adoption, with Perceived Ease of Use exercising both an indirect effect through PU and a direct effect on adoption. Agency Theory, on the right, shows how AI adoption or usage decreases information asymmetry, enhances accountability, and strengthens internal controls. Together, the model bridges individual-level technology acceptance and institutional governance outcomes, illustrating AI's role in promoting effective internal

audit practices in public universities.

As illustrated in Figure 1, the TAM component (Davis, 1989) posits that Perceived Ease of Use (PEOU) and PU are critical drivers of AI adoption among internal auditors. Perceived Ease of Use not only enhances PU but also has a direct effect on AI Adoption, as internal auditors are more likely to adopt technologies that are easy to learn and operate (Venkatesh et al., 2003) Once adopted, AI generates organisational outcomes consistent with Agency Theory (Eisenhardt, 1989), including reduced information asymmetry, enhanced accountability, and improved internal control systems (Thottoli et al., 2022). This integration provides a comprehensive understanding of how auditors' behavioural acceptance of AI tools contributes to institutional governance and accountability within Ghanaian public universities.

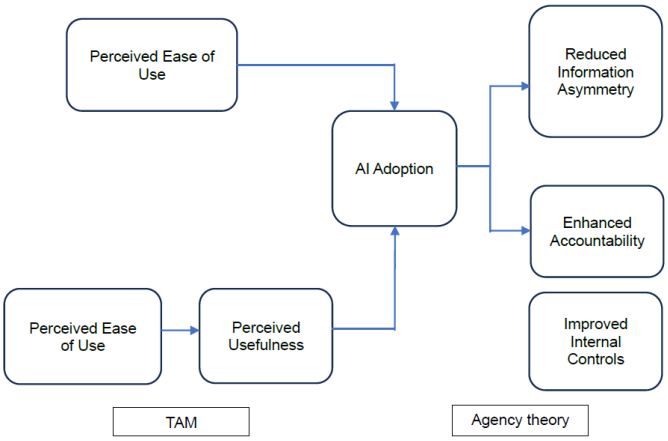

Figure 1. Conceptual framework integrating TAM and Agency Theory
Source: Davis (1989) and Eisenhardt (1989)

2.2 Empirical Review

Empirical literature affirms the growing recognition of AI's potential to revolutionise internal audit functions. Globally, institutions deploying AI report significant improvements in the speed, accuracy, and depth of fraud detection. For example, Budhwar et al. (2023) found that AI systems implementing real-time monitoring resulted in fraud prevention cost savings of up to $10 million annually in large organisations. In Ghana, pilot projects at the University of Ghana led to a 25% increase in the identification of financial anomalies after AI adoption.

AI has also proven effective in reinforcing internal controls. Studies such as those by Molefi et al. (2024) demonstrated a 90% accuracy rate in error and anomaly detection when AI was used. In resource-constrained environments like Ghanaian public universities, the ability of AI to deliver precise, automated risk assessments offers enormous potential to improve financial governance. However, empirical work also highlights barriers. Hoai et al. (2022) revealed that only 20% of public institutions in Sub-Saharan Africa have the infrastructure required to implement AI effectively. These findings mirror Ghanaian challenges, namely inadequate training, poor system integration, and underfunding, which threaten to limit the transformative potential of AI if not addressed.

Moreover, local studies such as Nyarkoh (2022) have shown that while awareness of AI is growing among Ghanaian auditors, practical application lags due to a lack of familiarity with systems like machine learning and robotic process automation. These gaps in adoption, usage, and institutional readiness set the context for this study's unique contribution: examining how internal auditors in Ghanaian public universities perceive the effectiveness of AI in actual operational environments.

3. Methodology

3.1 Research Design

This study adopted a Concurrent Exploratory research design (Creswell & Creswell, 2017), making use of both qualitative and quantitative data to comprehensively assess internal auditors' perceptions of the effectiveness of AI in detecting fraudulent activities and improving internal controls within Ghanaian public universities. The qualitative interviews presented background depth and descriptions, while the quantitative aspect of the study offered general overviews regarding auditors' perceptions (Creswell & Creswell, 2017; Elhaj & Soliman, 2023). The pragmatic research paradigm is what this study is guided by, as it provides a flexible philosophical foundation for mixing qualitative and quantitative methods to gain a deeper perception of the research problem (Shah et al., 2018). Adopting a concurrent exploratory mixed-methods design, the pragmatic paradigm was notably suitable,

as it enhanced the concurrent gathering of qualitative and quantitative data (Maarouf, 2019), with emphasis on qualitative insights to understand internal auditors' perceptions of AI effectiveness in detecting fraudulent activities and enhancing internal controls. The quantitative findings augmented these findings by providing supportive facts that enhanced and supported the qualitative themes (Elgeddawy & Abouraia, 2024). This philosophical perspective ensured a reasonable, problem-centred approach that produced both an appropriate understanding and practical suggestions relevant to the auditing environment of Ghanaian public universities. This strategy allowed the researcher to triangulate results from the survey data and in-depth interviews to acquire a complete understanding of the research problem (Creswell & Plano Clark, 2023). Both quantitative and qualitative data were gathered concurrently and inspected independently before being put together during interpretation. This form of triangulation permitted the cross-validation of the findings from the survey and interviews, which ensured that patterns that emerged were even across (Sandelowski, 2000). The integration of data from these sources furnished a general understanding of AI's role in advancing fraud detection and internal controls in Ghanaian public universities.

Figure 2 shows the parallel exploratory mixed-methods design used in the study. The quantitative component included a structured questionnaire administered to 177 internal auditors across six Ghanaian public universities, analysed using SPSS through descriptive statistics, reliability testing, and regression analysis. The qualitative strand involved semi-structured interviews with six internal audit directors, analysed thematically. Both strands were conducted concurrently and merged during the interpretation stage to identify convergent and complementary insights on AI adoption, internal control, and accountability.

As depicted in Figure 2, the quantitative and qualitative data were obtained simultaneously to provide a complementary insight into AI adoption or usage in internal auditing. The quantitative aspect established statistical trends and relationships, while the qualitative strand explores contextual factors and perceptions. The merger of both data sets happened during the explanation phase, where results were compared and synthesised to produce a more all-inclusive understanding of AI's perceived effectiveness and its implications for internal control and accountability in Ghanaian public universities.

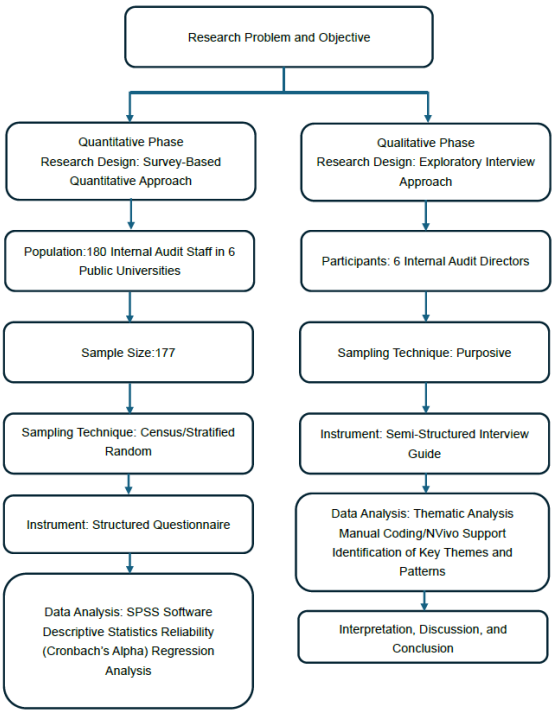

Figure 2. Research design flowchart of the concurrent exploratory mixed-methods approach
Source: Creswell & Plano Clark (2023)

3.2 Population and Sampling

Particular focus on those who have practical experience with or exposure to AI-driven auditing tools and processes. These universities are the University of Ghana (UG), Kwame Nkrumah University of Science and Technology (KNUST), University of Cape Coast (UCC), University of Education, Winneba (UEW), Ghana Communication Technology University (GCTU), and University of Energy and Natural Resources (UENR). A purposive sampling technique was used to select internal auditors who were likely to provide relevant insights

regarding AI's effectiveness in fraud detection and internal control improvement.

Internal audit staff, numbering 180, were used from six participating public universities in Ghana. Yamane (1973) yielded a sample size of 177 participants, indicating roughly 98% of the total internal auditors with a 2% margin of error. This goes beyond minimum suggestion of 30 cases for statistical validity by Roscoe (1975), as also repeated by Louangrath (2014). Thus, the sample size enhanced acceptable statistical power and participants for quantitative analysis.

The public universities used in this research were purposively chosen to denote the mixture of Ghana's public higher education system in terms of operational orientation, regional location, and institutional size. However, comprehensive institutional features were not reported due to the primary focus of the study, which is exploratory, aiming to look at the trends and insights of AI adoption or usage across the public university sector rather than to conduct a comparative institutional investigation. This conduct is associated with the concurrent exploratory mixed-methods design, which aims to identify extensive patterns and encounters within a professional community rather than differences between the universities (Creswell & Plano Clark, 2023).

For the qualitative phase, six internal audit directors, one from each public university, were purposively picked based on their knowledge, qualifications, and expertise with technology-driven auditing. Even though the number of contributors was little, their similar expert responsibilities and leadership roles increased the chances of realizing thematic saturation with fewer interviews (Guest et al., 2006). The qualitative sample, therefore, gave adequate depth and contextual richness to complement and justify the quantitative findings (Creswell & Plano Clark, 2023).

3.3 Data Collection Instruments

A structured questionnaire was designed to capture auditors' perceptions regarding the effectiveness of AI in detecting fraudulent activities and strengthening internal controls. The instrument consisted of closed-ended items on a 5-point Likert scale, ranging from "Strongly Disagree" to "Strongly Agree." These items were aligned with dimensions such as fraud detection accuracy, anomaly identification, internal control enhancement, and real-time monitoring of key aspects of AI's contribution to internal auditing. For the qualitative strand, semi-structured interview guides were developed to explore deeper insights into the practical realities, challenges, and perceptions surrounding AI use in fraud detection and control systems. The open-ended nature of the questions allowed participants to elaborate on their experiences, provide examples, and express concerns or recommendations.

3.4 Data Analysis

Quantitative data were analysed using descriptive and inferential statistics with the aid of SPSS. Descriptive statistics (frequencies, means, and standard deviations) were used to summarise internal auditors' responses, while inferential analysis was employed to examine the relationship between AI adoption and its perceived effectiveness in detecting fraud and improving internal controls. Interview transcripts were analysed using thematic analysis. Responses were coded and categorised into emerging themes related to the effectiveness of AI in fraud detection, continuous monitoring, system integration challenges, and the perceived role of AI in improving audit processes. The themes were triangulated with quantitative findings to enrich interpretation and validate conclusions.

Cronbach's Alpha (α) and Composite Reliability (CR) coefficients were generated in SPSS to evaluate the internal consistency of the quantitative assessment items. While CR offers a more accurate assessment of construct reliability by considering individual item loadings, Cronbach's Alpha assesses how closely connected a group of items is (Haji-Othman & Yusuff, 2022; Rosli et al., 2021). In this research, reliability figures were calculated for each dimension of AI effectiveness, including fraud detection, timeliness, internal controls, risk assessment, and predictive analytics. Consistent with methodological standards (Taherdoost, 2016), reliability coefficients of 0.70 or higher were judged appropriate for studies in the social sciences. All constructs surpassed this level, indicating the internal consistency and reliability of the measurement instrument.

3.5 Ethical Considerations

Ethical clearance approval with code HSSREC/00008064/2024 was obtained from the University of KwaZulu-Natal ethics board prior to data collection. Participants were informed about the purpose of the study, their right to withdraw at any time, and the confidentiality of their responses. Informed consent was obtained in both written and verbal forms before the administration of questionnaires and interviews.

4. Results

4.1 Quantitative Findings

The study evaluated internal auditors' perceptions of the effectiveness of AI in detecting fraudulent activities

and improving internal controls in Ghanaian public universities using a Likert-scale questionnaire. Key indicators included fraud detection accuracy, early identification, reduced false positives, enhanced internal controls, and improved risk forecasting.

Table 1 presents the descriptive statistics for respondents' perceptions of AI's effectiveness. The mean scores across the statements were consistently high (M = 4.05–4.32), indicating strong agreement that AI tools enhance fraud detection and control.

Table 1. Descriptive statistics on the perception of AI's effectiveness

Statement	Mean	SD
AI-powered fraud detection systems have significantly increased the number of fraudulent activities identified compared to traditional methods.	4.32	0.68
The accuracy rates of fraud detection have noticeably improved since the implementation of AI technologies.	4.10	0.75
AI-enabled internal controls have resulted in a substantial decrease in false positives.	4.15	0.71
The adoption of AI has led to early detection of fraud, minimising financial losses.	4.23	0.69
AI integration has resulted in more adaptive fraud prevention and detection.	4.18	0.72
AI-powered risk assessment tools have improved audit prioritisation.	4.12	0.74
AI-based internal controls have improved response time to detected fraud.	4.22	0.70
AI tools have enhanced compliance with fraud-related regulations.	4.05	0.77
AI has reduced the time and resources required to investigate fraud.	4.08	0.73
AI technologies have strengthened the ability to detect complex fraud schemes.	4.29	0.66
AI-enabled fraud systems have broadened fraud detection capabilities.	4.17	0.74
AI algorithms have improved the adaptability of internal controls.	4.11	0.78
AI-driven analytics have improved fraud risk forecasting.	4.14	0.75
AI-based systems have reduced false positives and negatives.	4.21	0.71

These findings suggest that internal auditors view AI as a highly effective tool for identifying and preventing fraudulent behaviour, increasing audit efficiency, and improving control responsiveness.

To validate the statistical significance of these perceptions, a one-sample t-test was conducted for each statement. As shown in Table 2, all statements returned statistically significant results ($p < 0.01$), confirming that the high mean values were not due to chance.

Table 2. One-sample t-test on the effectiveness of AI

Statement	T-Statistic	*p* Value
AI systems have increased fraud detection.	4.512	0.000
Accuracy rates have improved.	3.874	0.001
AI reduced false positives.	3.456	0.001
AI led to early detection of fraud.	4.215	0.000
AI improved adaptability in fraud prevention.	3.754	0.001
Risk assessment prioritisation improved.	4.025	0.000
Timely response to fraud incidents improved.	3.987	0.000
Regulatory compliance improved.	3.543	0.001
Resource efficiency in investigations increased.	4.128	0.000
Detection of complex fraud schemes improved.	3.765	0.001
Broader fraud detection capability observed.	4.543	0.000
Improved adaptability of internal controls.	3.876	0.001
Better forecasting of fraud risks.	4.321	0.000
Reduced false positives and negatives.	3.654	0.001

Figure 3 shows the mean ratings of internal auditors' views of AI effectiveness within key audit dimensions. Participants rated AI topmost for its role in improving accountability, obtaining a mean of 4.42 and detecting fraudulent activities (mean of 4.35), followed by internal control improvement (mean of 4.28), anomaly detection (mean of 4.15), and predictive analysis (mean of 4.05). These findings indicate that internal auditors perceive AI as most impactful in improving accountability and fraud detection within Ghanaian public universities. These findings underscore auditors' perception that AI's primary strength lies in its capacity to promote transparency, strengthen control mechanisms, and reduce opportunities for financial misconduct.

The reliability of these measures was confirmed using Cronbach's Alpha and CR, as can be seen in Table 3 above. For instance, the "Fraud Detection and Accuracy" factor showed a Cronbach's Alpha of 0.85 and a CR of 0.88. Similarly, "Timeliness and Early Detection" scored 0.81 (α) and 0.83 (CR), confirming that the survey instrument reliably captured auditors' perceptions.

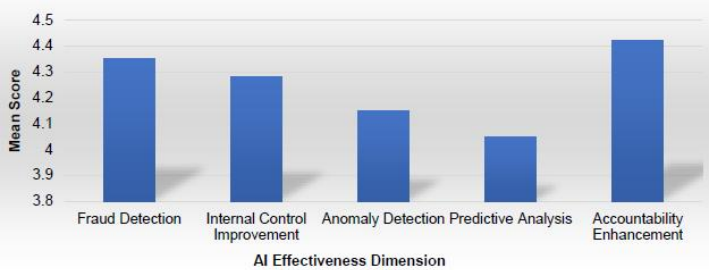

Figure 3. Mean scores of perceived AI effectiveness dimensions

Table 3. Reliability analysis (Cronbach's Alpha & CR)

Factor	Cronbach's Alpha (α)	CR
Fraud detection and accuracy	0.85	0.88
Timeliness and early detection	0.81	0.83
Internal controls and compliance	0.79	0.82
Risk assessment and resource allocation	0.83	0.85
Efficiency and predictive analytics	0.87	0.89

4.2 Qualitative Results

As shown in Table 4, to complement the quantitative findings, qualitative interviews were conducted with six internal audit directors from each of the selected six public universities in Ghana. The analyses explored their experiences and perceptions of AI's role in fraud detection and internal control enhancement. Four themes come into view from the analysis: (1) Intensified fraud detection effectiveness, (2) real-time monitoring and proactive controls, (3) enhanced fraud pattern recognition and forecasting, and (4) strategic audit planning and integration challenges.

Table 4. Summary of qualitative themes and representative respondent views

Major Theme	Key Insights/Summary	Representative Quote (Internal Audit Directors)	Respondent Code/Institution
Increased fraud detection efficiency	AI enhances the speed and accuracy of fraud detection, making audits proactive rather than reactive.	"AI adapts to new data and fraud schemes, making it more effective as schemes become sophisticated."	R1: UENR R2: UG
Real-time monitoring and proactive controls	AI reduces false positives and supports real-time intervention before losses occur.	"AI allows us to focus more on real issues as they arise in real time."	R3: UCC R4: UEW
Enhanced fraud pattern recognition and forecasting	AI identifies shattered transactions and recurring anomalies, supporting risk prioritisation.	"AI flagged repeated purchases kept below procurement thresholds, something AI spotted, not us."	R5: KNUST R6: GCTU
Strategic audit planning and combination challenges	Lack of training and poor IT-audit integration hinders optimal AI utilisation.	"We have tools, but very few know how to use them effectively."	R3: UCC R4: UEW

4.2.1 Increased fraud detection efficiency

The respondents consistently indicated that AI has enhanced the speed and accuracy of fraud detection. Internal audit directors from the University of Energy and Natural Resources and the University of Ghana stressed that AI's ability to examine enormous volumes of data in real time has changed fraud identification. The University of Ghana director of internal audit explained that "AI adapts to new data and fraud schemes, making it effective as schemes become complex." These illustrate how AI has altered internal auditing from a reactive to a proactive process.

4.2.2 Real-time monitoring and proactive controls

The participants illustrated how AI has improved preventive controls and decreased false positives. The Internal Audit director at the University of Cape Coast indicated that AI "allows us to focus on real issues as they arise in real time," while the University of Education, Winneba Internal Audit director stated that AI signals now permit preventive rather than corrective action. Together, these perceptions exhibit AI's role in enabling constant

oversight and timely decision-making.

4.2.3 Enhanced fraud pattern recognition and forecasting

The internal audit directors at KNUST and Ghana Communication Technology University stressed AI's foretelling and diagnostic capacity. AI tools have been used to identify divided procurement transactions and to identify departments with repeated abnormalities. These instances underscore AI's strategic significance in spotting fraud patterns and prioritising audit risks.

4.2.4 Strategic audit planning and integration challenges

While the efficacy of AI was unanimously recognised, respondents indicated weaknesses in system integration and user expertise. The University of Cape Coast's Internal Audit director indicated that "we have tools, but very limited knowledge to use them effectually," while the University of Education, Winneba Internal Audit director mentioned data flow difficulties due to poor connection between audit and IT departments. These limitations emphasize the need for staff training and better technological alignment to fully realise AI's potential.

In total, the qualitative findings strengthen the quantitative findings, depicting that AI is perceived as a game-changer tool for fraud detection and internal control improvement. Nonetheless, its triumph is dependent on institutional readiness, user competence, and system integration.

5. Discussion

The results from both the quantitative and qualitative analyses demonstrate that internal auditors in Ghanaian public universities perceive AI as a game-changing tool in fraud detection and internal control. While the quantitative data provided statistical confirmation of AI's perceived effectiveness, the qualitative interviews produced contextual depth by showing how AI enhances audit accuracy, enables real-time monitoring, and supports predictive risk management. The following discussion interprets these findings within the theoretical frameworks of the TAM and Agency Theory to explain how and why AI adoption strengthens accountability and internal audit effectiveness.

The findings indicate that respondents believe that AI is highly effective in detecting fraudulent activities and reinforcing internal controls within public universities in Ghana. AI's transformative role in financial governance is acknowledged by stakeholders, including internal auditors, finance officers, and administrative heads. This is particularly evident in AI's ability to process immense volumes of data in real time, detect evolving fraud patterns, and identify anomalies that may go unnoticed through traditional auditing methods. This represents a significant departure from the conventional approach, where fraud detection was largely reactive, often occurring after financial losses had been incurred.

Participants in the study expressed strong trust in AI's capacity to overcome the limitations of manual and traditional audit techniques. They viewed AI as a mechanism that improves the accuracy and reliability of fraud detection and enhances the integrity of internal control systems. This perception aligns with prior literature, such as Almgrashi et al. (2023), which highlights AI's potential to enhance risk detection and increase audit effectiveness. It also reinforces the PU construct of the TAM (Davis, 1989), which posits that individuals are more likely to adopt a technology if they believe it will improve their job performance. The high level of confidence expressed by auditors reflects a belief that AI provides tangible performance benefits, thereby strengthening their behavioural intention to adopt AI tools in their audit functions.

Another key point raised by respondents was the reduction of human error and the improvement in timely decision-making. Internal auditors emphasised that AI tools not only detect financial discrepancies but also support real-time reporting and auditing, allowing auditors to intervene promptly and prevent fraudulent acts before they escalate. This proactive and efficiency-oriented view resonates with TAM's perceived ease of use construct, which suggests that technologies that simplify work processes and reduce effort are more readily accepted by users. The auditors' emphasis on AI's ability to automate and streamline audit procedures underscores that ease of use enhances user satisfaction and reinforces continued utilisation intentions.

Additionally, respondents perceived AI tools as user-friendly and easily integrated into existing institutional systems. They noted that many of the tools in their universities do not require advanced technical knowledge to operate. This reinforces findings from other studies (Tetteh et al., 2022) showing a correlation between system usability and technology adoption in audit environments. However, despite this perceived ease of use, respondents also identified a training gap that limits optimal utilisation, an important insight that extends TAM by suggesting that user competence moderates the relationship between perceived ease of use and behavioural intention in resource-constrained settings such as Ghanaian public universities.

One of the most compelling insights drawn from the study is that respondents acknowledged AI's predictive capabilities and its ability to support early fraud detection. By analysing historical data and identifying risky patterns, AI tools help institutions mitigate financial and reputational losses. This predictive functionality underscores the strategic value of AI not only for operational efficiency but also for future risk management.

Studies by Abrokwah-Larbi & Awuku-Larbi (2024) and Karmańska (2022) echo this view, identifying predictive analytics as a game-changing component of AI-enabled audit systems. The auditors' perception that AI can foresee potential risks and trigger preventive interventions reinforces TAM's concept of PU, as it demonstrates how auditors associate AI with improved decision quality and strategic control.

Moreover, AI's continuous monitoring capabilities allow for faster response times and constant supervision, improving institutional control mechanisms. Participants in the qualitative interviews noted that their systems now send alerts in real time when suspicious transactions are detected, enhancing accountability and transparency and reinforcing regulatory compliance (Amoako et al., 2023; Tetteh et al., 2022). The real-time monitoring function also reduces reliance on periodic manual audits, which may be limited by staffing constraints or delays in data access (Budhwar et al., 2023). This directly connects with Agency Theory (Eisenhardt, 1989), which assumes that effective information systems reduce information asymmetry between agents (management) and principals (governing bodies). The deployment of AI creates audit trails and transparency mechanisms that help reconcile information gaps, thereby mitigating moral hazard and agency costs.

Finally, respondents highlighted that AI contributes to strengthening the overall internal control environment by enabling data-driven, self-correcting processes. These features ensure that audit activities align with financial regulations and that transparent audit trails are maintained. This finding supports Agency Theory's assertion that information transparency enhances accountability and reduces monitoring inefficiencies (Eisenhardt, 1989; Thottoli et al., 2022). Furthermore, the results extend the theory by demonstrating that AI acts as a digital governance mechanism, institutionalising transparency beyond traditional reporting cycles. In this way, the findings confirm that AI not only reduces information asymmetry but also transforms the auditor-management relationship into one based on continuous oversight and data-driven trust.

Taken together, these findings affirm that both the TAM and Agency Theory provide robust frameworks for understanding AI adoption within public-sector audit contexts. TAM helps explain the individual-level acceptance of AI, driven by PU and ease of use, while Agency Theory explains the organisational-level benefits of AI in reducing information gaps, enhancing accountability, and promoting ethical conduct. In the Ghanaian higher education setting, however, limited digital infrastructure and training constraints moderate these theoretical relationships, suggesting that institutional readiness is a key determinant of actual adoption. Thus, this study extends both theories by situating them within a developing-country context, illustrating that while technological acceptance and agency alignment are necessary, they are not sufficient without strategic institutional investment in AI capacity and governance frameworks.

6. Conclusions

This study concludes that AI is widely perceived by internal auditors in Ghanaian public universities as a highly effective tool for detecting fraudulent activities and enhancing internal controls. Both quantitative and qualitative findings demonstrate a clear consensus that AI transforms audit functions from traditional, reactive models to proactive, data-driven approaches.

The quantitative data revealed high agreement levels regarding AI's capacity to increase fraud detection accuracy, reduce false positives, enhance real-time monitoring, and improve internal control mechanisms. The qualitative findings further reinforced these results by demonstrating how AI has already improved internal audit operations in specific institutional settings. Internal auditors reported that AI facilitates early detection of anomalies, supports compliance monitoring, and improves resource allocation by identifying high-risk areas.

Overall, the findings point to a strong endorsement of AI's transformative potential in strengthening accountability and transparency in higher education governance. However, this potential is moderated by institutional challenges such as limited training, poor system integration, and underutilisation of advanced AI tools like generative AI. Addressing these constraints will be critical for sustaining AI-driven reform in the internal audit landscape of public universities.

7. Recommendation

The study's outcomes have important implications for policymakers, regulatory agencies, and university management in championing the adoption of AI within the internal audit functions of Ghanaian public universities. While AI tools are progressively emerging within some organisations, their capability remains underutilised because of inadequate technical capacity, divided data systems, and weak policy direction. Based on the findings of this study, practical recommendations are proposed to enhance the effectiveness of AI in detecting fraudulent activities and improving internal control systems in public universities in Ghana.

7.1 Professional Development and Capacity Building

It demands extensive training and capacity-building programs for internal auditors. Even though AI tools exist

in some institutions, poor user competence limits their effectiveness. Universities should thus schedule training sessions focusing on AI-driven fraud detection, anomaly tracking or detection, and compliance monitoring. These will also expose internal audit staff to emerging technologies such as machine learning algorithms and generative AI products (e.g., ChatGPT, Gemini) for the purposes of advancing investigation capability and digital readiness. Collaboration with the Internal Audit Agency, Ghana (IAA), and the Institute of Chartered Accountants, Ghana (ICAG), will ensure these are accredited and aligned with national competency frameworks.

7.2 Pilot AI Integration in High-Risk Areas

The Ghanaian public universities would need to pilot AI projects that allow audit departments to test the feasibility and value of AI in real-world conditions. Pilot projects could be data-intensive and high-risk activities such as payroll, procurement, and student admission, where deviations are likely to occur. Pilot project results will yield critical information regarding implementation problems and success factors, enabling larger institutional deployment, as well as internal "AI champions" who will enable adoption.

7.3 Policy and Regulatory Alignment

The Ghana Tertiary Education Commission (GTEC) and the ministry responsible for education, along with their corresponding regulatory bodies, must lead the incorporation of AI into internal audit activities with public universities in Ghana. This can be done by having a nationalised AI framework for use in public universities, setting bare minimum digital auditing standards, and issuing policy standards for AI governance and ethical application.

7.4 Phased Implementation Strategy

To warrant an organised and balanced transition, AI usage in public universities should make use of this three-phase strategy:

Phase 1: Undertaking institutional digital assessments, raising awareness among internal audit teams, and identifying potential pilot areas.

Phase 2: Insert AI applications into core audit processes, steered by pilot outcomes and resource availability.

Phase 3: Establish lasting audit analytics units, conduct periodic performance reviews, and promote knowledge sharing across universities.

Jointly, these methods would enhance accountability, reinforce audit efficiency, and quicken the digital transformation of Ghana's public university system through accountable AI adoption.

8. Limitations

Although this study offers valuable insights into the perception and application of AI in internal audit functions within Ghanaian public universities.

Firstly, the study relied heavily on self-reported data from internal auditors through questionnaires and interviews. This introduces the possibility of social desirability bias, where respondents may have overstated their understanding or use of AI tools to align with perceived professional expectations. Consequently, the responses may not fully reflect the actual implementation or effectiveness of AI systems in practice.

Secondly, the research focused exclusively on internal auditors, without incorporating perspectives from other key stakeholders such as IT personnel, external auditors, finance officers, or university administrators. These groups could offer additional insights into the institutional, technical, and managerial dimensions of AI adoption. Their exclusion limits the study's scope to the perceptions of a single professional group, which, while valuable, may not capture the full range of institutional experiences with AI.

Thirdly, the study was conducted in only six public universities, selected for their strategic relevance and representation. However, given the diversity of institutional contexts across Ghana's higher education system, the findings may not be fully generalisable to all public universities, especially those with different governance structures, funding capacities, or technological readiness.

In light of these limitations, future research should consider a broader multi-stakeholder approach, a wider institutional sample, and a detailed technical audit of AI tools and infrastructure to provide a more comprehensive understanding of AI's role in public sector auditing.

Data Availability

The data used to support the research findings are available from the corresponding author upon request.

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The research proposal and questionnaires were submitted to the University of KwaZulu-Natal Research Ethics Committee, which awarded an ethical clearance certificate to conduct the study.

Conflicts of Interest

The authors declare no conflict of interest.

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