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PhD. RESEARCH WORK

Impact of artificial intelligence on internal audit functions in Ghanaian public universities: Perceptions, limitations, and future directions.

By

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(224 193 361)

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AI Declaration

a) I did not use generative AI in this dissertation/thesis.

Signed: 

Jonathan Casely Wiredu, (224 193 361)

Dedication

My PhD thesis is dedicated to my father, Retired Superintendent Kingsley Wiredu, whose words of encouragement, insistence on perseverance and inspiration to strive for a better education still resonate in my mind. I am especially grateful to my loving wife, Mrs Ewurama Gyamfua Genfi-Wiredu, who encouraged me to unleash my greatest potential and always saw the best in all my aspirations. I cherish both of you.

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Abstract

Recently, the incorporation of Artificial Intelligence (AI) into organisational processes has gained significant global momentum, particularly in improving efficiency, accuracy, and accountability in internal auditing. However, the incorporation of AI in Ghanaian public universities remains restricted due to the lack of sufficient research on its practical applications and associated ethical concerns, as well as numerous contextual challenges. This study examines the impact of AI on internal audit functions in public universities in Ghana, focusing on the perceptions of internal auditors, the limitations of current practices, and the potential for future integration of AI. The methodology employs a mixed-methods approach, integrating both quantitative and qualitative strategies. The data were exclusively collected from internal auditors, thereby guaranteeing that the insights were focused on audit-specific experiences and perceptions. Questionnaires were distributed to 177 internal auditors for the quantitative phase. A total of approximately 176 completed questionnaires were returned, providing a valid sample for analysis. Semi-structured interviews were conducted with six internal auditors during the qualitative phase to gain a deeper understanding of the practical challenges and implications of AI adoption. The results show that internal auditors at public universities in Ghana perceive AI as a valuable tool for enhancing internal controls, detecting fraud, and ensuring accountability. Respondents recognised AI's capacity to enhance audit accuracy, detect anomalies in real-time, and automate duties, thereby promoting a proactive auditing culture. AI was perceived as particularly effective in detecting fraud and reinforcing internal controls through continuous monitoring and predictive analytics. However, auditors face a variety of obstacles, such as inadequate training opportunities, poor management support, fragmented data systems, and a lack of technical expertise. Moreover, the smooth integration is hindered by a lack of collaboration between the audit and IT departments. Although generative AI tools such as Gemini and ChatGPT were praised, they are still underutilised due to inadequate training and exposure. The results emphasise the necessity of cross-departmental collaboration, leadership commitment, and capacity building to optimise the advantages of AI. Based on these results, it is recommended that public universities invest in regular training focused on AI for auditors. Additionally, there should be enhanced leadership support for AI initiatives, the establishment of centralised data systems, and improved collaboration between audit and IT departments to ensure the successful integration of AI.

Keywords: Artificial Intelligence, Internal Auditing, Accountability, Public Universities, Fraud Detection.

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CHAPTER ONE
INTRODUCTION

1.1 Background of the Study

Artificial Intelligence (AI) has become one of the most transformative technological innovations that is shaping organisational and institutional operations at the present time in the world. AI is used as a shorthand for the simulation of human intelligence in machines that involves the use of advanced technologies, including machine learning, neural networks, natural language processing and predictive analytics (Abdullah & Almaqtari, 2024; Berdiyeva et al., 2021). These technologies are making it possible for machines to carry out complex cognitive tasks such as learning, decision-making, pattern-recognition, and problem-solving with minimal human intervention. Since the conceptual evolution of AI in the mid-twentieth century, the technology has made significant progress from utilising rule-based computational algorithms to advanced autonomous systems that can analyse large datasets and help with strategic decision-making (Wassie & Lakatos, 2024). The global diffusion of AI is widely attributed to the Fourth Industrial Revolution, which is continuing to redefine professional practices, organisational governance and accountability mechanisms within both private and public sector institutions (Agba et al., 2023; Abdullah & Almaqtari, 2024).

Globally, AI has led to operating efficiency, accuracy and innovation in sectors including finance, healthcare, manufacturing and public administration (Karikari Appiah et al, 2023; Thethi, 2024). In manufacturing industries, AI is used to improve predictive maintenance, production optimisation and quality control. In healthcare, AI aids in clinical decision-making, diagnostics of illnesses, and personalised treatment planning, which leads to improved outcomes for the patient (Thethi, 2024). Similarly, in the field of financial systems, AI technologies are being used to enable fraud detection, risk assessment, and real-time monitoring of financial transactions (Ngai et al., 2011; Almaqtari et al., 2024). Within the context of developing economies, the adoption of AI is increasingly recognised as a strategic tool for improving organisational transparency and accountability, especially in public institutions where governance and financial management play a crucial role (Agba et al., 2023; Abdullah & Almaqtari, 2024). However, in spite of the global advancements, the contextual realities of AI implementation are quite diverse in the institutional environments, especially in developing countries like Ghana, where technological capacity, regulatory frameworks and organisational readiness are still evolving (Doe-Dartey & Valand, 2024).

The evolution of AI can be seen as a shift from the early computational systems to levels of intelligent analytical platforms that can support organisational decision-making. Early AI applications were primarily based on rule-based algorithms that were designed to perform predefined logical operations, and these applications were often dependent on extensive human supervision and manual adjustment (Tetteh et al., 2022). The development of machine learning and neural network technologies revolutionised AI systems by allowing them to both learn automatically from data and to continuously improve their performance (Amonkwandoh, 2021). This transformation had a major impact on organisational efficiency across a number of sectors. For example, AI-powered diagnostic technologies in medical sciences show the same level of analytical accuracy as medical experts, while AI-powered financial institutions support the identification of fraudulent transactions via real-time surveillance and predictive analytics (Ngai et al., 2011; Almaqtari et al., 2024). These technological advancements prove the ability of AI to bolster organisational performance and minimise operational costs while improving the accuracy of decision-making in institutional environments.

Internal audit functions play a critical role in promoting organisational accountability, regulatory compliance, risk management and financial transparency. Internal audit gives assurance that organisational operations comply with set frameworks of governance and financial regulations (Owusu-Afriyie et al., 2024; Nerantzidis et al., 2022). Traditionally, the internal audit process had relied much on the professional judgement of the auditors, the use of manual documentation and retroactive financial review systems (Doe-Dartey & Valand, 2024). The introduction of computerised accounting systems and electronic auditing tools enhanced the ability of auditors to analyse huge datasets, detect anomalies and efficiently monitor financial transactions (Angmor & Diaboh, 2022; Thottoli & Ahmed, 2022). These technological developments formed the base of modern auditing practices by improving the accuracy and efficiency of auditing in organisational systems.

Despite the technological improvements, the conventional practices of internal auditing still face severe operational challenges. Some of these challenges are human errors, limitations in analysing large volumes of transactional data, and difficulty in detecting complex fraud patterns in a dynamic organisational environment (Almaqtari et al., 2024; Wassie & Lakatos, 2024). In the case of public sector institutions such as universities, these issues are especially important since internal auditing has direct implications on financial accountability,

governance effectiveness and public trust (Doe-Dartey & Valand, 2024; Ataribanam, 2024). The growing complexity of financial management systems in public universities in Ghana further underscores the need for innovative technological solutions to enhance audit efficiency and institutional governance frameworks (Akuamoah Asiedu, 2023).

The history of internal auditing is thus an unceasing adaptation to technological innovations and organisational complexity. Early internal auditing mainly concentrated on confirming the financial accuracy and complying with the regulatory requirements using manual verification processes (Zemankova, 2019). The introduction of computer-assisted auditing tools in the late twentieth century was an important transformation, as it enabled auditors to handle large amounts of data and identify risks in the operation better (Zhou, 2021; Doe-Dartey & Valand, 2024). However, despite these improvements, traditional auditing approaches still suffer from heavy dependence on human judgement, as well as low scalability, especially in large and complex organisational environments such as public universities (Zemankova, 2019; Nerantzidis et al., 2022). Consequently, emerging technologies such as AI are becoming increasingly recognised as a strategic tool that can overcome these limitations and transform audit functions.

The incorporation of AI into internal auditing is gaining attention, especially in the global arena, because it can enhance the efficiency of auditing as well as the capacity to process data and to detect fraud. AI technologies have made it possible for auditors to automate repetitive audit tasks, analyse complex datasets and identify irregularities with higher accuracy (Abdullah & Almaqtari, 2024; Wassie & Lakatos, 2024). By automating routine auditing processes, AI enables auditors to concentrate on strategic activities, such as risk evaluation, governance advisory services, and performance assessment (Ganapathy, 2023). However, integration of AI in auditing functions is still dependent on different perceptions of stakeholders. While some professionals view AI as a tool to improve the quality of audits and make institutions more transparent, others have expressed concerns about algorithmic bias, data privacy risks, and potential job displacement in the auditing profession (Yebi & Cudjoe, 2022; Qadir et al., 2022). These perceptions play an important role in affecting AI adoption and implementation in auditing practices.

AI integration is also changing the way auditing processes work, adding real-time monitoring and predictive analytics functionality. Unlike traditional audit processes, which are based on a

periodic financial review, AI-driven audit systems continually monitor financial transactions, flagging anomalies and identifying warning signals for possible governance risks (Wassie & Lakatos, 2024; Abdullah & Almaqtari, 2024). This proactive approach to auditing increases organisational accountability and minimises financial misstatement. However, concerns exist about the transparency and explainability of the audit decision made by AI, especially in public sector institutions where accountability requirements are high (Yasmin & Haniffa, 2017; Qadir et al., 2022). In addition, AI implementation requires substantial financial investment, advanced technological infrastructure, and skilled personnel, which can be significant challenges for resource-constrained public institutions (Vu, 2016; Mensah & Nyante, 2023).

The use of AI in internal auditing also raises technical, ethical and regulatory issues that need to be addressed by organisations. Technical challenges include high costs of implementation, integration challenges with existing information systems, and data quality management requirements (Goto, 2022; Wassie & Lakatos, 2024). Ethical issues surrounding algorithmic bias, data privacy, and cybersecurity threats also have important governance implications for auditing practices (Qadir et al., 2022). These challenges are especially pertinent in the public institutions like the Ghanaian universities where issues of transparency, accountability and efficient resource utilisation are fundamental governance priorities (Bingab et al., 2018; Ataribanam, 2024). Tackling these challenges involves institutional commitment to capacity development, regulatory policy reforms, and investment in advanced technological infrastructure.

Furthermore, the adoption of AI is affecting the nature of professional competencies needed for the internal auditing profession. Contemporary auditors shall need to have advanced technological competencies such as data analytics, knowledge on AI systems and how to manage them, as well as digital auditing resources alongside traditional auditing knowledge (Jackson et al., 2023; Abdullah & Almaqtari, 2024). The automation of regular auditing tasks has changed the patterns of employment in the auditing profession, with the demand for specialisation such as audit data scientists and AI risk analysts (Bananuka et al., 2018; Plant et al., 2019). Consequently, educational institutions and professional accounting bodies have to update their training curriculum in order to equip auditors with the competencies needed for technology-driven auditing environments (Bates et al., 2020).

In Ghana, public universities are operating within complex governance systems which are characterised by financial accountability requirements, bureaucratic administrative structures and limited resource capacity (Bingab et al., 2018; Akuamoah Asiedu, 2023). Internal auditing in these institutions has an important role in ensuring transparency in the financial management process, procurement processes and the performance of institutional governance (Anin et al., 2024; Ataribanam, 2024). However, the traditional auditing approaches in Ghanaian public universities are frequently associated with operational inefficiencies, which have been attributed to weak technological infrastructure, poor audit staffing, and growing financial reporting complexities (Mensah & Nyante, 2023; Doe-Dartey & Valand, 2024).

The potential integration of Artificial Intelligence in internal auditing in the Ghanaian public universities is an opportunity that can lead to improved audit efficiency, improved fraud detection, and improved governance transparency. AI technologies can automate repetitive procedures in the audit process, enhance financial monitoring systems, and aid decision-making processes in real time across university management systems (Noordin et al., 2022; Abdullah & Almaqtari, 2024). However, successful AI implementation within Ghanaian universities necessitates the institutional challenges such as technological infrastructure limitations, resistance to organisational change and stakeholder concerns regarding data security and employment implications (Mensah & Nyante, 2023; Angmor & Diaboh, 2022). Addressing these challenges calls for coordinated institutional reforms, stakeholder engagement strategies, and targeted technological investments to support AI adoption in internal audit functions.

Given the importance of technological innovation in building institutional governance, this study analyzes perceived influence of AI on IA functions in Ghanaian public universities. The purpose of the study is to provide empirical insights into the stakeholders' perception, implementation, limiting factors and future opportunities for AI adoption in internal auditing. The findings are expected to feed into policy development, institutional governance reforms and professional auditing practice improvements in the higher education sector in Ghana.

1.2 Problem Statement

The adoption of AI within internal auditing in Ghanaian public universities has received growing scholarly and professional attention; however, empirical and theoretical investigations into its implementation, limitations, and governance implications remain significantly

underdeveloped. AI technologies possess the potential to improve audit efficiency, risk identification, and fraud detection through advanced data analytics and automation capabilities (Karmańska, 2022; Bakalikwira et al., 2017; Abdullah & Almaqtari, 2024). From a Technology Acceptance Model perspective, the adoption of AI is influenced by perceived usefulness and ease of use, which determine stakeholders' willingness to integrate emerging technologies into auditing processes (Davis, 1989; Damerji & Salimi, 2021). Similarly, Diffusion of Innovation (DOI) theory suggests that organisational adoption of AI is shaped by institutional readiness, compatibility with existing systems, and perceived relative advantage (Ceki & Moloi, 2024). Despite these theoretical insights, existing research predominantly focuses on developed economies, limiting understanding of how contextual factors such as technological infrastructure, institutional governance structures, and regulatory frameworks influence AI adoption in developing country public universities. For instance, studies such as Owusu-Afriyie et al. (2024) and Fotoh and Lorentzon (2023) examine AI-enabled auditing improvements largely within advanced institutional environments, overlooking structural constraints faced by Ghanaian public universities, where financial management systems, technological readiness, and organisational cultures significantly shape audit outcomes.

A major research concern relates to the limited scholarly examination of ethical and governance risks associated with AI-driven auditing. Although contemporary research highlights AI's benefits in improving efficiency, cost reduction, and operational effectiveness (Tetteh et al., 2022; Almaqtari et al., 2024; Wassie & Lakatos, 2024), theoretical accountability frameworks emphasise the importance of transparency, fairness, and stakeholder trust in public sector governance (Yasmin & Haniffa, 2017; Qadir et al., 2022). Agency theory suggests that internal auditing functions are critical mechanisms for mitigating information asymmetry and ensuring accountability between management and stakeholders (Barney, 1991; Nerantzidis et al., 2022). However, AI adoption introduces new ethical risks, including algorithmic bias, data privacy breaches, and reduced transparency in automated decision-making processes (Noordin et al., 2022; Ganapathy, 2023). Within public universities, which manage highly sensitive financial, academic, and institutional data, these ethical risks may compromise audit credibility and weaken institutional trust if AI systems generate biased or unreliable audit outcomes. Furthermore, human-centred AI governance frameworks emphasise the necessity of aligning AI technologies with ethical auditing principles, yet empirical investigations into how these

ethical risks influence audit integrity within Ghanaian higher education institutions remain extremely limited (Qadir et al., 2022; Abdullah & Almaqtari, 2024).

Accountability within Ghanaian public universities remains a persistent governance challenge that further justifies the need for this study. Public sector accountability frameworks emphasise internal auditing as a critical oversight mechanism for ensuring responsible financial management, transparency, and compliance with statutory regulations (Bonsu et al., 2022; Ataribanam, 2024). However, despite the increasing recognition of accountability as a cornerstone of public resource management, the influence of AI technologies on accountability systems within Ghanaian public universities remains insufficiently explored. The Auditor-General's report on public institutions continues to highlight financial irregularities, including unauthorised expenditures, procurement inefficiencies, and revenue leakages across public universities (Akuamoah Asiedu, 2023). These findings demonstrate structural weaknesses in existing audit systems and underscore the need for innovative technological interventions to strengthen oversight mechanisms. From an institutional governance perspective, AI may enhance accountability by enabling real-time monitoring, predictive risk analysis, and automated compliance verification (Wassie & Lakatos, 2024; Abdullah & Almaqtari, 2024). However, without empirical examination of AI's role in strengthening or undermining accountability frameworks, policymakers and institutional managers lack sufficient evidence to guide AI integration within Ghana's higher education governance systems.

Furthermore, existing literature highlights the absence of comprehensive theoretical and operational frameworks guiding AI integration into internal audit functions within public sector institutions. While global research acknowledges AI as a transformative auditing tool, structured implementation models tailored to developing institutional environments remain limited (Wassie & Lakatos, 2024; Indrayani et al., 2024). Resource-Based View theory suggests that organisations require adequate technological infrastructure, human capital, and organisational competencies to effectively implement advanced technological systems such as AI (Barney, 1991; Jackson et al., 2023). However, empirical evidence indicates that many internal auditors lack adequate technological competencies and AI literacy, thereby limiting effective AI adoption in auditing practices (Alina et al., 2018; Plant et al., 2019). Additionally, global AI adoption in auditing remains uneven, with research predominantly concentrated in technologically advanced countries such as Australia, China, and Middle Eastern economies

(Angmor & Diaboh, 2022; Amonkwandoh, 2021). This geographical imbalance highlights the urgent need for context-specific empirical investigations focusing on Africa and Ghana, where institutional constraints, resource limitations, and governance complexities create unique adoption challenges.

Given these gaps, there is a critical need to systematically evaluate the perceived impact of AI on internal auditing within Ghanaian public universities. This study sought to examine stakeholder perceptions of AI integration, identify organisational and technological barriers influencing AI adoption, and develop contextually relevant frameworks for effective AI implementation in internal audit functions. By addressing these research gaps, the study contributes to theoretical advancement in technology adoption and governance accountability scholarship while providing practical policy recommendations aimed at strengthening transparency, accountability, and financial governance within Ghana's higher education sector. The findings are expected to support institutional decision-making, enhance audit effectiveness, and inform national policy frameworks governing AI adoption in public sector auditing environments.

1.3 Research Aim

The primary objective of this study is to examine internal auditors' perceptions of the effectiveness and limitations of artificial intelligence in internal audit functions, specifically in promoting accountability within public universities in Ghana.

1.4 Research Objectives

1. To examine the perceptions of the usage of AI in internal audit functions to ensure accountability in public universities in Ghana.
2. To evaluate the perception of the effectiveness of AI in detecting fraudulent activities and improving internal controls in public universities in Ghana.
3. To identify the challenges perceived by internal auditors in using AI in the internal audit function in public universities in Ghana.

1.5 Research Questions

1. What are the perceptions of using AI in internal audit functions to ensure accountability in public universities in Ghana?

2. How effective is AI perceived to be in detecting fraudulent activities and improving internal controls in public universities in Ghana?
3. What challenges do internal auditors perceive in using AI in the internal audit function in public universities in Ghana?

1.6 Significance of the Study

This study is crucial for public universities in Ghana, particularly in light of the transition towards risk-based audits and data-driven internal audit practices that leverage AI capabilities. Upon reviewing the existing literature, a notable gap is identified in the research exploring the implementation of AI in internal audit functions, particularly in developing countries such as Ghana, and especially within the public sector. Conducting this study helps to fill this gap and offers important insights that are relevant to the Ghanaian context. The practices of internal audits are constantly evolving as they become increasingly data-driven. The emergence of AI represents a significant shift, particularly as there has been a shift towards Risk-based audits from traditional audits. This research guides Ghanaian universities in adapting their internal audit processes for the future and embracing the use of AI.

Public universities in Ghana are facing heightened scrutiny concerning financial accountability. This concern is reflected in the advocacy of Rockson-Nelson Dafeamekpor, the Member of Parliament for South Dayi and a member of Ghana's Public Accounts Committee. He has called for the prosecution of leaders of public institutions, particularly university administrators, for financial misconduct (Fugu, 2023). This study provides concrete steps for universities to demonstrate their commitment to transparency through the strategic use of AI in internal audits.

By exploring how AI empower internal audits, the study reveals ways to improve the detection and prevention of financial mismanagement, leading to the more responsible use of public funds allocated to universities in Ghana. AI analyse vast amounts of data to identify potential risks more effectively. This study demonstrates how AI is utilised to develop a more proactive risk management approach in Ghanaian universities. AI-powered tools automate repetitive tasks such as data analysis and anomaly detection. This allows internal auditors to dedicate more time to strategic analysis and in-depth investigations. AI goes beyond simple data analysis to identify complex relationships and patterns. The study demonstrates how internal auditors leverage AI to gain a richer understanding of university finances and operations.

The research contributes to the academic literature by expanding the understanding of the role of AI in internal audit functions, particularly within the context of public universities in Ghana. This text offers insights into the dynamics of technology adoption, organisational change, and governance mechanisms. It enriches academic discussions in auditing, accounting, and information technology, while also serving as a valuable resource for educational institutions that provide programs in auditing, accounting, and business administration. They are integrated into curriculum development to ensure future auditors possess current knowledge and skills that align with the evolving landscape of internal audit practices.

1.7 Scope of the Study

This study focuses specifically on selected public universities in Ghana, examining internal audit functions and the extent to which AI technologies are incorporated into audit processes within these institutions. The research investigates how public universities, which operate under strict public financial management regulations and accountability frameworks, utilise AI to enhance internal audit efficiency, fraud detection, and internal control effectiveness. The study gathers data from internal auditors working within Ghanaian public universities using surveys and interviews to explore their perceptions regarding AI usage, effectiveness, limitations, and prospects within internal audit functions. The study deliberately restricts its analysis to the Ghanaian public university sector due to its unique governance structures, statutory accountability requirements, and public funding obligations, which differ significantly from private universities and other public sector institutions. Consequently, the findings of this study are intended to reflect the institutional, regulatory, and technological realities of public higher education institutions in Ghana and should be interpreted within this specific contextual setting.

The decision to concentrate exclusively on public universities is justified by the critical accountability demands placed on these institutions regarding public resource utilisation, procurement transparency, and compliance with national financial regulations. Public universities operate under government oversight and are subject to frequent external audit scrutiny, making internal auditing functions particularly essential for institutional governance and financial accountability. However, this study acknowledges that excluding private universities and other public sector organisations limits the generalisability of its findings beyond the Ghanaian public university context. Private universities often operate under

different governance structures, funding mechanisms, and technological investment capacities, which may influence AI adoption differently. Additionally, variations in technological infrastructure, organisational culture, and regulatory enforcement across institutions may affect AI integration outcomes. Therefore, the findings of this study are not intended to represent the experiences of all higher education institutions or public sector organisations but rather to provide context-specific insights that may inform future comparative studies and policy development within similar institutional environments. These boundary conditions ensure that the study maintains analytical depth while recognising contextual limitations and potential variations across organisational settings.

1.8 Definition of Key Terms

Artificial Intelligence

Artificial Intelligence refers to computer-based systems and technologies that simulate human cognitive functions such as learning, reasoning, data analysis, and decision-making. In this study, AI specifically refers to machine learning algorithms, data analytics tools, and automated audit technologies used to support internal audit processes in Ghanaian public universities.

Internal Audit Function

The internal audit function refers to an independent, objective assurance and consulting activity designed to improve organisational operations by evaluating risk management, internal controls, and governance processes. In this study, the term refers to internal audit departments operating within Ghanaian public universities responsible for ensuring financial accountability, compliance, and institutional governance.

Accountability

Accountability refers to the obligation of public institutions to demonstrate transparency, responsibility, and proper use of financial and operational resources in accordance with regulatory and governance standards. Within this study, accountability relates to how internal audit functions ensure responsible financial management and compliance within public universities in Ghana.

Fraud Detection

Fraud detection refers to the processes, tools, and techniques used to identify financial irregularities, misstatements, or unlawful financial activities within an organisation. In this

study, fraud detection refers to the use of AI-supported audit technologies to identify fraudulent transactions and financial misconduct in Ghanaian public universities.

Internal Control Systems

Internal control systems refer to organisational policies, procedures, and monitoring mechanisms designed to safeguard assets, ensure accuracy of financial records, and promote operational efficiency. In this study, internal control systems relate to governance and financial monitoring frameworks supported by AI technologies within university audit environments.

Perception

Perception refers to internal auditors' beliefs, opinions, and interpretations regarding the usefulness, effectiveness, and limitations of Artificial Intelligence in internal audit functions. This study focuses on auditors' subjective evaluation of AI rather than measuring objective audit performance outcomes.

Effectiveness of Artificial Intelligence

The effectiveness of Artificial Intelligence refers to the extent to which AI technologies improve audit quality, enhance fraud detection, strengthen internal controls, and support accountability mechanisms within internal audit functions in public universities.

Public Universities in Ghana

Public universities in Ghana refer to government-funded tertiary institutions established under national legislation and supervised by regulatory bodies responsible for higher education governance. In this study, the term specifically refers to selected public universities where internal audit units operate under public financial management and accountability regulations.

AI Adoption

AI adoption refers to the process through which internal audit units accept, implement, and utilise Artificial Intelligence technologies in audit operations. This includes technological integration, auditor readiness, and organisational acceptance of AI-supported audit practices.

Governance

Governance refers to systems, policies, and institutional structures that guide organisational accountability, transparency, and ethical decision-making. In this study, governance focuses

on how AI integration influences financial oversight and management accountability in public universities.

1.9 Assumptions of the Study

This study assumes that the internal auditors deployed in the public universities in Ghana have sufficient professional knowledge, experiential auditing skills and are familiar with the internal control and internal governance procedures to be able to give informed perception as to the adoption and use of AI technologies in the internal audit functions. The above study makes an additional assumption that survey participants will give truthful, unbiased and reliable responses based on their professional experiences and organisational exposure to auditing practices. This assumption is very important as studies using perception are based on respondents to critically assess technological effectiveness and organisational implementation processes. Additionally, the study assumes that AI technologies are either currently utilised or sufficiently recognised within audit environments to allow internal auditors to assess their potential effectiveness, limitations and governance implications. This assumption is supported by the rising number of evidence that the adoption of AI is increasingly impacting the practice of auditing worldwide, and in this regard, auditors need to develop technological awareness and data analytical competencies (Abdullah & Almaqtari, 2024; Wassie & Lakatos, 2024; Jackson et al., 2023).

The study also considers that the Ghanaian public universities are operated under relatively similar regulatory, financial management, and accountability frameworks guided by the national public sector governance policies; hence, the findings can provide meaningful insights across selected institutions. Furthermore, the research design used, i.e., the combination of quantitative survey data and qualitative interview responses, is considered to have a comprehensive research approach to examining internal auditors' perceptions and the validity of the research is increased through methodological triangulation (Bryman, 2017; Creswell, 2013). It is also assumed that organisational factors such as technological infrastructure, institutional culture, and resource capacity influence the adoption of AI but do not prevent auditors from having informed perceptions about the effectiveness of AI. These assumptions are in line with studies emphasising the criticality of technological readiness and organisational support as determinants of successful AI integration in audit and governance environments (Ceki & Moloi, 2024; Damerji & Salimi, 2021).

1.10 Organisation of the Study

The structure of this thesis is organised into seven comprehensive chapters that systematically explore the study. Chapter one introduces the research by providing background, context, and significance of assessing the impact of Artificial Intelligence (AI) on the effectiveness of internal audit functions in public universities in Ghana. This chapter outlines the problem statement, which identifies the core challenges related to accountability within public universities and the role AI plays in addressing these issues. It also presents the research objectives guiding the investigation. It emphasises the study's significance by discussing its contributions to academic knowledge, practical implications for public university governance, and relevance in enhancing accountability mechanisms.

Chapter Two focuses on the theoretical literature review, examining foundational theories and concepts related to AI applications in auditing, accountability frameworks, and the role of internal audit functions in public institutions. This chapter also discusses the technological, operational, and ethical considerations of integrating AI into audit processes. It provides a theoretical context for understanding the transformative potential of AI in ensuring accountability.

Chapter Three presents a review of empirical literature that synthesises previous studies exploring the adoption of AI in auditing and its effectiveness in enhancing accountability, transparency, and compliance within public sector institutions. The chapter identifies gaps in the existing literature, justifying the need for this study by highlighting the limited research on AI's role in internal audit functions within the context of public universities in Ghana.

Chapter Four details the research design and methodology, outlining the approaches used to collect and analyse data. This includes the sampling techniques, data collection tools, and analytical methods employed to evaluate perceptions of AI adoption, its limitations, and its potential for improving audit effectiveness. The chapter also discusses the research philosophy, ethical considerations, and challenges encountered during the research process.

Chapter Five presents the analysis of the data, employing robust analytical techniques to examine the impact of AI on internal audit functions in public universities. This chapter evaluates the effectiveness of AI in enhancing accountability, identifies operational challenges

and limitations, and explores the perceptions of key stakeholders, including auditors and administrators, regarding the role of AI in internal auditing.

Chapters Six and Seven discuss the findings of existing literature, offering a deeper understanding of how AI adoption transforms internal audit processes and its implications for governance in public universities. The chapter explores the practical and policy implications of the findings, addressing how public universities in Ghana overcome challenges to maximise the benefits of AI in auditing while ensuring ethical and practical implementation.

Finally, Chapter Eight concludes the thesis by summarising the key findings and discussing the limitations of the study. It offers recommendations for future research and policy directions, focusing on strategies to enhance the integration of AI into internal audit functions, thereby promoting accountability and transparency in public universities in Ghana.

1.11 Chapter Conclusion

The context, significance, and objectives of assessing the impact of artificial intelligence (AI) on internal audit functions in public universities in Ghana have been presented in this chapter, thereby establishing a solid foundation for the study. It emphasised the essential role of AI in addressing accountability issues by enhancing the effectiveness, precision, and transparency of auditing processes. The chapter highlighted the significance of this research by addressing the ongoing gaps in current literature, particularly regarding the unique challenges that public universities in developing countries face. The chapter establishes the foundation for a thorough examination of the potential of AI to revolutionise internal audit practices by identifying the problem statement, research questions, and objectives. Additionally, it identifies the ethical, operational, and contextual obstacles that may impede its successful integration.

Additionally, the chapter establishes the study's scope and organisation, guaranteeing a methodical approach to the research problem. It proposes AI as a potential solution to enhance accountability mechanisms while acknowledging the sector's unique governance and financial constraints, with a focus on public universities. Beyond theoretical contributions, the study's significance is discussed in terms of its practical implications for enhancing internal audit practices and promoting transparency in Ghanaian public universities. Therefore, this chapter provides a well-defined framework for the subsequent chapters, which delve further into the

theoretical foundations, empirical insights, and methodological approaches to investigate the transformative potential of AI in internal audit functions.

CHAPTER TWO
THEORETICAL LITERATURE REVIEW

2.1 Introduction

This chapter presents a theoretical literature review on the role of Artificial Intelligence (AI) in internal auditing, with a specific focus on its application in public universities in Ghana. The ability of AI to enhance internal auditing functions, especially in assuring accountability, detecting fraud, and improving internal controls, has garnered significant attention across various industries. This review examines the effectiveness of AI in improving audit processes and the perception of AI among internal auditors, drawing on existing theories such as the Technology Acceptance Model and Agency Theory. Furthermore, it pinpoints the obstacles auditors encounter when implementing AI technologies and recommends methods for surmounting them. This chapter aimed to establish a theoretical framework for understanding how AI is utilised to enhance the quality and accountability of audits in public universities by synthesising relevant literature on AI adoption in internal auditing.

2.2 Theoretical Framework for Internal Auditing and AI Implementation

This section provides a theoretical framework for comprehending the adoption and implementation of Artificial Intelligence (AI) in internal auditing at public universities in Ghana. The framework is based on fundamental theories that explain how AI tools enhance accountability, improve auditing functions, and address challenges in the adoption process. The Technology Acceptance Model (TAM) explores how internal auditors' perceptions of AI's ease of use and usefulness affect their willingness to adopt AI in their auditing processes. The diffusion of innovation (DOI) theory examines the diffusion of AI as an innovation within public universities, considering factors such as its relative advantage and compatibility with existing practices. Agency Theory emphasises the potential of AI to mitigate the information asymmetry between auditors and management, thereby fostering increased transparency and accountability. Lastly, the Resource-Based View (RBV) establishes AI as a valuable organisational resource, providing a competitive edge in areas such as internal control, fraud detection, and overall governance in public universities.

2.2.1 Technology Acceptance Model (TAM)

The Technology Acceptance Model (TAM), proposed by Davis (1989), is a theoretical framework highly regarded for understanding the adoption and utilisation of technology. An individual's intention to use technology is significantly influenced by the perceived ease of use (PEOU) and perceived utility (PU) of the technology, which in turn impacts actual utilisation behaviour (Amoako et al., 2023) Research has demonstrated that TAM is a suitable paradigm for analysing AI adoption in internal auditing, as it effectively explains users' embrace of technology in a variety of contexts, such as healthcare, education, and finance (Karikari Appiah et al., 2023; Tetteh et al., 2022).

Perceived simplicity of use is the extent to which an individual believes that utilising a specific system is effortless (Hazaea et al., 2021). PEOU is essential for internal auditors as it influences their readiness to utilise AI tools. Auditors are more inclined to employ AI tools if they find them user-friendly and straightforward to integrate into their current workflows. The quality of user interfaces, the design of AI tools, and the availability of training and support all contribute to this simplicity of use. The learning curve for auditors is substantially reduced by a well-designed AI tool that features intuitive navigation and plain instructions. Moreover, auditors improve their overall experience by overcoming initial apprehensions and technical challenges through continuous support and training (Owusu-Afriyie et al., 2024).

On the other hand, perceived efficacy is the extent to which an individual believes that employing a specific system improves their job performance (Anin et al., 2024). PU is a critical factor for internal auditors, as it directly impacts the efficacy and effectiveness of the auditing process. The auditing process has been significantly enhanced by AI tools that automate routine tasks, identify anomalies, and generate insights from data. When auditors perceive that AI tools help them perform their duties more accurately and efficiently, they are more likely to adopt these technologies (Hazaea et al., 2021). Users are predominantly motivated by the tangible benefits that technology provides to their work, which is why empirical studies have consistently demonstrated that PU is a strong predictor of technology adoption (Owusu-Afriyie et al., 2024). These advantages encompass enhanced risk assessment, streamlined audit procedures, and improved fraud detection in the context of internal auditing.

Perceived utility and perceived ease of use are interconnected in the context of internal auditing. For instance, auditors are more likely to explore the features and functionalities of an

AI tool if they see it as user-friendly, thus acknowledging its usefulness. In contrast, auditors may be more inclined to surmount any initial obstacles associated with the user-friendliness of an AI tool if it is perceived as highly beneficial. The significance of developing AI tools that are both user-friendly and capable of providing substantial benefits to the auditing process is underscored by the interaction between PEOU and PU (Almagrashi et al., 2023). Baidoo-Anu and Ennu Baidoo (2024) have shown that users' overall satisfaction and sustained utilisation intention increase when technology is perceived as both beneficial and user-friendly. This, in turn, leads to the successful adoption and implementation of technology.

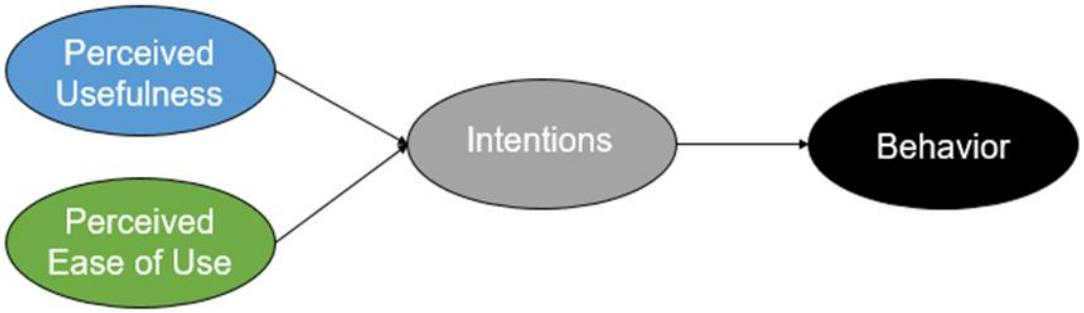


Figure 2. 1: Technology Acceptance Model (TAM)

The integration of AI into internal auditing offers several advantages, including enhanced audit accuracy, efficiency, and efficacy (Hazaea et al., 2021). AI tools are capable of rapidly and accurately analysing immense quantities of data, thereby identifying patterns and anomalies that may suggest fraudulent activities or areas of concern. This capability has the potential to significantly enhance the internal control environment in public universities, thereby ensuring increased transparency and accountability. Furthermore, artificial intelligence (AI) tools aid in risk assessment by identifying high-risk areas and offering insights into potential vulnerabilities (Jori, 2023). These advantages are consistent with the perceived utility of AI tools, thereby bolstering their appeal to internal auditors (Ahinsah-Wobil, 2024). AI revolutionise internal auditing by automating routine duties, thereby enabling auditors to concentrate on the more strategic and analytical aspects of their work.

Nevertheless, the implementation of AI in internal auditing may be hindered by several obstacles. Resistance to change is a significant obstacle. Internal auditors may be hesitant to implement new technologies because of their scepticism about the efficacy of AI tools, a lack of technical skills, or dread of job displacement (Wadesango et al., 2023). A comprehensive

change management strategy that encompasses training, communication, and support is necessary to address these concerns. By equipping auditors with the requisite skills and knowledge to effectively utilise AI tools, their perceived ease of use and utility are improved, thereby facilitating their adoption (Almagrashi et al., 2023). It is essential to overcome resistance to change to successfully integrate AI into internal auditing. This ensures that auditors are not only armed but also motivated to utilise new technologies.

Another obstacle is the quality and dependability of AI tools. Internal auditors must have confidence in the ability of AI tools to produce reliable and precise results. Auditors may lose confidence in these tools due to any inaccuracies or inconsistencies in AI-generated outputs, which affect their perceived utility. Consequently, it is essential to ensure that AI tools undergo rigorous testing and validation before deployment. Moreover, auditors' confidence in these tools is bolstered by enabling them to comprehend and interpret AI-generated results (Nyarkoh, 2022). It is imperative to establish trust in AI systems, as it has a direct impact on the perceived value and adoption of these technologies among internal auditors.

The adoption of AI in internal auditing is also significantly influenced by organisational factors (Wadesango et al., 2023). The adoption process is significantly impacted by the availability of resources, support from senior management, and alignment with organisational objectives. Internal auditors are more inclined to regard AI tools as valuable and worthwhile when upper management demonstrates a commitment to their implementation and provides the necessary resources and support. In addition, the perceived utility of AI tools is further reinforced by aligning AI adoption with organisational objectives, such as enhancing accountability and improving audit quality (Bawole & Ibrahim, 2017). To establish an environment that is conducive to the successful implementation of AI, it is imperative to implement organisational readiness and strategic alignment.

The Technology Acceptance Model emphasises the significance of external variables, including system characteristics, user attributes, and organisational factors, in shaping perceived usefulness and ease of use (Musah et al., 2022). System characteristics, including the design and functionality of AI tools, influence the ease of use and perceived utility of these tools for auditors. Auditors' perceptions of AI tools are also influenced by user characteristics, such as their technical skills and experience with technology. The overall adoption process is influenced by organisational factors, including the availability of resources and the support of

senior management (Almagrashi et al., 2023). It is essential to consider these external variables when developing comprehensive strategies to enhance the adoption and effective use of AI in internal auditing.

The perceived simplicity of use and perceived utility of AI tools among internal auditors are significantly improved by training and education. Providing auditors with exhaustive training on the effective use of AI tools increases their confidence and competence, thereby making these tools more user-friendly (Damerji & Salimi, 2021). Training also helps auditors understand the potential benefits of AI tools, thereby enhancing their perceived value. Additionally, auditors maintain their proficiency in the use of AI technology by engaging in ongoing professional development and education (Budhwar et al., 2023). To optimise the utilisation of AI technologies, auditors must allocate resources to training and development.

2.2.2 Diffusion of Innovation (DOI) Theory

The Diffusion of Innovation (DOI) Theory is a framework that is employed to comprehend the rate, reason, and process by which new ideas and technology disseminate within organisations and cultures (Fotoh & Lorentzon, 2023). The use of DOI in AI adoption for internal auditing at public universities provides essential insights into the diffusion process and the factors that influence it. The diffusion of innovations through a social system is influenced by the innovation itself, communication channels, time, and the social system (Damerji & Salimi, 2021). Understanding this diffusion process facilitates the identification of strategies to facilitate the adoption of AI tools and overcome internal auditing obstacles. The theory underscores that innovations are implemented through a sequence of stages: knowledge, persuasion, decision-making, implementation, and confirmation (Hoai et al., 2022).

One of the main factors influencing the adoption of AI in internal auditing is the relative advantage, which refers to the extent to which an innovation is perceived as superior to the concept it replaces. AI tools provide substantial relative advantages in the context of internal auditing, including the capacity to rapidly analyse large datasets, as well as improved efficiency and accuracy (Al Zobi & Jarah, 2023). These tools have the potential to enhance fraud detection, automate commonplace tasks, and improve risk assessment, thereby enhancing the efficiency and effectiveness of the auditing process. Internal auditors are considerably more inclined to implement AI technologies when they perceive them as providing substantial advantages over conventional methodologies (Hoai et al., 2022). The potential of AI to

revolutionise the auditing process, providing auditors with sophisticated tools to improve the quality and efficacy of their work, is a relative advantage it has in internal auditing.

Compatibility is a critical additional factor in integrating AI into internal auditing. Compatibility is the extent to which an innovation is perceived as aligning with the values, past experiences, and requirements of potential adopters (Pham et al., 2023). AI tools that are well-suited to the internal auditors' current workflows, organisational culture, and auditing practices are more likely to be implemented. For example, internal auditors find AI tools more compatible and simpler to implement if they seamlessly integrate with current auditing systems and procedures (Mensah et al., 2024). Additionally, perceived compatibility improves when AI use aligns with the strategic objectives of public universities, such as enhancing accountability and transparency (Damerji & Salimi, 2021). It is imperative to guarantee that AI tools are compatible with the organisational context and cater to the unique requirements of internal auditors to ensure their successful adoption.

The adoption of AI in internal auditing is significantly impeded by complexity, which refers to the extent to which an innovation is perceived as challenging to comprehend and implement (Ahmad Jaber & Mohammed Shah, 2024). Internal auditors may resist the adoption of AI tools if they consider them to be too complex or challenging to operate. Consequently, it is imperative to develop AI tools that are user-friendly and provide sufficient training and support to help auditors overcome any perceived complexity (Mensah et al., 2024). The perceived complexity is reduced, and adoption is encouraged by simplifying the user interface, offering exhaustive training programs, and providing ongoing technical support. The greater the ease of learning and utilising AI tools, the more likely internal auditors are to integrate these technologies into their auditing practices (Qadir et al., 2022). The adoption of AI in internal auditing is facilitated by the reduction of complexity through user-centric design and robust support mechanisms.

Trialability refers to the extent to which an innovation can be tested on a small scale, which is a crucial factor in the adoption process (Muhammad & Ismail, 2022). If internal auditors are allowed to test AI tools before full implementation, they are much more likely to use them. Auditors investigate the capabilities of AI tools, comprehend their advantages, and resolve any concerns or issues through pilot programs and experimental phases (Alfartoosi et al., 2021). Public universities mitigate perceived risks of adopting new technologies and enhance the

likelihood of successful adoption by providing opportunities for trialability (Qadir et al., 2022). The practical value of these innovations is demonstrated, and confidence is built by enabling auditors to experience the benefits of AI tools firsthand through pilot programs.

One important factor influencing the adoption of AI in internal auditing is observability, which refers to the visibility of an innovation's outcomes to others (Qadir et al., 2022). Other auditors and stakeholders within the organisation are more inclined to implement AI tools when the benefits and positive outcomes are readily apparent. Showcasing successful case studies, sharing positive experiences, and demonstrating the impact of AI on auditing efficiency and effectiveness enhances observability. Internal auditors are convinced of the value and potential of these tools, as demonstrated by the tangible benefits of AI adoption (Hoai et al., 2022). The overall acceptance and integration of AI in internal auditing can be improved by enhancing visibility through clear communication and sharing success stories.

Within public universities, the social system is also a critical factor in the diffusion of AI innovations, in addition to these factors. The social system encompasses the network of relationships and communication channels among individuals within the organisation (Odonkor et al., 2024). The adoption process is substantially influenced by opinion leaders, change agents, and early adopters within the internal audit function. Influential auditors and leaders who advocate for the use of AI tools and demonstrate their advantages motivate others to adopt similar practices. The diffusion of AI innovations within the internal audit function is facilitated by establishing a supportive environment that encourages open communication, collaboration, and knowledge sharing (Hoai et al., 2022). The adoption of AI in internal auditing is expedited by nurturing a culture of innovation and leveraging the influence of opinion leaders.

Effective communication channels are essential for sharing information about AI tools and their benefits in public universities. Workshops, seminars, training sessions, and informational materials are all effective communication strategies that help educate and raise awareness among internal auditors about AI technologies. Addressing concerns and fostering trust is achieved by providing precise and accessible information on how AI tools enhance auditing practices and outcomes (Anriva & Hamidah, 2024). Public universities ensure that internal auditors receive the necessary information to make informed decisions about adopting AI tools by utilising various communication channels (Odonkor et al., 2024). It is essential to enhance

communication and educational initiatives to promote the effective use and adoption of AI in internal auditing.

2.2.3 Agency Theory

Agency Theory, developed by Jensen and Meckling in 1976, provides a framework to examine the relationship between owners (stakeholders) and agents (managers or auditors). It concentrates on the issues that arise from the delegation of tasks and the divergence of interests. In the context of public universities, the theory is employed to understand the role of internal auditing in ensuring transparency and accountability. Internal auditors serve as agents, responsible for evaluating the financial and operational integrity of the institution on behalf of the principals, which include the government, taxpayers, and university stakeholders (Coker et al., 2023). When the interests of the agents, such as university administration, do not align with those of the principals, potential issues like mismanagement, inefficiencies, and fraud can arise, leading to the principal-agent problem (Abrokwah-Larbi & Awuku-Larbi, 2024). The application of agency theory highlights the importance of comprehensive internal auditing mechanisms in monitoring and mitigating these issues, thereby ensuring that management actions align with the best interests of stakeholders (Thottoli & Ahmed, 2022). By implementing a strong internal auditing framework, universities can more effectively reduce potential conflicts of interest and ensure their operations are transparent and accountable to stakeholders.

By reducing the information asymmetry between auditors and management, AI tools significantly enhance the internal auditing process, which is a key issue in agency theory. Information asymmetry occurs when one party, typically management, possesses more or superior information than auditors, thereby hindering the accurate reporting of irregularities (Plant et al., 2019). AI technologies are capable of real-time processing of immense quantities of data, identifying patterns, and detecting anomalies that may suggest operational inefficiencies or fraudulent activities (Thottoli & Ahmed, 2022). Internal auditors now access and analyse exhaustive datasets that were previously difficult to manage, thereby bridging the information divide and improving the accuracy and reliability of their assessments (Gyamera et al., 2023). This capability is critical in large institutions such as public universities, where the volume and intricacy of financial transactions obscure critical issues from human auditors.

Continuous auditing is one of the primary methods by which AI tools reduce information asymmetry. Continuous auditing, facilitated by AI, enables the real-time surveillance of financial transactions and operational processes, in contrast to traditional periodic audits (Diansari et al., 2023). This method ensures that discrepancies and irregularities are promptly identified and resolved, thereby reducing the likelihood of prolonged periods of fraud or mismanagement. Continuous auditing enhances the transparency of university operations by providing stakeholders with accurate and up-to-date information about the institution's operational performance and financial health (Thottoli & Ahmed, 2022). This ongoing exchange of information facilitates the alignment of management's interests with those of stakeholders, as management is cognisant of the ongoing monitoring and evaluation of their actions. Continuous auditing also contributes to the establishment of a culture of accountability and vigilance within the organisation by supplying a consistent stream of data.

Furthermore, AI tools enhance the audit process by automating routine and repetitive duties, thereby enabling internal auditors to concentrate on more complex and high-risk areas. Automation mitigates the likelihood of human error and bias, guaranteeing that audit findings are unbiased and dependable. AI contributes to improved governance and accountability within public universities by enhancing the effectiveness of internal audits. This is consistent with agency theory's emphasis on implementing monitoring mechanisms to mitigate agency issues and ensure that agents act in the best interests of principals (Diansari et al., 2023). Automation also liberates auditors to participate in strategic decision-making and higher-order analysis, thereby increasing the value of the audit function.

Predictive analytics is also facilitated by AI, which allows auditors to detect potential hazards and misconduct before they occur. Predictive models are capable of analysing historical data to predict future trends and identify warning signals of financial distress or fraudulent behaviour. This proactive approach enables internal auditors to implement preventive measures, thereby enhancing the university's overall governance framework and reducing associated risks. AI tools contribute to a more transparent and accountable institutional environment by addressing issues before they escalate (Antwi et al., 2022). Predictive analytics helps universities allocate resources more effectively and prepare for future challenges, thereby enhancing the institution's resilience and responsiveness.

Additionally, the principle of accountability is bolstered by the utilisation of AI in internal auditing, which generates transparent and comprehensive audit trails. AI systems are capable of documenting each stage of the audit process, from data acquisition and analysis to the final report (Hussein, 2016). These audit trails provide a transparent record of the procedures and decisions implemented, allowing stakeholders, regulatory bodies, or external auditors to examine them. The accountability of university management is reinforced by the transparency of audit trails, which enhances the credibility of the audit findings and fosters trust among stakeholders (Almgrashi & Mujalli, 2024). AI contributes to ensuring that all stakeholders have confidence in the integrity and effectiveness of the institution's governance processes by enhancing the transparency of the audit process.

2.2.4 Resource-Based View (RBV)

The Resource-Based View (RBV) of the firm, proposed by Barney (1991), emphasises the strategic importance of valuable, rare, inimitable, and non-substitutable (VRIN) resources for gaining and sustaining competitive advantage. AI is regarded as a valuable organisational resource that considerably enhances audit efficacy and strengthens internal controls in the context of public universities (Amoako et al., 2023). The integrity and accountability of public institutions are upheld by internal audit functions that use AI to enhance their capability to monitor and analyse vast amounts of data, identify anomalies, and detect fraudulent activities. The utilisation of AI technologies, including data analytics and machine learning, allows auditors to effectively manage intricate datasets, thereby identifying patterns and trends that conventional methods may overlook. By rapidly and accurately processing and analysing large volumes of data, the institution's financial health and regulatory compliance are preserved (Karikari Appiah et al., 2023). Additionally, prospective issues are identified and promptly addressed.

AI technologies, including data analytics and machine learning, are indispensable for analysing enormous datasets to detect patterns and trends that may indicate fraud or irregularities. Public universities, which often handle large volumes of data and complex financial transactions, particularly benefit from this capability. The use of AI allows internal auditors to conduct more thorough and accurate audits by identifying issues that traditional auditing methods may overlook (Tetteh et al., 2022). In addition to enhancing the efficacy of audits, this increased level of scrutiny and precision also strengthens the institution's internal controls, thereby

reducing the likelihood of fraud and mismanagement. In addition, AI's capacity to continually learn and adapt to new data enhances its efficacy over time, rendering it an increasingly potent tool for risk identification and mitigation (Hazaea et al., 2021). The integration of AI into the audit processes of public universities guarantees a more dependable and robust supervision mechanism that supports their operational and financial integrity.

Furthermore, public universities attain higher governance standards as a result of AI-driven auditing, which provides a competitive advantage. Effective governance is indispensable for public institutions, which are accountable to a diverse array of stakeholders, such as government bodies, taxpayers, students, and staff (Tetteh et al., 2022). The use of AI tools improves governance by guaranteeing that financial reporting is accurate, transparent, and timely. Transparency is essential for the institution's credibility and reputation, as it enhances trust and confidence among stakeholders. In addition, the capacity to identify and prevent deception through sophisticated AI methodologies establishes public universities as pioneers in the implementation of innovative governance technologies, thereby establishing a standard for other institutions to emulate (Hazaea et al., 2021). The implementation of AI in governance processes is indicative of a commitment to upholding high standards of accountability and integrity, which has the potential to enhance the institution's public image and foster stakeholder trust (Angmor & Diaboh, 2022).

AI-driven auditing also provides a competitive advantage in terms of the operational efficacy of the internal audit function. AI automates routine and repetitive tasks, including data collection, reconciliation, and preliminary analysis, enabling auditors to focus on more complex and strategic issues (Anin et al., 2024). Enhancing the overall quality of the audit process, this enhanced efficacy not only reduces the time and cost associated with audits but also improves them. The value and impact of auditors' work are enhanced by allocating additional time to critical areas that necessitate human judgment and expertise. Consequently, public universities achieve more comprehensive and practical assessments, ensuring that resources are utilised efficiently and in accordance with institutional objectives and regulatory requirements. Auditors are capable of providing more timely and actionable insights, which considerably enhance the institution's decision-making processes. The utilisation of AI in auditing optimises resource allocation (Angmor & Diaboh, 2022).

The strategic objectives of public universities are furthered by AI-driven auditing, which provides valuable insights that inform decision-making and enhance operational efficiency. Artificial intelligence tools analyse historical data and produce predictive models to identify potential hazards and opportunities (Almagrashi et al., 2023). With these insights, university management makes well-informed decisions regarding strategic planning, risk management, and resource allocation. AI enhances the role of internal auditing as a critical contributor to the university's overall performance and sustainability by ensuring that the audit function aligns with the institution's strategic objectives (Baidoo-Anu & Ennu Baidoo, 2024). By utilising data-driven insights for strategic planning and risk management, the university proactively resolves challenges and capitalises on opportunities, thereby augmenting its long-term sustainability and success (Jori, 2023).

The principles of the RBV are further reflected in the implementation of AI in internal auditing, which enhances the distinctive capabilities of public universities. Not only are AI technologies valuable, but they are also uncommon and challenging to replicate, particularly when they are tailored to the unique requirements and specific contexts of the institution (Tetteh et al., 2022). This characterises the university as distinct from others that depend on conventional auditing methodologies, which grants it a substantial competitive advantage. Public universities enhance their competitive advantage by investing in AI to develop proprietary auditing capabilities that are uniquely tailored to their operational and regulatory environments. The strategic advantage of the university is further reinforced by the customisation and incorporation of AI tools into the university's auditing processes, which generate a unique capability that is difficult for other institutions to replicate (Jori, 2023).

2.2.5. Integration of Theoretical Perspectives

The adoption and implementation of AI in internal auditing within Ghanaian public universities represent a complex organisational transformation influenced by behavioural, institutional, governance, and resource-based dynamics. The integration of multiple theoretical perspectives is necessary because no single theory sufficiently explains the multidimensional nature of AI adoption in public sector auditing environments. The TAM, DOI theory, Agency Theory, and RBV collectively provide a comprehensive analytical foundation for understanding how AI technologies are accepted, diffused, governed, and sustained within internal audit functions. Technology adoption within auditing is shaped not only by individual users' willingness to

utilise AI tools but also by institutional accountability requirements, regulatory compliance obligations, and organisational capability readiness (Abdullah & Almaqtari, 2024; Wassie & Lakatos, 2024). Previous research often applies these theories in isolation, which limits their explanatory power in public sector contexts where technological adoption is influenced by policy mandates, professional auditing standards, and public financial accountability expectations. The integration of these theoretical perspectives allows for a holistic examination of AI adoption by recognising that behavioural acceptance, institutional diffusion, governance accountability, and resource capability are interconnected determinants of technological transformation within internal auditing systems (Jackson et al., 2023; Damerji & Salimi, 2021).

The Technology Acceptance Model provides an essential behavioural foundation by explaining how internal auditors' perceptions influence their willingness to adopt AI technologies in audit processes. TAM suggests that perceived usefulness and perceived ease of use significantly determine user acceptance of new technological systems (Davis, 1989; Damerji & Salimi, 2021). In internal auditing, auditors are more likely to adopt AI when they perceive it as improving audit efficiency, strengthening fraud detection, and enhancing internal control monitoring. However, TAM primarily focuses on individual-level behavioural intentions and does not fully capture the influence of institutional governance pressures and regulatory frameworks that shape technology adoption within public universities. The Diffusion of Innovation theory complements TAM by explaining how AI spreads across organisational systems and becomes institutionalised through processes influenced by compatibility with existing auditing practices, relative advantage, and organisational readiness (Ceki & Moloi, 2024; Indrayani et al., 2024). DOI expands the analysis beyond individual acceptance by recognising organisational culture, leadership commitment, and institutional capacity as critical drivers of innovation adoption. The integration of TAM and DOI enables this study to examine AI adoption from both behavioural and organisational diffusion perspectives, providing a comprehensive understanding of how internal auditors' perceptions interact with institutional structures to influence technological transformation in auditing.

Agency Theory strengthens the integrated framework by introducing a governance accountability perspective that explains the monitoring role of internal auditing in reducing information asymmetry between management and stakeholders. Internal auditors serve as accountability agents responsible for ensuring financial transparency, compliance, and

governance oversight within public universities (Nerantzidis et al., 2022; Bonsu et al., 2022). The integration of AI into internal audit functions has the potential to enhance monitoring efficiency, automate compliance verification, and improve fraud detection accuracy through advanced data analytics and continuous auditing systems. Nevertheless, traditional Agency Theory focuses primarily on human-based monitoring processes and does not sufficiently address technological influences on governance accountability outcomes. AI adoption introduces new ethical and operational challenges, including algorithmic bias, data privacy risks, and reduced transparency in automated decision-making processes (Qadir et al., 2022; Ganapathy, 2023). By integrating Agency Theory with TAM and DOI, the study demonstrates how behavioural acceptance and institutional diffusion of AI influence governance accountability performance. This theoretical synthesis provides a broader understanding of how technological innovation strengthens internal audit oversight while introducing new governance risks that must be carefully managed within public sector institutions.

The Resource-Based View further enhances the integrated theoretical framework by emphasising the role of organisational capability, technological infrastructure, and human capital in determining successful AI implementation. RBV suggests that organisations achieve improved performance when they effectively utilise valuable and rare resources, including digital technologies and skilled personnel (Jackson et al., 2023). In Ghanaian public universities, the adoption of AI in internal auditing depends heavily on technological infrastructure availability, training capacity, and institutional investment in digital audit systems. While TAM and DOI explain behavioural and institutional adoption processes, RBV explains the organisational capacity required to sustain technological transformation and translate innovation adoption into improved audit performance and governance outcomes (Plant et al., 2019; Alina et al., 2018). RBV also addresses resource limitations frequently experienced in public sector institutions, where budget constraints and technological skill shortages influence AI implementation effectiveness. The integration of RBV with behavioural and governance theories highlights the importance of institutional readiness in shaping AI adoption success and demonstrates that technological acceptance alone is insufficient without adequate organisational capability and resource support.

The integration of TAM, DOI, Agency Theory, and RBV provides a robust theoretical framework for analysing AI adoption in internal auditing within Ghanaian public universities

by addressing behavioural, institutional, governance, and organisational capability dimensions simultaneously. This multi-theoretical approach overcomes the limitations associated with single-theory explanations by recognising that AI adoption is influenced by interactions between auditors' perceptions, institutional governance mandates, technological diffusion processes, and organisational resource capacity. The integrated framework enables this study to examine how these theoretical dimensions collectively shape internal audit effectiveness, accountability performance, and governance transparency in public universities. By synthesising behavioural technology acceptance, institutional diffusion, governance accountability, and organisational capability perspectives, the study contributes to expanding theoretical understanding of AI implementation in public sector auditing environments, particularly within developing economies where regulatory frameworks, institutional capacity, and technological readiness interact to influence innovation adoption outcomes (Abdullah & Almaqtari, 2024; Wassie & Lakatos, 2024).

2.2.6 Theoretical Gaps

Existing theoretical applications of technology adoption models, such as the TAM and DOI theory, have mainly focused on private sector organisations and technologically advanced economies; hence, the public sector auditing environments in developing countries are insufficiently examined. TAM explains technology acceptance through perceived usefulness and perceived ease of use, while DOI explains the organisational diffusion of innovation based on relative advantage, compatibility and institutional readiness (Davis, 1989; Damerji & Salimi, 2021; Ceki & Moloi, 2024). However, these theories do not always consider the institutional governance pressures and regulatory frameworks which affect the adoption of technologies in public universities. Research on the adoption of Artificial Intelligence in auditing has focused to a large extent on the corporate setting, and thus, the applicability of theories is limited when the focus is on Ghanaian public universities, as they are subject to strict public accountability and financial management requirements (Wassie & Lakatos, 2024; Abdullah & Almaqtari, 2024). This study addresses this gap by placing TAM and DOI in the proper context of public higher education governance systems in Ghana. By focusing on the perceptions of internal auditors in regulatory-driven institutional contexts, the research goes beyond these theories of technology adoption by showing that governance frameworks, institutional mandates, and public accountability requirements shape AI adoption from beyond individual behavioural intention. This contextual refinement contributes to a better

understanding of theoretical aspects of AI adoption in public sector auditing environments in developing economies.

Another of the theoretical limitations in the existing literature is the poor integration of theories of technology adoption and governance accountability frameworks. Agency Theory explains internal auditing as a monitoring mechanism that alleviates the information asymmetry between management and stakeholders and promotes transparency and accountability (Nerantzidis et al., 2022; Bonsu et al., 2022). However, traditional applications are human oversight and do not adequately address how new technologies, such as Artificial Intelligence, affect accountability mechanisms. Conversely, technology adoption frameworks such as TAM and DOI focus on user acceptance and organisational diffusion and give limited attention to governance accountability outcomes. This produces a theoretical gap between technology adoption and institutional accountability performance. The present study fills this gap by combining the concept of Agency Theory with technology adoption models for an examination of the effects of Artificial Intelligence on auditing efficiency and accountability performance in the Ghanaian public universities. By analysing auditors' perceptions about AI's usefulness in fraud, compliance monitoring and financial transparency, the research has shown how technological adoption has contributed to strengthening governance. This integrated theoretical approach builds on the concept of Agency Theory by adding technological governance dimensions while offering a holistic explanation of AI-driven accountability improvements in the public sector's internal auditing process.

The Resource-Based View gives emphasis to organisational capabilities, technological infrastructure and human capital as important determinants of innovation adoption and institutional performance (Barney, 1991; Jackson et al., 2023). Although RBV offers useful information about organisational readiness for AI adoption, current research often approaches technological resources as static enablers, instead of dynamic capabilities interacting with behavioural, institutional and governance factors. Public universities are often limited in terms of resources, technological infrastructures and workforce skills that considerably impact the adoption of AI and audit performance results (Alina et al., 2018; Plant et al., 2019). Current theoretical frameworks do not do justice to the interaction of resource constraints with governance accountability requirements and behavioural acceptance of AI technologies in public auditing environments. This study fills this gap by combining RBV and behavioural and

governance theories to investigate the relationship between institutional resource capacity and the adoption of AI and internal audit effectiveness. By examining the perceptions of internal auditors on technological readiness, adequacy of training and institutional support systems, the study shows the impact of organisational resource capability on AI implementation success in Ghanaian public universities. This contribution extends RBV by emphasising the dynamic interaction between the institutional resources, governance accountability demands, and behavioural technology adoption processes within public sector audit systems.

Existing research on Artificial Intelligence in auditing has mainly been based on objective performance outcomes like audit efficiency, cost reduction, and fraud detection accuracy, and has paid less attention to perception-based technological adoption. Although objective performance indicators are essential, perception-based research is critical in understanding behavioural acceptance, institutional resistance and organisational readiness for technological transformation (Ganapathy, 2023; Abdullah & Almaqtari, 2024). Technology adoption literature recognises that user perception plays a significant role in the long-term utilisation of technology, especially in public sector organisations where institutional culture, trust and professional attitudes play a significant role in the adoption of innovations (Damerji & Salimi, 2021; Qadir et al., 2022). Empirical research on the perceptions of Internal Auditors on Artificial Intelligence in Ghanaian public universities is extremely scanty. This study addresses this gap and focuses on the perception-based evaluation of the effectiveness of AI, implementation limitations and ethical considerations in the internal auditing process. By analysing auditors' professional experiences and institutional attitudes towards integration of AI, the study offers a behavioural understanding of the obstacles to adoption and governance implications. This contribution extends the scholarship of technology adoption by showing that evidence based on perception is crucial for understanding institutional readiness and sustainable AI implementation in the context of public sector auditing environments.

2.3 The Role of AI in Internal Auditing Functions

The landscape of audit processes across various sectors, including public universities, is being revolutionised by the incorporation of AI in internal auditing functions. This section examines the multifaceted role of AI in enhancing the accountability and effectiveness of internal audits. First, an overview of AI technologies commonly used in auditing is provided, including natural language processing, data analytics, and machine learning. The advantages of these

technologies, such as automated risk assessment, predictive analytics, and enhanced decision-making, are examined. Subsequently, the emphasis shifts to the precise impact of AI on establishing accountability within public universities in Ghana, as evidenced by global case studies that demonstrate both successes and challenges. Lastly, the efficacy of AI in identifying anomalies and mitigating financial risks is emphasised through a review of relevant literature, with a focus on the role of AI in fraud detection and the reinforcement of internal controls.

2.3.1a Overview of AI in Auditing

The traditional auditing process has been transformed by the incorporation of Artificial Intelligence into auditing, providing auditors with sophisticated tools to enhance accuracy, efficiency, and informed decision-making. The transformation of auditing functions has been notably beneficial due to the application of AI technologies, including machine learning (ML), data analytics, and natural language processing (Amoako et al., 2023). Machine learning, a critical AI technology, allows systems to autonomously detect patterns and insights within extensive datasets without the need for explicit programming (Karikari Appiah et al., 2023). Anomalies, irregularities, and potential hazards that may otherwise go undetected are identified by ML models in auditing, which analyse large volumes of data. For example, by analysing historical audit data, machine learning algorithms identify dubious activities, discrepancies, or anomalous transactions. Auditors can be assured that no substantial financial activity is overlooked by this proactive approach, which provides them with real-time insights into financial data (Amoako et al., 2023).

ML enhances the reliability and efficiency of audits by reducing human error through the automation of this process. Data analytics, an additional AI tool, employs statistical methods to analyse patterns and relationships in financial data, allowing auditors to identify concealed trends, correlations, and insights that may suggest fraud, inefficiencies, or weaknesses in internal controls (Tetteh et al., 2022). Finally, NLP enables auditors to process and analyse textual data more efficiently, such as contracts, financial statements, or emails, thereby reducing the manual labour required for document analysis and facilitating the timely extraction of critical information (Hazaea et al., 2021).

AI offers substantial advantages in risk assessment and decision-making, while also augmenting the speed and accuracy of audits (Amoako et al., 2023). AI tools process and analyse large datasets in real time, thereby enabling auditors to make more informed decisions

by providing them with timely insights (Tetteh et al., 2022). Auditors may devote days or weeks to manually evaluating data in traditional auditing methods to identify potential hazards or areas of concern. Nevertheless, AI tools are capable of conducting an immediate analysis of extensive datasets, identifying discrepancies, and providing insights that are based on the most up-to-date information. This significantly reduces the time required for audits, allowing auditors to focus on areas that require more attention and are associated with higher risk (Owusu-Afriyie et al., 2024).

Furthermore, AI enhances predictive analytics capabilities, enabling auditors to anticipate potential risks or identify patterns that suggest future issues, such as financial misstatements or fraud (Angmor & Diaboh, 2022). AI models anticipate future financial anomalies by analysing historical data, allowing auditors to resolve issues rather than reactively or proactively. For instance, predictive analytics identify potential areas of fraud, enabling auditors to investigate and intervene before any substantial financial harm is incurred (Owusu-Afriyie et al., 2024). This predictive approach not only improves the audit process but also helps organisations reduce financial risks and ensure the accuracy of their financial reporting. The overall reliability and effectiveness of audits are enhanced by the real-time analysis provided by AI tools, which ensures that auditors are constantly working with the most up-to-date information (Almagrashi et al., 2023).

Another substantial advantage of AI in auditing is its capacity to automate risk assessments. This task has historically been time-consuming and necessitated a meticulous assessment of numerous factors and data points. AI-powered systems are capable of continually evaluating and assessing the risk associated with various transactions or activities by utilising historical data, predefined risk models, and other relevant criteria (Baidoo-Anu & Ennu Baidoo, 2024). Auditors identify high-risk areas and prioritise their focus by utilising this automated risk assessment approach, which provides them with real-time, data-driven insights. For example, AI systems identify transactions or activities that are at high risk and deviate from standard patterns, thereby enabling auditors to conduct a more thorough examination. This level of automation guarantees that audits are conducted objectively and efficiently, thereby minimising the likelihood of human error and bias in risk assessments (Kogan et al., 2015).

Additionally, the scalability of AI-driven risk assessments allows auditors to simultaneously assess large volumes of data, thereby offering a comprehensive perspective on potential risks

throughout an organisation (Angmor & Diaboh, 2022). By utilising AI, auditors transition from a reactive to a proactive approach to risk management, identifying and mitigating risks before their occurrence.

2.3.1b Types of AI in Internal Auditing

Traditional auditing practices have been transformed by the incorporation of Artificial Intelligence in internal auditing, which has improved efficiency, accuracy, and decision-making. Machine learning, a fundamental AI technology, has a significant influence on this transformation. ML identify anomalies and fraudulent activities within large datasets without explicit programming by leveraging algorithms to analyse historical data and predict potential risks (Amoako et al., 2023). This capability not only expedites the audit process but also mitigates human error, thereby enhancing productivity and efficiency. For example, machine learning models can identify suspicious activities and flag irregularities in financial reporting by analysing transactional data (Karikari Appiah et al., 2023). Auditors are also able to concentrate on more strategic duties, such as evaluating internal controls and improving compliance measures, as a result of the automation of data analysis through ML (Tetteh et al., 2022). Additionally, ML algorithms learn and develop over time, thereby identifying emergent risks and adapting to changing audit environments (Amonkwandoh, 2021). In public universities, where regulatory compliance requirements and substantial volumes of financial data necessitate sophisticated analytical capabilities, this adaptability is especially advantageous (Ngai et al., 2011). Consequently, the capacity of ML to improve the efficacy and precision of anomaly detection renders it a valuable resource for internal auditors in public universities in Ghana.

Another potent AI tool that considerably improves internal auditing functions is Natural Language Processing (NLP). Unstructured textual data, including financial statements, communications, and contracts, is processed and interpreted by NLP algorithms (Hazaea et al., 2021). This ability enables auditors to effectively extract critical information, identify inconsistencies, and identify potential non-compliance issues (Owusu-Afriyie et al., 2024). For example, natural language processing scrutinises the language utilised in procurement contracts to detect concealed clauses or fraudulent terms that may otherwise remain undetected (Amoako et al., 2023). NLP enhances audit efficiency by automating the analysis of large volumes of text data, thereby reducing the time and effort necessary for manual document

review (Tetteh et al., 2022). Furthermore, auditors evaluate potential ethical violations or instances of malfeasance within an organisation by utilising NLP tools to identify sentiment and tone in communications (Yasmin & Haniffa, 2017). This proactive strategy not only improves fraud detection but also facilitates regulatory reporting and compliance monitoring. Additionally, NLP's capacity to learn from past audit data enables the continuous improvement of its ability to identify risk factors and anomalies (Zhou, 2021). Consequently, the advanced text analysis capabilities of NLP are indispensable in enhancing internal audit functions and promoting accountability in public universities.

Robotic Process Automation (RPA) is a transformative AI technology that automates repetitive and rule-based audit tasks, including data entry, reconciliation, and report generation (Owusu-Afriyie et al., 2024). RPA enables auditors to allocate additional time and resources to higher-value tasks, such as strategic decision-making and risk assessment, by managing these routine functions (Angmor & Diaboh, 2022). For instance, RPA systems automatically extract and validate data from financial records, thereby minimising human errors and ensuring accuracy and consistency (Doe-Dartey & Valand, 2024). This not only expedites the audit process but also improves the quality of audit outcomes by decreasing the need for manual intervention (Almaqtari et al., 2024). Additionally, the seamless integration of RPA with existing audit software and databases facilitates real-time surveillance and reporting of financial transactions (Ngai et al., 2011). RPA has the potential to enhance compliance management and expedite audit operations in public universities, where audit functions are frequently restricted by complex regulatory requirements and limited resources (Zhou, 2021). Furthermore, the capacity of RPA to produce exhaustive audit trails serves to fortify internal control mechanisms, thereby enhancing transparency and accountability (Yebi & Cudjoe, 2022). Consequently, the automation capabilities of RPA are essential for improving the accuracy and efficiency of internal audits.

Predictive analytics is an indispensable AI tool that utilises historical and real-time data to anticipate potential hazards and provide internal auditors with actionable insights (Angmor & Diaboh, 2022). Predictive analytics allows auditors to mitigate risks and take proactive measures before they escalate by identifying trends and patterns that suggest financial mismanagement or fraud (Owusu-Afriyie et al., 2024). For example, predictive models analyse historical audit data to identify anomalous expenditure patterns or identify high-risk

transactions that warrant additional investigation (Amoako et al., 2023). This real-time analysis capability enables auditors to promptly address emergent risks, thereby improving the overall efficacy of internal controls (Tetteh et al., 2022). Additionally, predictive analytics assist auditors in more efficiently allocating resources by identifying the areas with the highest risk exposure (Ngai et al., 2011). Predictive analytics enhances compliance monitoring and fraud detection efforts in Ghanaian public universities, where accountability and financial transparency are essential (Almaqtari et al., 2024). Additionally, the continuous learning capability of predictive models enables auditors to enhance their decision-making processes and adapt to evolving risk environments (Amonkwandoh, 2021). Consequently, predictive analytics is a powerful AI tool that facilitates effective risk management and enhances audit quality.

Another advanced AI technology that improves internal auditing functions is cognitive computing, which imitates human reasoning and decision-making (Amoako et al., 2023). Cognitive computing systems are capable of identifying subtle patterns and monitoring complex datasets to identify compliance violations and fraudulent activities that conventional audit methods may overlook (Karikari Appiah et al., 2023). For instance, cognitive computing algorithms analyse financial records and identify transactions that deviate from standard procedures or exhibit signs of manipulation (Tetteh et al., 2022). Furthermore, these systems are capable of evaluating the dependability of financial statements by cross-referencing data from various sources (Ngai et al., 2011). In public universities, where financial accountability is of the utmost importance, cognitive computing can improve the accuracy and efficacy of audits by offering a more comprehensive understanding of financial operations (Amonkwandoh, 2021). Additionally, cognitive computing can assist auditors in making well-informed decisions by providing data-driven recommendations and identifying potential risk areas (Zhou, 2021). This sophisticated analytical capability not only enhances internal controls but also assists auditors in identifying emergent fraud schemes and adhering to regulatory requirements (Yasmin & Haniffa, 2017). Consequently, cognitive computing is a valuable AI tool that enhances internal audit functions and promotes financial integrity in public universities.

2.3.2 AI in Enhancing Accountability in Public Universities

The potential to significantly improve accountability and transparency exists in the implementation of AI in internal auditing functions within public universities in Ghana. AI tools are utilised to verify financial records, identify discrepancies, and ensure that funds are allocated and expended in accordance with predetermined protocols (Jori, 2023). The automation of auditing duties that were previously time-consuming and susceptible to human error is one of the primary methods by which AI enhance accountability. Auditors analyse large volumes of transactional data in real-time with AI, identifying discrepancies that may suggest mismanagement or fraudulent activities. Auditors are equipped with a proactive mechanism to address potential issues before they escalate, as AI-powered systems identify peculiar spending patterns, unapproved transactions, or discrepancies between reported and actual expenditures (Wadesango et al., 2023). This capability enhances the overall quality of the audit, ensuring that the financial operations of public universities are transparent and comply with relevant regulatory frameworks. Additionally, AI contributes to the enhancement of public fund surveillance and the guarantee of the efficient and effective utilisation of resources, which is consistent with the overarching objective of accountability in public institutions.

AI tools are implemented in internal auditing processes at public universities in Ghana to guarantee that public funds are allocated for their intended purposes and are not diverted or misappropriated (Hoai et al., 2022). For example, AI automates the process of evaluating procurement contracts, thereby guaranteeing that the funds allocated for specific projects are spent according to plan. AI assists auditors in identifying potential cases of fraud or misappropriation of funds by analysing historical data and detecting anomalies in real time. Additionally, AI helps ensure that the university complies with government regulations, including the Public Financial Management Act in Ghana, by monitoring compliance (Pham et al., 2023). This ensures that the university maintains the necessary standards of financial management and transparency. The capacity to conduct continuous monitoring, as opposed to periodic audits, affords auditors a continuous view of financial activities, thereby enabling them to intervene more frequently when irregularities are identified. This capability has the potential to significantly contribute to the prevention of financial scandals and foster a culture of accountability within Ghana's public universities (Angmor & Diaboh, 2022). In the management of large-scale initiatives, where multiple stakeholders are involved, and the

complexity of financial transactions makes it difficult for traditional auditing methods to monitor each detail exhaustively, this approach is particularly valuable.

Numerous case studies underscore the potential for AI to enhance accountability in the public sector. The UK's National Audit Office (NAO) employs AI for internal auditing, a particularly remarkable example (Budhwar et al., 2023). The NAO has implemented artificial intelligence tools to enhance the efficacy and precision of its audits, with a particular focus on identifying financial malfeasance and fraud. To evaluate risks, identify inconsistencies in government expenditure, and analyse extensive datasets, AI systems have been incorporated into the auditing process (Fotoh & Lorentzon, 2023). By employing machine learning algorithms, the NAO is capable of automating specific audit functions, thereby reducing manual labour and minimising the likelihood of human error (Hoai et al., 2022). This method has not only enhanced the speed and precision of audits but has also contributed to the growth of public trust by guaranteeing that public funds are being managed responsibly. Similarly, the Australian government has implemented AI-based systems to audit public contracts and procurement processes (Pham et al., 2023). AI systems detect discrepancies that may indicate corruption or mismanagement by automating the review of thousands of contracts and transactions. These systems have allowed auditors to conduct more comprehensive audits while concentrating their human resources on areas that necessitate further investigation (Budhwar et al., 2023).

Conversely, the public sector's implementation of AI in auditing is not without its obstacles. The integration of AI systems with existing infrastructure and auditing processes presents a substantial challenge. Public universities in numerous developing countries, such as Ghana, may lack the requisite technological infrastructure or expertise to implement AI-based auditing systems effectively. This issue has the potential to lead to inefficiencies or delays in the adoption of AI. Additionally, stakeholders unfamiliar with the technology or apprehensive about its potential impact on their occupations may resist the adoption of AI (Musah et al., 2022). To guarantee the successful incorporation of AI, public universities in Ghana must invest in both technological infrastructure and human capital to address these challenges. The successful integration of AI into internal auditing requires awareness campaigns and training programs for auditors to address concerns about job displacement (Nyarkoh, 2022). Additionally, the establishment of standardised data protocols and the availability of data in

the necessary formats are crucial for the effective operation of AI systems in public institutions (Bawole & Ibrahim, 2017).

Despite these obstacles, the potential for AI to improve accountability in public universities in Ghana is substantial. AI plays a crucial role in fostering a culture of accountability and integrity by reducing the likelihood of fraud and mismanagement, enhancing transparency, and enabling real-time monitoring (Nyarkoh, 2022). Public universities also enhance their financial management practices by implementing AI, ensuring that resources are utilised in a manner consistent with institutional objectives (Wadesango et al., 2023). The examples from other public sector organisations underscore the transformative potential of these technologies in assuring accountability and transparency in public institutions, while also emphasising the broader applicability of AI in governance.

2.3.3 AI for Fraud Detection and Internal Controls

Artificial Intelligence has emerged as a powerful tool for detecting fraudulent activities and enhancing internal controls across various sectors, including public universities (Anriva & Hamidah, 2024). AI technologies, including anomaly detection systems, predictive analytics, and machine learning algorithms, are being increasingly utilised in the context of internal auditing to enhance the efficacy and accuracy of fraud detection (Coker et al., 2023). One of the primary benefits of AI in detecting fraud is its ability to rapidly process large volumes of data, which enables auditors to identify irregularities or suspicious patterns that may otherwise go undetected when using conventional methods. For instance, machine learning models are trained to identify fraudulent behaviour patterns by analysing historical data, including irregular payment transactions, discrepancies in financial reporting, or inconsistent expenditure trends (Abrokwah-Larbi & Awuku-Larbi, 2024). Auditors take proactive measures to prevent significant financial losses by identifying these patterns and flagging them for further investigation by AI systems.

AI is particularly beneficial in identifying fraudulent activities and preventing financial mismanagement in public universities, where substantial amounts of public funds are allocated to various departments and initiatives (Wadesango et al., 2023). The complexity of managing disparate budgets, grants, and donations frequently presents challenges for public universities in terms of financial transparency. AI automate the continuous monitoring of financial transactions, thereby identifying potential fraud risks in real-time (Odonkor et al., 2024). For

example, AI systems analyse procurement data to identify irregularities in tendering processes, warning of instances where suppliers or contractors may be collaborating to submit fictitious invoices or inflate prices. Similarly, AI identifies anomalous patterns in payroll systems, such as exaggerated salary payments or phantom employees (Abrokwah-Larbi & Awuku-Larbi, 2024). AI not only assists in preventing fraud but also enhances the overall effectiveness of internal controls within the university's financial management systems by promptly identifying anomalies.

Anomaly detection is another critical area in which AI is utilised in internal auditing. Auditors typically examine only a small portion of financial transactions, leaving the remainder unexamined, as traditional auditing methods typically rely on sampling (Alfartoosi et al., 2021). Conversely, artificial intelligence facilitates exhaustive data analysis, which permits auditors to evaluate all transactions within a system (Alfartoosi et al., 2021). Machine learning algorithms are trained to identify patterns of behaviour that deviate from the expected, such as abrupt increases in expenditure or outliers in transaction data. For instance, AI detects transactions that significantly deviate from established norms, such as budget reallocations that are out of place or expenditures that are unusually large. These deviations may be indicative of fraudulent activities, and AI alerts auditors to them in real time, thereby decreasing the likelihood of financial irregularities going undetected (Odonkor et al., 2024). This ability to continuously monitor financial activities is a substantial advantage over conventional auditing practices, which rely on periodic evaluations.

Another significant advantage of AI in the context of public universities is its capacity to mitigate financial risks. The capacity of these institutions to provide quality education, conduct research, and sustain essential infrastructure is significantly impacted by fraudulent activities, which have significant financial implications. By offering real-time insights into potential hazards, the integration of AI into internal auditing processes mitigates these risks. For instance, auditors implement pre-emptive measures before the escalation of fraudulent activities by utilising predictive analytics fuelled by AI to evaluate financial data trends and anticipate potential risks. AI assists in reducing financial losses, preventing reputational harm, and efficiently allocating public funds for their intended purposes by enhancing the detection of fraud and anomalies (Alfartoosi et al., 2021).

AI also improves the overall reliability of internal controls by conducting more consistent and objective evaluations of financial activities. AI systems provide an impartial and data-driven auditing approach, in contrast to human auditors who may be influenced by cognitive biases or fatigue (Mensah et al., 2024). For example, machine learning algorithms are designed to identify patterns solely based on data, thereby eliminating the potential for errors or oversight that can result from subjective judgment. This objectivity not only enhances the precision of fraud detection but also fortifies stakeholders' confidence in the auditing process (Qadir et al., 2022). In public universities, where accountability and transparency are crucial, the implementation of AI to enhance internal controls fosters a culture of integrity. It ensures that resources are allocated and utilised effectively (Muhammad & Ismail, 2022).

Research has demonstrated that AI significantly enhances auditors' ability to identify financial irregularities, particularly in large and complex datasets where conventional methods may be inadequate. For instance, Qadir et al. (2022) contend that the utilisation of machine learning and big data analytics in auditing significantly enhances fraud detection capabilities by recognising patterns that are not immediately evident through conventional audit processes. Similarly, Mensah et al. (2024) underscore the potential of AI to assist auditors in predicting future risks while also enhancing the efficiency of fraud detection. This is based on historical data. One of the most significant advantages of AI in internal auditing is the capacity to utilise predictive models to predict potentially fraudulent activities before they occur.

2.4 Perceptions of AI in Internal Auditing

The incorporation of artificial intelligence into internal auditing functions is transforming how auditors perform their duties, thereby affecting the effectiveness of audits and the profession's overall perception. The adoption and successful implementation of AI technologies such as machine learning, data analytics, and natural language processing are contingent upon the perceptions of internal auditors regarding these innovations. To ensure seamless integration into audit divisions, it is essential to understand how auditors perceive AI, including their concerns about job displacement, their confidence in AI's decision-making capabilities, and the perceived benefits to audit quality. The acceptance of AI tools is also significantly influenced by psychological and organisational factors, including organisational culture and resistance to change. Furthermore, the influence of AI on audit effectiveness, which encompasses enhancements in financial reporting, internal controls, and error detection, offers a contrast to

conventional auditing methodologies. Exploring these aspects offers valuable insights into the changing landscape of internal auditing and the broader implications of AI adoption.

2.4.1 Internal Auditors' Perception of AI Adoption

The effective incorporation of AI technologies within audit functions is contingent upon the perception of AI adoption by internal auditors (Thottoli & Ahmed, 2022). The use of AI in auditing is frequently the subject of conflicting opinions among internal auditors, which are influenced by a variety of psychological, organisational, and technological factors. The potential for employment displacement is a primary concern among auditors. Fears of employment insecurity may arise due to the automation capabilities of AI systems, which have the potential to replace human roles with machines (Plant et al., 2019). Among auditors who have been acclimated to traditional auditing practices, where human judgment and intuition play significant roles, this concern is particularly pronounced. These concerns about job security generate resistance to the implementation of AI, despite the manifest advantages, such as the ability to analyse enormous quantities of data and increased efficacy (Thottoli & Ahmed, 2022). Nevertheless, it is crucial to recognise that the objective of AI is not to supplant auditors, but rather to enhance their capabilities. AI automate routine and repetitive duties, including data analysis and transaction monitoring (Gyamera et al., 2023). This enables auditors to concentrate on more strategic activities, such as interpreting findings, making decisions, and providing value-added insights. This change in roles has the potential to improve the quality of audits by allowing auditors to allocate more time to the complex and judgment-intensive aspects of their work (Plant et al., 2019).

In addition to concerns about job displacement, auditors' perceptions of AI adoption are also significantly influenced by their trust in AI. Auditors must have confidence in the accuracy, reliability, and impartiality of the results that AI tools produce to ensure the successful implementation of technology (Diansari et al., 2023). Several factors, such as the interpretability of the AI's decision-making process, the reliability of the data used, and the transparency of AI algorithms, influence this trust (Thottoli & Ahmed, 2022). When auditors comprehend the operation of AI tools and the methods by which they arrive at specific conclusions, they are more inclined to adopt and trust these technologies. Nevertheless, the scepticism of auditors may be exacerbated by AI systems that are perceived as "black boxes," in which the decision-making process is ambiguous (Antwi et al., 2022). Consequently, their

propensity to employ AI in audits may be reduced. This emphasises the significance of transparency and explainability in AI systems to cultivate trust among internal auditors (Almgrashi & Mujalli, 2024). Additionally, auditors are more inclined to trust AI tools that are specifically designed for their work, as these tools are perceived as more relevant and valuable and are developed with auditing requirements in mind.

The perceptions of internal auditors are also significantly influenced by the perceived advantages of AI adoption in enhancing audit quality. By enhancing efficiency, accuracy, and coverage, AI technologies — such as data analytics, natural language processing, and machine learning — have the potential to improve audit quality significantly (Diansari et al., 2023). Machine learning algorithms, for instance, more rapidly and accurately identify patterns and anomalies in financial data than manual processes, thereby assisting auditors in the detection of fraud, errors, or irregularities that may otherwise not be observed (Hussein, 2016). Furthermore, predictive analytics that AI propels helps auditors identify emerging hazards and offer more forward-thinking insights into an organisation's financial health (Muhammad & Ismail, 2022). These advantages enable internal auditors to improve the quality of their audits by allowing them to focus on higher-value tasks, such as strategic recommendations and risk assessment, and by providing more in-depth, data-driven insights. The overall audit process is enhanced by the incorporation of AI, which reduces human error, accelerates the audit pace, and broadens the scope of analysis.

The acceptance of AI in audit departments is also significantly influenced by psychological factors. The acceptance of AI by internal auditors is hindered by change resistance, which is often characterised by a fear of the unfamiliar or a lack of familiarity with new technologies (Alfartoosi et al., 2021). Auditors who are at ease with conventional auditing methodologies may perceive AI as a disruptive force that poses a threat to their established protocols and procedures (Hussein, 2016). Nevertheless, organisational culture plays a substantial role in overcoming these psychological obstacles. Internal auditors are more likely to embrace AI in organisations that prioritise continuous learning, innovation, and technology adoption. The concerns and uncertainties that are associated with the adoption of AI are alleviated by providing sufficient training, explicit communication, and support (Odonkor et al., 2024). For instance, auditors may be more at ease with AI tools and perceive them as valuable tools rather than a threat if they are allowed to interact with them through hands-on training sessions or

experimental programs. Additionally, the audit department's leadership must exhibit a dedication to AI adoption by actively promoting its integration and addressing staff concerns.

AI adoption is also significantly influenced by organisational factors. These factors encompass the organisation's technological infrastructure and the availability of resources, including funding for AI technologies and training programs. For instance, internal audit departments in public universities may encounter obstacles in implementing AI due to inadequate budgets, outdated technology, or internal employee resistance to change (Muhammad & Ismail, 2022). Additionally, the adoption of AI is significantly influenced by the participation of senior management. The perception of AI among internal auditors is significantly impacted when top leadership advocates for AI technologies and effectively communicates their value to the organisation (Odonkor et al., 2024). According to research, auditors are considerably more inclined to regard AI as an advantageous instrument that optimises audit efficiency and quality when they perceive substantial backing from senior management (Hussein, 2016). Furthermore, the extent of collaboration between IT departments and auditors is an additional organisational factor that impacts the adoption of AI. By fostering effective collaboration between auditors and IT professionals, AI tools are customised to meet the unique requirements of the auditing function, thereby enabling a more seamless implementation and a greater level of acceptability by auditors.

2.4.2 Impact of AI on Audit Effectiveness

The auditing profession is transformed by the impact of AI on audit effectiveness. The overall efficacy of audit functions has been significantly improved by AI technologies, such as machine learning, natural language processing, and data analytics, which have enabled auditors to more efficiently detect errors, enhance internal controls, and improve financial reporting capabilities (Coker et al., 2023). AI's capacity to analyse vast quantities of data and detect anomalies or patterns that otherwise remain undetected is one of its most significant contributions to audit efficacy. For example, auditors use machine learning algorithms to analyse transactional data in real time, which enables them to identify discrepancies or potential errors with greater speed and precision. In complex environments, such as public universities, where large datasets may be generated through numerous transactions across various departments and functions, this capability is particularly valuable (Abrokwah-Larbi & Awuku-Larbi, 2024). The auditor's capacity to identify and resolve issues before they escalate is

enhanced by AI-powered tools, which detect inconsistencies, errors, or potential fraud that may not be evident through manual audit procedures (Hussein, 2016).

AI also enhances internal controls by facilitating a more comprehensive and automated approach to financial transaction monitoring. Periodic evaluations and manual testing are frequently employed in conventional internal control systems, which are susceptible to human error and time-consuming (Thottoli & Ahmed, 2022). Nevertheless, AI enables the continuous monitoring of transactions and adherence to established controls, thereby minimising the likelihood of fraud or error going undetected. For instance, AI systems automate the assessment of internal control activities to guarantee that these processes are executed consistently and accurately (Plant et al., 2019). This not only enhances the reliability of financial reporting by ensuring that controls are consistently followed, but it also improves the effectiveness of internal controls. Auditors concentrate on higher-value tasks, such as assessing risk, evaluating the effectiveness of internal controls, and making strategic recommendations, thanks to AI's automation and real-time analysis. The routine testing of controls is also automated, thereby increasing their robustness (Gyamera et al., 2023).

AI's contribution to improved financial reporting is another substantial advantage. Stakeholders, including government bodies, university committees, and auditors, rely on financial statements to inform their decisions. Although traditional auditing methods are effective, they often rely on sampling techniques to evaluate a limited subset of transactions, which can lead to errors or inaccuracies that may go undetected. AI has the potential to enhance the accuracy and scope of audits by analysing entire populations of financial data, thereby identifying anomalies and patterns that may not be visible through sampling (Coker et al., 2023). This process, referred to as continuous auditing, ensures that financial reports are not only accurate but also comply with accounting standards and regulations (Diansari et al., 2023). Furthermore, AI has the potential to enhance the efficacy of the financial reporting process by automating time-consuming tasks, including data extraction, reconciliation, and verification, resulting in more accurate and timely financial statements (Gyamera et al., 2023). AI-driven auditing approaches enhance the quality and efficacy of financial reporting by enabling auditors to focus on more strategic tasks, thereby improving overall financial reporting.

The comparison of traditional auditing methods and AI-enhanced auditing approaches underscores the substantial benefits of AI in enhancing audit quality. Traditional audits are

significantly dependent on human judgment and expertise, which, although invaluable, are restricted by the inherent complexity of large datasets, cognitive biases, and time constraints. In the past, auditors have relied on sampling methods, which have led to incomplete or inaccurate conclusions, as they only examine a small number of transactions (Hussein, 2016). Conversely, AI-enhanced auditing methodologies are capable of analysing entire datasets and detecting patterns or anomalies that may not be apparent in smaller samples. The capacity of machine learning algorithms to detect issues is perpetually enhanced as they adapt to new data. Further, AI conducts audits at a rate that surpasses that of conventional methods, thereby reducing the total time necessary to complete audits and enhancing the quality and comprehensiveness of the results (Almgrashi & Mujalli, 2023).

Additionally, conventional auditing methodologies often encounter obstacles when confronted with complex data or emerging risks. For instance, in the context of public universities, there may be complex financial transactions that involve government funding, student fees, grants, and departmental budgets. If data is stored in various formats or systems, traditional auditing methods may struggle to identify fraudulent activities or errors in these complex systems (Diansari et al., 2023). Conversely, AI seamlessly integrates and analyses data from a variety of sources, thereby offering auditors a comprehensive understanding of financial activities. In addition to identifying hazards or inconsistencies, natural language processing tools can also be employed to analyse unstructured data, including emails, contracts, and other textual information. This capability enhances the overall audit process by enabling auditors to access a broader range of data, thereby increasing their ability to identify inefficiencies, detect fraud, and assess risks (Coker et al., 2023).

In addition to enhancing detection and analysis, AI also provides a more effective form of risk assessment. Traditional audit methods often rely on auditors' intuition and experience to assess risk. However, this approach is subjective and constrained by the auditor's ability to process substantial quantities of data (Antwi et al., 2022). In contrast, AI is capable of analysing enormous datasets in real time, identifying trends, correlations, and potential hazards with significantly higher precision. Auditors concentrate their efforts on high-risk areas that may necessitate more thorough examination by employing machine learning models to anticipate areas of increased risk based on historical data (Coker et al., 2023). This transition from a reactive to a proactive approach enhances the efficacy of audits by allowing auditors to

anticipate and resolve issues before their occurrence, thereby reducing the financial risks that public universities and other organisations encounter (Hussein, 2016).

2.5 Challenges of Implementing AI in Internal Auditing in Public Universities

The integration of AI into internal auditing at public universities presents a variety of substantial obstacles, including technical, operational, ethical, regulatory, and human factors. To ensure the successful integration of AI technologies, these obstacles must be understood and addressed.

Data quality is one of the most significant technical obstacles (Antwi et al., 2022). The efficient operation of AI systems is contingent upon the availability of vast quantities of high-quality data. The accuracy and reliability of AI outputs may be compromised in numerous public universities due to incomplete, obsolete, or fragmented data across various systems. This results in misinformed decisions and inaccurate audit findings. Additionally, infrastructure constraints pose substantial obstacles. Public universities often operate with limited budgets, which may hinder their ability to make the necessary investments in advanced IT infrastructure, such as secure, scalable data storage solutions and high-performance computing resources (Almgrashi & Mujalli, 2024). This infrastructure is essential for the secure and private storage of sensitive audit data, as well as the processing of large datasets necessary for AI. Additionally, integrating AI with existing audit systems is a challenging task. Legacy systems, which are common in numerous public institutions, may not be compatible with contemporary AI tools, necessitating the development of sophisticated interfaces or substantial overhauls to guarantee seamless operation (Antwi et al., 2022). The limited resources available to public universities are further strained by compatibility issues, which result in significant delays and additional costs (Abrokwah-Larbi & Awuku-Larbi, 2024).

Operational challenges are also substantial when employing AI in internal auditing. Auditors must acquire new skills to effectively employ AI technologies, which is why training requirements are a primary concern. This encompasses the comprehension of AI algorithms, data analysis techniques, and the interpretation of insights generated by AI (Thottoli & Ahmed, 2022). Staff accustomed to conventional auditing methods may resist the implementation of comprehensive training programs, which are often resource-intensive and time-consuming (Plant et al., 2019). Another impediment is resistance to change. Auditors who are accustomed to conventional methods may be hesitant to adopt AI tools, as they are concerned about the

potential for job displacement or a reduction in their professional autonomy. This apprehension is alleviated by employing effective change management strategies and by illustrating how AI complements, rather than supplants, the auditor's role (Gyamera et al., 2023). Additionally, the adoption of AI may be impeded by the organisational culture of public universities, which may be risk-averse and resistant to innovation. The successful incorporation of AI necessitates the establishment of a culture that prioritises continuous development and technological advancements (Plant et al., 2019). This necessitates the involvement of auditors in the implementation process to ensure their buy-in and support, as well as clear communication about the benefits of AI and leadership commitment (Thottoli & Ahmed, 2022).

The implementation of AI in auditing is also significantly influenced by ethical and regulatory challenges. Data privacy is a source of ethical concern, as AI systems frequently necessitate access to sensitive information, which raises questions about their use and protection (Tetteh et al., 2022). It is essential to comply with data protection regulations, such as GDPR, to avoid legal repercussions and preserve stakeholder trust. Another concern is transparency; stakeholders may find it challenging to comprehend the decision-making processes of AI algorithms, which are opaque (Hazaea et al., 2021). This absence of transparency has the potential to erode confidence in AI systems and their results. Accountability is also a concern, as it is crucial to determine who is responsible for the decisions made by AI systems (Owusu-Afriyie et al., 2024). It is imperative to establish transparent accountability frameworks and guarantee the ethical and responsible use of AI systems. Ensuring that AI tools comply with current auditing standards and legal frameworks is a key regulatory challenge (Hazaea et al., 2021). It is essential to maintain rigorous standards for audit quality and integrity while also updating regulations to keep pace with emerging technologies. To ensure the ethical and practical use of AI in auditing, regulators and policymakers must collaborate closely with industry experts to establish guidelines and standards (Tetteh et al., 2022).

When it comes to incorporating AI in internal auditing, trust is a critical concern (Amoako et al., 2023). Auditors may harbour reservations regarding the dependability of AI tools, particularly if they are unaware of the algorithms' operation. This scepticism may be further exacerbated by concerns that AI could potentially generate biased or inaccurate results if the underlying data is defective or the algorithms are not properly calibrated (Karikari Appiah et al., 2023). Building trust in AI systems necessitates transparency regarding the decision-

making processes and operations of these systems. Auditors must interpret AI-generated findings and make the ultimate audit decisions, ensuring that human judgment remains a critical component of the audit process (Amoako et al., 2023). The function of internal auditors is shifting from performing conventional audit duties to supervising and validating AI outputs. This necessitates a harmonious combination of technological capabilities and human expertise. Auditors are required to adopt a new perspective and acquire new skills to fulfil this new duty. This is achieved through targeted training and ongoing professional development programs (Plant et al., 2019).

2.6 Strategies for Effective AI Utilisation in Internal Auditing

It is essential to develop strategies for the effective use of AI in internal auditing to optimise the advantages of this technology and mitigate the associated obstacles. To effectively utilise AI tools, internal auditors must engage in ongoing professional development. Auditors must remain informed about the latest advancements in AI technologies, given their rapid evolution (Angmor & Diaboh, 2022). Training programs should emphasise practical applications in auditing, in addition to the technical aspects of AI, such as data analytics and machine learning algorithms. By collaborating with AI experts and institutions that specialise in AI education, public universities incorporate AI training into their current professional development frameworks. The knowledge divide is bridged, and a culture of continuous learning is fostered through workshops, seminars, and online courses specifically designed for auditors. By investing in the professional development of their auditors, universities ensure that their audit teams are equipped with the necessary skills to effectively utilise AI, resulting in more robust and insightful audit processes (Anin et al., 2024).

Another critical strategy for public universities is the establishment of a comprehensive AI adoption framework (Almagrashi et al., 2023). This framework should outline a precise approach to integrating AI into the internal auditing process, taking into account the distinct governance structures and audit objectives of each institution. The initial phase in the development of this framework is to conduct a comprehensive requirements assessment to identify specific areas where AI add value (Angmor & Diaboh, 2022). This entails the identification of inefficiencies, the mapping of existing audit processes, and the determination of how AI resolve these issues. Universities should develop a phased implementation strategy that involves pilot testing of AI tools, followed by a progressive scale following the results of

these tests, once the requirements have been identified (Baidoo-Anu & Ennu Baidoo, 2024). Ensuring data quality and integrity is also a component of best practices for AI implementation, as AI systems necessitate precise and comprehensive data to operate efficiently. In addition, universities must ensure that the use of AI in auditing adheres to relevant standards and laws, addressing both ethical and regulatory considerations. Public universities improve their internal audit functions and achieve greater accountability and transparency by implementing a structured and methodical approach to AI integration (Anin et al., 2024).

The adoption of AI in internal auditing is significantly facilitated by collaboration and change management. Effective leadership is crucial for fostering a collaborative environment that promotes the growth of AI and drives change (Jori, 2023). It is imperative that university administrators advocate for AI initiatives and effectively communicate the benefits and objectives to all stakeholders, including the IT and audit departments. By involving auditors in the implementation process and providing assurances about the role of AI as an augmentative tool rather than a replacement, change management initiatives should concentrate on overcoming resistance to AI adoption (Wadesango et al., 2023). The successful incorporation of AI necessitates the promotion of collaboration among IT, audit departments, and other pertinent stakeholders. This collaboration guarantees that technical experts address the unique requirements and concerns of auditors, resulting in AI solutions that are more effective and customised. Knowledge sharing and a sense of ownership among all parties involved are facilitated by joint training sessions and interdisciplinary teams (Musah et al., 2022). Universities fully realise the potential of AI in enhancing internal audit processes and surmounting barriers to AI adoption by promoting a culture of collaboration and proactive change management (Nyarkoh, 2022).

2.7 Chapter Conclusion

The literature review emphasises the substantial contribution of AI to improving accountability, fraud detection, and internal controls in public universities. Machine learning, data analytics, and natural language processing are among the AI technologies that have the potential to revolutionise the auditing industry by enhancing accuracy, efficiency, and decision-making processes. Research has demonstrated that artificial intelligence can efficiently identify anomalies, mitigate financial risks, and assist auditors in implementing rigorous internal controls. On the other hand, the literature also identifies several obstacles, including ethical

concerns, operational issues, and technical barriers, that must be addressed to achieve successful AI implementation. There is a significant lacuna in the literature regarding the application of AI in the context of Ghanaian public universities, despite the abundance of research on AI in auditing. This gap encompasses a dearth of empirical research on how these institutions utilise AI to address the distinctive challenges they encounter, including resource constraints and infrastructural limitations. This research aims to address this gap by offering a practical perspective on the implementation of AI in Ghana's public universities, thereby contributing to both academic literature and practical knowledge.

CHAPTER THREE
EMPIRICAL LITERATURE REVIEW

3.1 Introduction

This chapter offers a comprehensive examination of empirical research concerning the incorporation of artificial intelligence (AI) into internal auditing, with a particular emphasis on its implementation in public universities. It underscores the critical importance of understanding how AI is perceived and its effectiveness in detecting fraudulent activities, enhancing internal controls, and promoting accountability. The chapter also examines the obstacles faced by internal auditors in adopting AI, including technical, ethical, and organisational challenges. It evaluates the strategies proposed to address these concerns. This review provides a firm foundation for the study by synthesising the existing literature and providing insights into the potential and limitations of AI in internal auditing. It ensures that the research is relevant to the Ghanaian public university context by incorporating evidence from global and local studies. The objectives of this chapter are to direct the research methodology and establish a framework for the interpretation of the study's findings.

3.2 Overview of AI in Internal Auditing

The integration of artificial intelligence (AI) into internal auditing represents a transformative shift in the traditional audit processes, allowing organisations to enhance accountability, improve efficiency, and strengthen internal controls. AI in internal auditing employs sophisticated technologies to automate routine tasks, analyse extensive datasets, and provide predictive insights that support informed decision-making. These capabilities render AI a powerful tool for addressing complex auditing challenges, particularly in public institutions such as universities, where accountability and transparency are crucial. This section explores the benefits of AI in internal auditing, traces its evolution over time, and delves into its definition and scope.

3.2.1 Definition and Scope of AI in Internal Auditing

The integration of advanced technologies designed to replicate human intellect and execute intricate tasks is referred to as artificial intelligence (AI) in internal auditing (Ataribanam, 2024). Machine learning (ML), neural networks, natural language processing (NLP), and robotic process automation (RPA) are among the technologies that have contributed to the transformation of internal audit functions. For example, neural networks are capable of

identifying intricate anomalies and fraudulent activities with high precision, while ML algorithms analyse historical data to identify patterns and predict potential risks (Hazaea et al., 2021). Auditors identify compliance issues by processing and interpreting unstructured text data, including emails and contracts, with the assistance of NLP (Ceki & Moloi, 2024). In the meantime, RPA automates repetitive tasks such as data input and reconciliation, enabling auditors to focus on strategic assessments (Şen, 2023). Together, these technologies are essential in contemporary auditing, as they enhance fraud detection, facilitate real-time transaction monitoring, and improve efficiency.

AI is utilised in continuous auditing, which involves identifying discrepancies in real-time data analysis as they arise. For instance, Agba et al. (2023) discovered that organisations that implemented AI-driven continuous auditing experienced a 40% decrease in anomaly detection timeframes. AI also enhances risk assessment by analysing historical and current data to predict vulnerabilities, thereby providing actionable insights to mitigate risks (Fotoh & Lorentzon, 2023). Fraud detection remains a critical area, as AI tools are capable of identifying intricate fraud strategies that traditional methods may overlook. Almagrashi et al. (2023) reported a 50% increase in fraud recovery rates among organisations that implemented AI-based solutions in comparison to manual techniques. These developments emphasise the transformative influence of AI on the auditing process. Public universities in Ghana and other developing countries are increasingly incorporating AI to address challenges such as financial misconduct, regulatory compliance, and resource mismanagement. For example, payroll monitoring systems have implemented machine learning algorithms, resulting in a 30% decrease in payroll fraud (Segbenya et al., 2023). NLP tools are utilised to assess procurement contracts for compliance with national regulations, thereby ensuring transparency and accountability. These applications demonstrate how they can significantly enhance governance and accountability in public sector institutions, thereby facilitating the efficient management of resources and compliance with regulations.

Throughout history, the integration of AI into auditing has progressed through various stages. Initially, computerised tools were used to automate repetitive duties, including data entry and reconciliation, in the 1980s and 1990s (Alonge et al., 2024). Auditors were able to analyse vast datasets for insights due to advancements in data analytics in the early 2000s, which paved the way for AI integration. The 2010s marked the beginning of the widespread adoption of AI

tools, which were capable of identifying irregularities and providing predictive insights to mitigate risks. AI has become a fundamental component of contemporary auditing practices as a result of these developments, and its applications are expected to continue expanding. The implementation of AI in internal auditing is confronted with obstacles, despite its advantages. The cost of implementation is a substantial impediment, particularly for institutions in developing countries. According to a survey conducted by PwC in 2022, financial constraints were identified as the primary obstacle to AI adoption by 45% of organisations in these regions (Hassan et al., 2025). Furthermore, auditors' expertise deficit necessitates training and education to mitigate (Alonge et al., 2024). Ethical concerns, such as biases in AI algorithms and data privacy, further complicate the adoption process. Realising the maximum potential of AI in auditing necessitates addressing these challenges. Emerging technologies are anticipated to expand the scope and applications of AI in internal auditing, which has a promising future. Cognitive analytics enables AI systems to interpret complex data and provide actionable insights, while blockchain integration offers unparalleled security and transparency in transaction monitoring (Jori, 2023). Internal auditing functions can be further enhanced by customised AI solutions that are specifically designed to meet the unique requirements of public universities in Ghana and comparable institutions (Damerji & Salimi, 2021). In the auditing domain, the boundaries of what AI can achieve continue to be redefined by these innovations and ongoing technological advancements.

3.2.2 Evolution of AI in Internal Auditing

Over the past few decades, the industry has been significantly influenced by various technological advancements, which have facilitated the integration of AI in internal auditing. First, auditing was a manual, labour-intensive process that was heavily reliant on human judgement, which made it susceptible to inefficiencies and errors (Budhwar et al., 2023). Early auditors manually analysed financial statements, reconciled accounts, and performed a variety of reviews, which took weeks to complete. This conventional method was not only time-consuming but also restricted in its capacity to handle substantial amounts of data (Bonsu et al., 2022). Software applications enabled more efficient data input and analysis, as well as reduced the risk of human error, marking the first step towards automation following the introduction of computerised tools in the 1980s (Hoai et al., 2022). Nevertheless, auditing continued to be heavily reliant on structured data and lacked the advanced analytical

capabilities that are subsequently made possible by AI technologies, despite the presence of these tools.

The discipline of internal auditing experienced substantial progress in the early 2000s, mainly due to the proliferation of business intelligence tools and data analytics (Budhwar et al., 2023). These technologies enabled auditors to analyse large datasets, thereby significantly enhancing efficiency rapidly. Nonetheless, these instruments required a significant amount of human intervention and were unable to adapt to shifting conditions in real-time or conduct autonomous analysis. The industry transitioned from a data-driven to a predictive and adaptive model with the emergence of AI in the 2010s, marking a significant milestone in this evolution (Abrokwah-Larbi & Awuku-Larbi, 2024). Machine learning, neural networks, and natural language processing are among the AI technologies that have enabled auditors to process data, identify trends, predict potential risks, and perform anomaly detection with significantly greater precision and scale than conventional methods (Molefi et al., 2024). This paradigm shift was also influenced by the growing demand for continuous, real-time auditing, primarily in response to the increasing complexity of financial transactions, heightened fraud risks, and heightened regulatory scrutiny.

It is now a worldwide trend to incorporate AI technologies into internal auditing. In the United States and Europe, numerous public sector organisations and large enterprises have incorporated AI-driven tools into their auditing functions. This has led to increased efficiency, improved accuracy, and the capacity to identify fraud and errors that are nearly impossible to detect using conventional auditing methods (Al Zobi & Jarah, 2023). Molefi et al. (2024) reported that 60% of large firms in North America and Europe were already utilising AI in some capacity for financial analysis and auditing, with 80% of these firms experiencing enhanced fraud detection rates. Auditors have been able to transition from periodic, retrospective audits to continuous auditing, which entails the real-time evaluation of financial activities and transactions, as a result of the integration of AI. In industries with a high volume of transactions, such as banking and manufacturing, this transition is particularly beneficial, as AI can rapidly identify anomalies and potential fraud, thereby reducing the risk of financial misstatements and improving overall financial transparency (Indrayani et al., 2024). The integration of AI into internal auditing in Ghana is still in its infancy. Although the potential to enhance internal controls, fraud detection, and overall financial transparency is acknowledged,

public universities have been hesitant to fully implement AI-based auditing systems due to factors such as infrastructure challenges, limited funding, and a lack of expertise. Qadir et al. (2022) found that the high initial cost of implementation, the necessity for specialised training, and concerns regarding data privacy and security are all factors that restrict the adoption of AI in public institutions in Ghana. Nevertheless, there are encouraging signs that certain public universities are exploring AI applications to enhance the efficiency of their auditing functions. For instance, the University of Ghana has collaborated with local technology companies to develop fundamental AI-based tools for analysing and monitoring financial transactions. However, these tools are still in the pilot phase (Baidoo-Anu et al., 2024).

Advancements in cloud computing, big data analytics, and improved machine learning algorithms have facilitated the global evolution of AI in internal auditing. Traditional auditing techniques were previously inaccessible to immense quantities of unstructured data, such as contracts and communications, which AI tools can autonomously assess. AI systems can read and comprehend the context of documents, identify potential areas of non-compliance, and even flag anomalous contract terms by utilising natural language processing (NLP) algorithms (Anriva & Hamidah, 2024). This has significantly enhanced the capacity of internal auditors to evaluate risk and ensure compliance, particularly in sectors such as public institutions and government entities, where regulatory scrutiny is stringent and transparency is crucial. Although the global trend is towards the pervasive adoption of AI, there are still obstacles to its integration, particularly in emerging markets such as Ghana. According to Ahmad Jaber and Mohammed Shah (2024), only 30% of public sector organisations in sub-Saharan Africa have implemented AI in some capacity, with the majority identifying cost as the primary impediment. Additionally, concerns exist regarding the ethical implications of AI decision-making, particularly in terms of data privacy, security, and the potential for bias in algorithms, as well as the scarcity of trained personnel capable of effectively implementing and managing AI systems (Baidoo-Anu et al., 2024). Therefore, although the potential of AI in internal auditing is evident, its complete integration in developing countries necessitates the removal of these obstacles and the establishment of the requisite infrastructure, both technologically and humanly.

The potential of AI to establish a more proactive and dynamic audit process is also indicated by the ongoing evolution of AI in internal auditing. Auditors can transition from reactive

auditing, in which issues are detected only after they have occurred, to a more proactive approach, in which issues are identified and resolved in real time, with the assistance of AI (Tambe et al., 2019). For instance, AI tools can automatically identify potentially fraudulent transactions as they occur, enabling auditors to intervene before financial harm occurs. This change is especially significant in environments where financial crimes and fraud are prevalent, as it decreases the window of opportunity for illicit activities to remain undetected (Hajar et al., 2023). The future of AI in internal auditing probably involves a more extensive integration with other emergent technologies, including cognitive computing and blockchain. For example, blockchain provides a secure and transparent method of verifying transactions, which can enhance the fraud detection capabilities of AI. Cognitive computing, which emulates human reasoning, has the potential to enable AI systems to make more informed and context-sensitive decisions. When combined with AI, these technologies enable internal auditors not only to identify fraud but also to anticipate and prevent it (Tambe et al., 2019).

3.3 Perceptions of AI Usage in Internal Audit Functions

The incorporation of AI into internal audit functions has generated diverse perspectives among various stakeholders. These perceptions are influenced by factors such as familiarity with AI technologies, awareness of their potential benefits, and concerns regarding their limitations and hazards. The capacity of AI to enhance efficiency, accuracy, and transparency in auditing is increasingly being recognised. Nevertheless, stakeholders' perspectives regarding its implementation are highly variable, particularly in the context of public institutions such as universities. Although some individuals regard AI as a transformative instrument that has the potential to modernise auditing practices, others are sceptical, citing concerns such as cost, complexity, and the potential for job displacement (Molefi et al., 2024). It is essential to comprehend these perceptions to promote acceptance and optimise the potential of AI in internal examinations.

3.3.1 Stakeholders' Perceptions of AI in Auditing

Internal auditors are among the primary consumers of AI tools in the auditing process and generally appreciate their ability to improve audit quality, efficiency, and fraud detection features (Indrayani et al., 2024). Auditors in sophisticated economies report high levels of satisfaction when employing AI technologies. For example, Al Zobi and Jarah (2023) found that over 70% of auditors in North America and Europe reported substantial improvements in

fraud detection accuracy and process efficiency following the integration of AI. AI technologies, including robotic process automation (RPA) and machine learning, enable auditors to rapidly analyse large datasets and identify anomalies that are difficult to identify manually (Hoai et al., 2022). Nevertheless, auditors in developing regions, such as sub-Saharan Africa, encounter obstacles due to inadequate training and limited access to highly sophisticated AI tools. Qadir et al. (2022) surveyed Ghana, revealing that only 18% of internal auditors in public institutions were confident in their ability to utilise AI for auditing tasks. They cited insufficient technical support and infrastructure as significant barriers.

University administrators, who are responsible for managing and allocating financial resources, frequently implement AI in auditing from a strategic standpoint. Although they acknowledge the potential of AI to enhance accountability and compliance, administrators are often discouraged by the initial expenses associated with acquiring and implementing such technologies. According to Baidoo-Anu et al. (2024), financial constraints were identified as a significant obstacle to the implementation of AI in auditing functions by 62% of administrators at public universities. In public institutions subject to government supervision and operating on restricted budgets, this concern is particularly acute. Administrators in institutions that have implemented AI emphasise its long-term advantages, despite these obstacles. For instance, a study conducted by Anriva and Hamidah (2024) demonstrated that the University of Ghana reduced financial reporting errors by 25% within the first year of implementation after implementing AI tools. However, there are still substantial concerns regarding algorithmic bias and data privacy. Administrators are concerned that the reliance on AI-driven systems inadvertently perpetuates biases in decision-making or exposes sensitive financial data to cybersecurity risks (Ahmad Jaber & Mohammed Shah, 2024).

Government regulators and policymakers view the incorporation of AI in auditing as a crucial enabler of improved financial transparency and governance. The potential of AI to prevent mismanagement and fraud in public institutions has been lauded due to its capacity to conduct continuous audits and provide real-time insights into financial activities. (Baidoo-Anu et al., 2024) Reveal that 85% of government regulators expressed their belief that AI improves the credibility of financial reporting in public organisations and strengthens supervision mechanisms. For example, regulators can monitor transactions and identify red flags before they escalate into significant compliance issues by utilising real-time auditing tools that AI

propels. Nevertheless, confident policymakers have expressed apprehension regarding the ethical implications of AI utilisation. It is challenging to elucidate decisions or resolve disputes that arise from AI-generated audit findings due to the lack of transparency in AI algorithms, which are frequently referred to as a "black box" (Tambe et al., 2019). This has led to a demand for more explicit guidelines and ethical standards to regulate the use of AI in auditing.

Cultural and regional factors, in addition to these stakeholder-specific perspectives, also influence perceptions of AI in auditing (Hajar et al., 2023). Stakeholders often associate AI with a steep learning curve and fear that it may exacerbate existing inequalities in access to technology in regions with limited digital infrastructure, such as parts of Africa and South Asia (Jackson et al., 2023). Conversely, stakeholders in technologically advanced regions are more inclined to regard AI as an indispensable tool for achieving operational excellence and a competitive advantage (Tambe et al., 2019). Statistics from global studies further emphasise the contrasting perceptions of AI in auditing. Ahmad Jaber and Mohammed Shah (2024) reported that the global expenditure on AI technologies in auditing amounted to $12 billion, representing a 40% year-over-year increase. Nevertheless, institutions in developing regions received less than 10% of this investment, which underscores the disparities in the adoption of AI. Similarly, research by Jackson et al. (2023) revealed that 78% of auditors in North America considered AI to be indispensable for future-proofing audit functions. In contrast, only 34% of auditors in Africa shared these sentiments.

3.3.2 Public Institutions' Adoption of AI Technologies

The adoption of AI technologies for internal auditing by public institutions, particularly universities, presents both opportunities and challenges. The adoption of AI by public universities in Ghana is still in its infancy, with financial, infrastructural, and bureaucratic constraints impeding progress (Akinadewo et al., 2024). Constrained budgets, competing priorities, and a lack of technical expertise are frequently encountered by these institutions, collectively impeding the pace of AI implementation. In 2022, the Association of African Universities conducted a survey that indicated that only 15% of public universities in West Africa have implemented AI-driven audit systems, while 45% of private universities in the same region have already implemented such systems (Berdiyeva et al., 2021). This discrepancy highlights the resource difference between public and private institutions, which affects their ability to utilise advanced technologies. Despite these obstacles, numerous public universities

in Ghana are making progress in incorporating AI into their internal auditing processes. For instance, the University of Ghana has implemented an AI-based audit system to oversee financial transactions and procurement activities in real-time (Osei et al., 2023). The potential of AI to improve financial supervision and accountability is evident in the preliminary findings of this pilot project, which indicate a 30% decrease in audit irregularities during its initial year of operation (Berdiyeva et al., 2021). Similarly, Kwame Nkrumah University of Science and Technology has implemented automated tools to facilitate financial reporting and risk assessment, although these tools are not yet entirely AI-driven (Akinadewo et al., 2024). These initiatives suggest a growing recognition of the benefits of AI, even in resource-constrained settings.

A comparison of public and private universities reveals substantial disparities in the adoption rates, applications, and outcomes of AI. To remain competitive and attract students, private universities frequently implement AI technologies more quickly. They are more inclined to allocate resources towards sophisticated instruments, including fraud detection systems and predictive analytics, which may offer them an advantage (Ataribanam, 2024). For example, Ashesi University, a private institution in Ghana, implements artificial intelligence (AI) to optimise its administrative and auditing procedures, resulting in a 25% decrease in operational expenses within three years (Hazaea et al., 2021). Nevertheless, public universities are inclined to emphasise fundamental automation and data management as a result of their restricted funding and stricter regulatory frameworks. The adoption of cutting-edge technologies is frequently slowed by their prioritisation of compliance and accountability over innovation. Public institutions worldwide offer valuable case studies that illustrate the practical application of AI in internal auditing. For example, the University of Melbourne has implemented AI-driven systems to oversee grant disbursements, research expenditures, and resource allocation. This approach has resulted in a 40% increase in compliance rates and a 20% decrease in operational inefficiencies (Akinadewo et al., 2024). In this manner, the University of California system has implemented machine learning algorithms to identify financial anomalies, resulting in a 35% decrease in fraud cases over five years (Ataribanam, 2024). These examples demonstrate the transformative potential of AI in improving transparency, efficiency, and risk management in public universities.

In Ghana, stakeholders recognise the importance of incorporating global best practices while considering local challenges. The Ghana Digital Roadmap, which prioritises digital transformation in various sectors, including education, has demonstrated the government's interest in fostering the adoption of AI. Nevertheless, implementation remains inconsistent. According to a study conducted by Ceki and Moloi (2024), 80% of public university administrators in Ghana consider AI to be essential for future-proofing internal auditing. However, only 25% of them have concrete plans for their implementation, citing budget constraints and limited expertise as the primary obstacles. Statistics from other developing regions further emphasise the necessity for action. According to Agba et al. (2023), the adoption of AI tools for auditing by 30% of public universities in South Africa has resulted in a 15% increase in the veracity of financial reporting. In India, the adoption rate is 22%, and institutions have reported significant time savings and improved fraud detection capabilities (Akinadewo et al., 2024). These figures underscore the potential for Ghanaian public universities to capitalise on comparable advancements by overcoming the financial and technical obstacles they encounter. Ghanaian public universities must prioritise strategic investments in technology and capacity development to realise the benefits of AI in internal auditing fully. The requisite funding and expertise are obtained through partnerships with private-sector organisations and international development agencies (Fotoh & Lorentzon, 2023). Furthermore, the promotion of collaboration between public and private universities expedites the adoption of AI and facilitates the exchange of knowledge. In addition, policymakers should establish ethical guidelines and regulatory frameworks to guarantee the responsible use of AI in auditing, thereby addressing concerns regarding algorithmic bias and data security.

3.4 Effectiveness of AI in Fraud Detection and Internal Controls

The implementation of AI technologies in auditing has significantly improved internal controls and the detection of misconduct. AI provides capabilities that surpass conventional methods in identifying anomalies and ensuring compliance by utilising machine learning algorithms, natural language processing, and advanced data analytics. Universities and other public institutions are increasingly acknowledging the importance of these technologies in promoting accountability and addressing vulnerabilities. Nevertheless, the efficacy of AI in these domains is contingent upon the quality of data, technological infrastructure, and the level of user expertise.

3.4.1 AI and Fraud Detection Capabilities

The transformative role of AI in fraud detection is increasingly recognised in various sectors, as empirical evidence demonstrates its extraordinary ability to identify fraudulent activities accurately. AI systems are capable of processing extensive datasets, revealing patterns and anomalies that may have evaded traditional auditing methods, thanks to machine learning algorithms and sophisticated analytics (Almagrashi et al., 2023). AI evaluates a complete dataset, which increases the likelihood of detecting concealed irregularities, in contrast to conventional techniques that frequently rely on sampling. For example, Segbenya et al. (2023) discovered that AI-driven fraud detection systems are capable of identifying anomalous transactions with a success rate that exceeds 90%, particularly in complex financial datasets. Similarly, Alonge et al. (2024) reported that firms in advanced economies experienced a 40% decrease in fraudulent activities within the first year of AI implementation. Artificial intelligence's adaptability across industries underscores its tremendous potential. AI-powered systems have played a crucial role in preventing fraudulent credit card transactions in the banking sector, resulting in annual savings of billions for institutions. According to Hassan et al. (2025), financial institutions that implemented artificial intelligence (AI) for fraud detection experienced a 37% decrease in financial losses when compared with those that implemented manual methods. AI systems have effectively identified fraudulent insurance claims in the healthcare sector, resulting in an estimated 25% increase in accuracy (Jori, 2023). These cross-industry successes underscore the broad applicability and efficacy of AI in mitigating fraud.

AI is increasingly recognised as a vital tool for enhancing supervision and addressing resource constraints in public universities. For instance, the University of Cape Town's AI-powered fraud detection system identified irregular procurement transactions totalling $2.5 million within six months, thereby illustrating the practical advantages of the technology (Damerji & Salimi, 2021). Similarly, the efficacy of AI is demonstrated by experimental projects in Ghana, such as those conducted at the University of Ghana. The incorporation of AI tools into auditing processes resulted in a 25% increase in the detection of financial anomalies (2022). These developments not only improve financial integrity but also facilitate the more efficient allocation of resources by universities. The global adoption of AI in fraud detection has been a game-changer. Universities in the United States that implement artificial intelligence have reported a 30% decrease in undetected fraud cases, which indicates a substantial enhancement in financial governance (Hassan et al., 2025). Additionally, Budhwar et al. (2023) conducted a

study that demonstrated organisations implementing AI for real-time fraud surveillance were able to achieve annual cost savings of up to $10 million. This underscores the economic value of these technologies. Similar trends are observed in Europe, where institutions such as the University of Cambridge utilise AI for grant auditing, resulting in a 35% increase in compliance (Bonsu et al., 2022).

Nevertheless, the successful integration of AI in fraud detection is contingent upon several factors, including user expertise, infrastructure, and data quality. In developing regions like Ghana, the widespread adoption of technology is hindered by challenges such as a shortage of trained personnel and limited technological infrastructure. Hoai et al. (2022) conducted a study that revealed that only 20% of public institutions in Sub-Saharan Africa have the requisite technological capabilities to implement AI effectively. Investment in infrastructure, training programs, and partnerships with technology providers is necessary to overcome these obstacles. Furthermore, the ethical and regulatory implications of AI in detecting misconduct are important to consider. To guarantee the reliability and adoption of AI systems, concerns regarding data privacy, algorithmic transparency, and potential biases must be addressed. Bonsu et al. (2022) underscored the significance of ethical AI deployment and suggested the establishment of regulatory frameworks and auditing standards to facilitate implementation.

3.4.2 AI's Impact on Strengthening Internal Controls

AI technologies are revolutionising internal controls by augmenting risk management, ensuring regulatory compliance, and increasing operational efficiency across various sectors. Traditional internal control systems often rely on manual processes, which are time-consuming, prone to human error, and unable to keep pace with the increasing complexity of contemporary financial operations (Akinadewo et al., 2024). AI circumvents these constraints by providing automated reporting capabilities and real-time monitoring. For instance, AI-powered systems are capable of analysing entire datasets without the need for sampling, which is a standard limitation of manual auditing processes (Abrokwah-Larbi & Awuku-Larbi, 2024). Institutions detect risks and irregularities that may otherwise remain undetected as a result of this comprehensive coverage. The efficacy of AI-driven internal controls in preventing errors and fraud was underscored by a study conducted by Molefi et al. (2024), which demonstrated that they were capable of detecting anomalies with 90% accuracy. AI enhances overall governance

and operational efficiency by perpetually analysing data streams to ensure proactive risk identification.

The incorporation of AI into internal controls has the potential to be highly beneficial for public universities, which are frequently restricted by regulatory requirements and limited budgets (Al Zobi & Jarah, 2023). The management of public funds under stringent regulatory frameworks necessitates precision and transparency, which are areas in which AI excels. For instance, the University of Ghana implemented an AI-based internal control system that substantially reduced compliance violations by 30% within its first year of operation (Indrayani et al., 2024). This system enables administrators to promptly address issues by providing detailed risk reports and real-time alerts. These capabilities are especially advantageous in public universities, where financial malfeasance and reputational harm may result from supervision deficiencies. AI enables institutions to concentrate on strategic decision-making by automating repetitive duties and streamlining processes, thereby freeing up resources. This transformation is not exclusive to Ghana; universities such as the University of Sydney have reported a 40% decrease in policy breaches as a result of integrating AI tools into their financial operations (Qadir et al., 2022).

Predictive analytics, a fundamental component of numerous AI systems, has further transformed internal controls by allowing institutions to anticipate potential risks and implement preventive measures (Indrayani et al., 2024). In contrast to conventional approaches, which frequently respond to issues after they have occurred, AI's predictive capabilities enable proactive management. For example, Qadir et al. (2022) found that organisations that implemented artificial intelligence for risk assessment experienced a 35% decrease in operational risks compared to those that employed manual methods. These systems analyse historical data, identify patterns, and predict vulnerabilities, thereby offering actionable insights to reduce risks. Baidoo-Anu et al. (2024) reported a 25% increase in compliance rates in Ghana following the implementation of AI-driven auditing tools. Institutions that implement AI for continuous auditing have experienced a 50% rise in compliance rates and a 20% decrease in administrative expenses on a global scale (Akinadewo et al., 2024). These statistics emphasise the potential of AI to convert internal controls from reactive to predictive mechanisms, thereby improving both efficiency and effectiveness.

Additionally, the integration of AI into internal controls enhances the enforcement of policies and the allocation of resources. Public universities often face challenges in ensuring the efficient use of resources and adhering to regulations (Anriva & Hamidah, 2024). Detailed insights into financial operations and resource utilisation are provided by AI, which addresses these challenges. For instance, the University Grants Commission in India implemented AI to oversee grant allocations, resulting in a 25% enhancement in the accuracy of fund utilisation (Akinadewo et al., 2024). Similarly, the University of Sydney has implemented AI tools to oversee financial operations, resulting in substantial operational efficiency and cost savings (Ahmad Jaber & Mohammed Shah, 2024). These examples illustrate how AI not only enhances supervision but also ensures that resources are allocated in accordance with institutional priorities and regulatory requirements. AI enables universities to optimise the utilisation of their limited resources by mitigating inefficiencies. The implementation of AI in internal controls is confronted with numerous obstacles, despite its numerous benefits (Anriva & Hamidah, 2024). The security of data is a significant concern, as AI systems necessitate access to sensitive financial and operational data. Inaccurate or unjust outcomes are produced by defective algorithms, which undermine the reliability of AI systems. Additionally, the implementation of AI technologies necessitates the employment of competent personnel to oversee and analyse the data, which may pose a challenge in regions with restricted access to technical expertise (Tambe et al., 2019). For example, in Sub-Saharan Africa, only 30% of public institutions possess the technological infrastructure required for the successful deployment of AI (Anriva & Hamidah, 2024). Hajar et al. (2023) emphasised the importance of capacity-building initiatives, including partnerships with technology providers and training programs, in addressing these challenges and bridging knowledge and infrastructure gaps. These endeavours are indispensable for guaranteeing the ethical and efficient implementation of AI systems.

The adoption of AI for internal controls is also significantly influenced by ethical considerations. To establish trust in AI systems, it is imperative to resolve concerns such as transparency, accountability, and data privacy. Institutions are at risk of losing stakeholder confidence in the absence of defined guidelines and ethical frameworks. Jackson et al. (2023) recommended the creation of standardised governance models to guarantee the ethical application of AI in financial supervision. Ensuring algorithmic transparency, engaging stakeholders in the development and implementation of AI systems and establishing protocols

for data administration are all part of this (Hajar et al., 2023). Institutions establish a foundation for trust and guarantee the long-term success of their AI initiatives by addressing these ethical concerns (Eltahir & Babiker, 2024). The global success of AI in enhancing internal controls provides a compelling argument for its implementation in public universities. A 45% decrease in regulatory violations was reported by universities in the United States that employed AI for compliance surveillance (Akinadewo et al., 2024). The cost-saving potential of AI has been demonstrated by European institutions such as the University of Cambridge, which has achieved annual savings of up to $5 million through enhanced internal controls (Berdiyeva et al., 2021). These developments underscore AI's capacity to optimise resource utilisation, ensure compliance, and improve governance. AI-driven internal controls offer a transformative solution as public universities in Ghana and other developing regions endeavour to enhance accountability and efficiency. These institutions harness the full potential of AI to achieve their strategic objectives by addressing local challenges and drawing on global best practices.

3.5 Challenges and Benefits of Using AI in Internal Audit Functions

The integration of AI into internal audit functions has transformed auditing processes by improving their efficiency, accuracy, and risk detection capabilities. Nevertheless, its execution is not without substantial obstacles. These obstacles are broadly classified as technical, ethical, or legal. In resource-constrained environments, institutions frequently encounter obstacles that impede the effective integration of AI technologies. It is imperative to comprehend these obstacles to develop strategies for their resolution and to optimise the potential advantages of AI in auditing.

3.5.1 Technical Challenges

The substantial expense associated with developing, deploying, and maintaining AI for internal audit functions is one of the most pressing technical challenges facing organisations. Infrastructure, software, and ongoing revisions necessitate substantial financial investment in AI systems. For example, Osei et al. (2023) predict that the initial installation of AI-driven audit systems costs between $500,000 and $2 million for large institutions. This amount may be prohibitive for smaller organisations or public institutions, such as universities. Ongoing operational costs, including software licensing fees, system enhancements, periodic maintenance, and installation costs, additionally burden organisations. According to research by Bonsu et al. (2022), resource-constrained organisations are concerned about the long-term

sustainability of AI systems, as they allocate an average of 15% of their annual IT budgets to AI system maintenance. The necessity for sophisticated data processing devices, high-speed internet connectivity, and cloud-based servers, which are frequently unavailable in developing regions, exacerbates these costs. For instance, in Sub-Saharan Africa, fewer than 20% of public universities possess the technological infrastructure necessary to implement advanced AI systems (Hoai et al., 2022). The absence of infrastructure imposes a substantial barrier to entry, restricting the capacity of these institutions to implement AI technologies effectively.

The absence of skilled personnel to design, operate, and interpret AI systems is another substantial technical obstacle. Expertise in data science, machine learning, and domain-specific auditing knowledge is essential for integrating AI into internal audits. Nevertheless, a skills deficit persists, particularly in regions with limited access to advanced technological education and training. For example, research by Abrokwah-Larbi and Awuku-Larbi (2024) revealed that 56% of organisations that implemented AI identified a talent shortage as their primary challenge. Likewise, Molefi et al. (2024) demonstrated that only 35% of internal audit teams in Ghanaian universities had members who had received any formal training in AI or data analytics, thereby emphasising a substantial expertise deficit. This constraint often necessitates that institutions rely on external consultants, resulting in increased costs and a decrease in institutional autonomy in administering AI systems. Furthermore, the rapidly evolving nature of AI technologies necessitates ongoing training to stay current with the latest advancements. Al Zobi and Jarah (2023) conducted a study that underscored the fact that 70% of organisations that implement AI invest in consistent training programs. However, these initiatives are not always feasible for institutions with financial constraints.

The effective use of AI in internal examinations is further complicated by issues related to data quality and availability. Large, precise datasets are essential for the training and operation of AI models. Nevertheless, the reliability of AI-driven insights is compromised by the fact that numerous institutions encounter challenges with incomplete, inconsistent, or antiquated data. According to Indrayani et al. (2024), over 50% of organisations that implemented AI in investigations encountered challenges related to poor data quality, which resulted in inaccurate results and diminished confidence in AI systems. In a more recent study conducted by Qadir et al. (2022), it was discovered that organisations with effective data management practices reported a 40% higher success rate in AI audits than those with inadequate data practices. Data

divisions within institutions exacerbate the issue, as fragmented systems often result in duplication or missing information. For example, research conducted by Baidoo-Anu et al. (2024) revealed that 60% of organisations that implemented AI in internal controls encountered challenges in integrating data from various sources, resulting in operational inefficiencies.

Furthermore, data security concerns pose a technical challenge that cannot be disregarded. The vulnerability to data breaches, intrusions, and unauthorised access is exacerbated by the dependence on cloud-based systems for AI processing. Molefi et al. (2024) have reported a 30% increase in the number of cybersecurity incidents in AI-driven systems worldwide over the past five years. Not only do these intrusions compromise confidential information, but they also undermine trust in the AI systems that are used for internal auditing. A multifaceted approach is necessary to address these technical challenges. To address the skills deficit, organisations must invest in capacity-building initiatives and allocate adequate resources to the construction and maintenance of AI infrastructure. This effort is bolstered, particularly in developing regions, through partnerships with technology providers, research institutions, and government agencies. Furthermore, it is imperative to establish comprehensive data governance frameworks that encompass standardised data capture, integration, and administration practices to enhance the quality and availability of data (Al Zobi & Jarah, 2023). Enhancements to cybersecurity protocols, including encryption protocols and access control mechanisms, also reduce the risks associated with data security. Institutions leverage the potential of AI to transform internal audit functions by surmounting the technical barriers to AI adoption through these strategic interventions (Tambe et al., 2019).

3.5.2 Ethical and Legal Challenges

The use of AI in internal audit functions raises significant ethical and legal concerns, particularly in the context of data privacy and security. Internal audits often require the management of sensitive financial and operational data, which, if mishandled, can lead to substantial breaches of institutional trust and confidentiality (Akinadewo et al., 2024). The risks of unauthorised access, data misuse, or cyberattacks are exacerbated by the necessity of accessing extensive datasets by AI systems. Baidoo-Anu et al. (2024) reported that data vulnerabilities in AI-driven auditing systems increased by 25% between 2019 and 2021, predominantly as a result of outmoded data protection frameworks and inadequate cybersecurity measures. Additionally, Molefi et al. (2024) discovered that 60% of

organisations that implemented AI for auditing experienced at least one data intrusion, with an average cost per incident exceeding $4 million. The imperative necessity for comprehensive cybersecurity protocols, such as encryption, access controls, and regular vulnerability assessments, to protect sensitive information is underscored by these statistics. The integrity and impartiality of the audit process are compromised by biased AI models, which generate skewed or discriminatory results due to algorithmic bias. AI systems heavily rely on training datasets, and biases inherent in these datasets lead to unintended consequences (Eltahir & Babiker, 2024). For instance, Baidoo-Anu et al. (2024) demonstrated that an AI model employed in healthcare investigations disproportionately identified minority groups for further examination due to racial biases in the historical data. Similar risks occur in financial investigations, where biased algorithms may unjustly target particular departments, regions, or individuals, exacerbating inequalities within organisations. Osei et al. (2023) conducted a study that highlighted the potential for even minor biases in training data to accumulate over time, resulting in substantial distortions in AI decision-making processes. Organisations must reduce biases by incorporating diverse stakeholders into model development, implementing impartiality checks in AI algorithms, and adopting comprehensive data auditing practices to address this issue.

The absence of transparent legal and regulatory frameworks further complicates the incorporation of AI in auditing. Many countries have not yet established specific guidelines for the ethical use of AI in audits, resulting in institutions having to navigate a patchwork of general data protection and financial compliance laws. This regulatory vacuum generates uncertainty and exposes organisations to potential legal disputes, particularly when audit findings are contested based on algorithmic transparency or data handling practices. For instance, Berdiyeva et al. (2021) conducted a case study that emphasised a legal challenge encountered by a European financial institution. Stakeholders expressed concerns about the impartiality of AI-driven audit decisions due to the opacity of the algorithms. Likewise, Al Zobi and Jarah (2023) underscored the necessity of standardised global regulations to resolve these concerns. The report suggested that mandatory algorithm audits, transparent accountability frameworks, and certification systems for AI models utilised in sensitive applications be implemented.

Conflicts between extant data protection legislation and AI-driven audit procedures present an additional legal challenge. For example, the General Data Protection Regulation (GDPR) of

the European Union imposes stringent restrictions on the collection, storage, and processing of data (Akinadewo et al., 2024). This impedes the seamless integration of AI systems into internal audit functions. Artificial intelligence models often require substantial quantities of historical and real-time data, which may conflict with the data minimisation principles of the GDPR. Berdiyeva et al. (2021) conducted a study that revealed that the compliance costs of organisations in Europe that employed AI were 30% higher than expected as a result of the necessity for supplementary safeguards to satisfy GDPR. The fragmented character of state-level data privacy regulations in the United States further complicates compliance for multinational organisations, requiring tailored approaches to data governance in different jurisdictions.

The absence of transparency and explainability in AI systems is also a source of ethical concern. Many advanced AI models, particularly those based on deep learning, operate as "black boxes," making it challenging for audit professionals to interpret the process by which decisions are made (Eltahir & Babiker, 2024). This lack of explainability erodes confidence in the results of AI-driven audits and raises concerns regarding accountability in the event of errors or disputes. 45% of audit professionals expressed apprehensions about their capacity to substantiate AI-driven findings to stakeholders as a result of the complexity of the underlying algorithms (Tambe et al., 2019). It is imperative to resolve this challenge by ensuring that audit teams receive sufficient training in interpreting AI outputs and developing explainable AI (XAI) frameworks. Institutions must implement a proactive strategy that integrates human governance, technology, and policy to address these ethical and legal obstacles (Jackson et al., 2023). Key strategies include implementing comprehensive data governance frameworks, incorporating bias-mitigation techniques into the development of AI models, and engaging legal experts to ensure compliance with relevant regulations (Hajar et al., 2023). Additionally, it is imperative to forge distinct ethical standards and legal guidelines for the use of AI in internal investigations through collaboration among governments, industry stakeholders, and international organisations. Not only do these measures safeguard organisations from legal liabilities, but they also encourage the responsible and transparent implementation of AI technologies, thereby guaranteeing their compatibility with broader societal and organisational values (Tambe et al., 2019).

3.5.3 Benefits of AI in Internal Auditing

The efficacy and effectiveness of audit processes have been significantly improved by the numerous benefits that AI has demonstrated, which have significantly transformed internal auditing practices. The incorporation of AI in internal auditing introduces a range of benefits, particularly in enhancing the pace, accuracy, and depth of audits (Jackson et al., 2023). Enhancing efficacy is one of the primary advantages of AI in internal auditing. The traditional process of auditing entails a significant amount of human labour, as auditors manually evaluate extensive quantities of data, conduct reconciliations, and ensure compliance with regulations. Although essential, these tasks are resource-intensive and time-consuming (Eltahir & Babiker, 2024). Robotic process automation (RPA) and other AI-driven tools facilitate the automation of repetitive tasks, including data entry, reconciliations, and the generation of audit reports (Akinadewo et al., 2024). AI enables auditors to focus on more complex and strategic tasks by automating these processes, thereby saving significant time and effort (Tambe et al., 2019). For instance, a study conducted by Berdiyeva et al. (2021) determined that AI-powered systems in auditing functions decrease the time spent on manual tasks by 40-60%, thereby enabling auditors to refocus their resources on higher-level analysis.

Furthermore, auditing accuracy is improved by AI. Human auditors are particularly susceptible to errors when confronted with intricate transactions or substantial volumes of data. On the other hand, AI systems are capable of processing data with greater precision, thereby guaranteeing that no detail is neglected (Osei et al., 2023). For instance, anomalies and peculiar transactions that may suggest fraud or errors are automatically identified by machine learning algorithms, which are capable of recognising patterns in data. These algorithms also develop over time, gaining more proficiency in identifying potential hazards and enhancing the overall quality of the audit process as they learn from previous audits (Ataribanam, 2024). Research by Hazaea et al. (2021) has reported that organisations that have integrated AI into their auditing processes have experienced a substantial decrease in the time required to detect fraud and an enhancement in the overall accuracy of their audit results. This accuracy is especially advantageous in intricate environments such as public universities, where regulatory compliance is of the utmost importance.

The capacity to conduct continuous real-time audits is one of the most innovative advantages of AI in internal auditing (Ceki & Moloi, 2024). Traditional auditing practices generally adhere

to a periodic approach, in which audits are conducted at predetermined intervals, typically at the end of each financial period. Delays in identifying and resolving irregularities may result from this retrospective approach (Ataribanam, 2024). Conversely, AI enables auditors to obtain real-time insights into financial activities through continuous monitoring of transactions and operations. This significantly reduces the window of opportunity for financial mismanagement by facilitating the faster detection of discrepancies and potentially fraudulent activities (Şen, 2023). Hazaea et al. (2021) conducted a study that revealed 52% of organisations equipped with AI-powered auditing systems had implemented continuous auditing models, leading to quicker response times to irregularities. Continuous auditing enables public universities to adopt a proactive approach to managing public funds, while also ensuring transparency and accountability in their financial operations.

Additionally, AI offers robust capabilities for risk assessment. By analysing both historical and real-time data, AI identifies emergent risks, surpassing the traditional assessment of risks by internal auditors, which is based on their expertise and historical data (Agba et al., 2023). AI is capable of identifying patterns or trends that may indicate potential vulnerabilities by analysing immense quantities of financial data from various sources. This enables auditors to take corrective action before these issues escalate further. Machine learning and predictive analytics also assist auditors in identifying high-risk areas, such as noncompliance with regulatory guidelines or the misappropriation of funds, thereby enabling institutions to mitigate risks (Fotoh & Lorentzon, 2023) proactively. A survey conducted by Almagrashi et al. (2023) indicated that 61% of companies that implemented AI in their auditing functions reported enhanced risk management practices. This was because AI systems enabled them to foresee and manage risks more effectively than traditional methods. Additionally, AI facilitates strategic decision-making in internal auditing by providing insights that are more heavily reliant on data rather than intuition. Auditors gain a more comprehensive understanding of risks and opportunities by utilising AI tools to generate detailed reports and dashboards that synthesise intricate financial data (Agba et al., 2023). In the context of public universities, these instruments also facilitate the formulation of informed decisions regarding regulatory compliance, financial planning, and budget allocation. According to a case study conducted by Hazaea et al. (2021), AI-driven audits resulted in improved resource allocation for financial planning, enabling the university to reduce budgetary discrepancies and streamline its expenditures.

Furthermore, the capabilities of AI are not limited to efficiency and accuracy; they also enable auditors to manage more complex and extensive datasets (Segbenya et al., 2023). Traditional auditing methods are frequently insufficient to effectively capture and analyse the growing volume of data generated daily. AI technologies, particularly machine learning and data mining techniques, rapidly and accurately identify key trends and anomalies by sifting through extensive datasets (Alonge et al., 2024). According to Hassan et al. (2025), 75% of organisations that employ AI-based data analysis tools reported gaining a more comprehensive understanding of their financial operations. AI was able to identify patterns that are challenging for humans to identify. In sectors such as higher education, universities are tasked with managing multiple revenue streams, research expenditures, and regulatory compliance requirements across various departments and programs. This capacity to process and analyse large datasets is particularly valuable. A significant additional advantage of AI in internal auditing is its ability to enhance fraud detection and prevention. The financial and reputational repercussions of fraudulent activities in public universities, such as misappropriation or misreporting of funds, are substantial (Jori, 2023). By analysing historical patterns and flagging discrepancies, AI systems can identify potentially fraudulent transactions using anomaly detection algorithms and machine learning. For example, AI tools identify financial anomalies in large datasets or detect anomalous expenditure behaviour that human auditors may overlook. According to a study conducted by Damerji and Salimi (2021), AI-driven fraud detection systems have the potential to reduce the time required to detect fraud by up to 50%. This facilitates the prevention of financial malfeasance before it escalates, which is beneficial for institutions. In the context of public universities, AI is particularly beneficial in identifying discrepancies in research funding allocations or detecting procurement fraud.

AI also enhances decision-making by providing predictive analytics capabilities (Budhwar et al., 2023). AI systems forecast potential outcomes and assist auditors in evaluating the likelihood of future hazards by analysing historical data and identifying trends. For instance, AI tools anticipate regions where financial malfeasance or compliance risks may arise, enabling auditors to implement preventative measures beforehand (Bonsu et al., 2022). The capacity to anticipate future outcomes is indispensable in guaranteeing that financial regulations are adhered to and that resources are allocated effectively. Ultimately, AI contributes to the long-term reduction of operational expenses (Hoai et al., 2022). While the initial investment in AI technologies may be considerable, the long-term benefits of automation, real-time monitoring,

and enhanced fraud detection result in substantial cost reductions. AI reduces the need for human resources to perform routine duties, which not only reduces labour costs but also enables the more efficient use of auditor time. Abrokwah-Larbi and Awuku-Larbi (2024) reveal that 47% of organisations reported a decrease in operational costs as a result of the integration of AI into their auditing functions. This cost reduction results in more efficient financial management and the effective utilisation of public funds for public universities.

3.6 Strategies for Effective Use of AI in Internal Auditing

Organisations must implement strategies that optimise the potential of AI in the internal auditing domain while simultaneously addressing challenges associated with operational integration, ethics, and implementation as AI continues to gain traction. Key strategies include fostering collaboration across sectors, developing regulatory frameworks that are compatible with AI, and enhancing auditor capabilities through training. Each of these strategies is essential for the responsible and efficient utilisation of AI within internal audit functions, thereby enhancing the overall governance and risk management of institutions.

3.6.1 Training and Capacity Building for Internal Auditors

Training and capacity development are crucial strategies for ensuring that internal auditors are equipped to integrate AI technologies into their practices effectively. Auditors must develop a blend of technical and analytical abilities to effectively utilise these sophisticated tools as AI continues to transform the internal auditing sector. To improve the competencies of auditors, training programs should not only address the technical aspects of AI and machine learning algorithms but also emphasise the contextual implementation of these technologies in auditing processes (Hazaea et al., 2021). The successful incorporation of AI within auditing firms is contingent upon auditors' comprehension of how to efficiently analyse financial, operational, and risk data using AI tools (Tambe et al., 2019). Auditors should be able to interpret AI-driven audit results and have a comprehensive understanding of technical AI tools, including machine learning algorithms, data analytics platforms, and automation software. This encompasses the assessment of the accuracy and dependability of AI models, with a particular emphasis on identifying fraud and anomalies (Ceki & Moloi, 2024). Agba et al. (2023) conducted research that indicates that organisations that allocate resources to training their internal audit teams are 40% more likely to experience successful AI integration into their auditing processes. Auditors who have been trained are more adept at distinguishing between valid AI-generated insights

and potential inaccuracies, thereby guaranteeing that AI enhances the auditing process rather than detracts from it. For instance, Almagrashi et al. (2023) reveal that organisations with audit teams that were AI-literate were able to increase the accuracy of fraud detection by 15% and reduce audit cycle times by 20%.

Additionally, institutions must prioritise the development of a "data-driven mindset" among auditors, which enables them to perceive the importance of data in the auditing process more effectively. Not only does a data-driven perspective improve an auditor's technical comprehension, but it also equips them to manage substantial quantities of data produced by AI systems (Segbenya et al., 2023). Audit teams that incorporate AI into their operations report a 25% increase in efficiency when processing data and an improvement in identifying anomalies in financial statements (Alonge et al., 2024). Auditors enhance the quality of their audits and their capacity to evaluate financial health and operational efficacy by cultivating this mindset, which enables them to identify patterns and hazards that may have been ignored otherwise. Continuous professional development (CPD) is also essential for maintaining a competitive edge in the rapidly evolving AI landscape (Damerji & Salimi, 2021). Auditors maintain their adaptability and knowledge by participating in ongoing education regarding AI advancements and emergent technologies. This may entail participation in AI research initiatives, formal training programs, and industry webinars. Budhwar et al. (2023) reported that 60% of audit professionals who participated in AI-specific CPD programs reported feeling more confident in their ability to use AI tools effectively. Furthermore, auditors must cultivate an understanding of the most recent developments in AI ethics, including transparency and algorithmic bias (Hoai et al., 2022). Auditors must be prepared to recognise and resolve these concerns, as AI systems may inadvertently generate biased results due to inaccurate data. Damerji and Salimi (2021) conducted a study that revealed that 85% of audit firms that offered training on AI ethics and bias were more adept at overcoming the obstacles associated with AI in auditing.

Additionally, organisations should implement an all-encompassing training strategy that integrates both technical expertise and interpersonal skills. Auditors must cultivate critical thinking and problem-solving abilities to interpret AI outputs and make well-informed decisions, despite the importance of technical expertise in AI (Budhwar et al., 2023). Based on research conducted by Al Zobi and Jarah (2023), 72% of audit firms that prioritised a balanced

training approach, which included the development of AI technical skills and critical thinking, reported higher success rates in the integration of AI technologies into their audit functions. The integration of soft skills, such as effective communication and analytical thinking, into AI-related training enhances auditors' capacity to provide value-added insights to management, interpret audit findings, and collaborate with AI specialists (Molefi et al., 2024). The efficacy of training programs is also contingent upon the dedication of senior leadership to establishing a culture of continuous learning and AI adoption. To cultivate an environment that encourages internal auditors to investigate AI-driven solutions and improve their professional capabilities, leaders must allocate resources to AI tools and training (Indrayani et al., 2024). Research (Damerji & Salimi, 2021) reveals that organisations that implemented a proactive approach to leadership support and training saw an 80% increase in the adoption of AI technologies in audit functions compared to those that did not.

3.6.2 Developing AI-Compatible Regulatory Frameworks

It has become increasingly crucial for regulators to establish AI-compatible frameworks to ensure that these tools are used responsibly within internal auditing processes as AI technologies continue to advance. When employing AI in audits, regulatory frameworks must establish explicit and actionable guidelines regarding critical matters, including algorithmic transparency, data privacy, and ethical considerations (Damerji & Salimi, 2021). Significant risks, including compliance violations, legal challenges, and ethical concerns related to the misuse or misapplication of AI tools, arise from the absence of comprehensive regulations (Budhwar et al., 2023). Anriva and Hamidah (2024) emphasise that regulatory bodies must guarantee that the implementation of AI in auditing is consistent with the principles of accountability, transparency, and impartiality. Organisations are susceptible to unintended consequences, such as the erosion of trust in AI-driven decision-making and biased audit outcomes, in the absence of such alignment. Ensuring that new policies align with existing legal and regulatory frameworks, including data protection laws, financial reporting standards, and corporate governance codes, is a crucial aspect of developing AI-compatible regulatory frameworks (Osei et al., 2023). The implementation of AI in auditing functions must not exceed the development of policies that effectively address emerging ethical and operational challenges. For instance, the application of AI in audits has been significantly influenced by data privacy laws, such as the General Data Protection Regulation of the European Union (Ataribanam, 2024). The GDPR is essential for managing the vast datasets generated by AI, as

it establishes guidelines on data consent, transparency, and accountability. Bonsu et al. (2022) observe that GDPR compliance has emerged as a significant factor for organisations that are integrating AI into auditing, particularly in the context of auditors' handling of sensitive financial and operational data.

Baidoo-Anu et al. (2024) note that existing frameworks are still insufficient to address the complete range of ethical, legal, and operational challenges presented by AI in auditing. However, regulations such as GDPR have been instrumental in addressing data privacy concerns. Consequently, there is an increasing demand for more specialised regulations that take into consideration the intricacies of AI applications in auditing practices. For example, policies that prioritise algorithmic transparency and the necessity for organisations to comprehend the process by which AI models arrive at their conclusions are essential for guaranteeing that AI systems are audited and validated by human auditors (Budhwar et al., 2023). Eltahir and Babiker (2024) conducted a study that underscores the necessity for regulatory frameworks to establish guidelines for AI interpretability. This enables audit teams to evaluate and investigate the decision-making process of AI tools. This prevents auditors from relying on AI models without understanding the underlying logic, which can lead to inaccurate audit conclusions or errors in fraud detection. Additionally, there is an increasing acknowledgement of the necessity of global collaboration in creating regulations that are compatible with AI. As multinational organisations operate in various jurisdictions, each with its own set of legal requirements, it is imperative to harmonise AI regulations across borders (Al Zobi & Jarah, 2023). Organisations can more effectively navigate compliance challenges and ensure consistency in the implementation and monitoring of AI technologies worldwide by cross-border standardising AI regulations. According to Baidoo-Anu et al. (2024), the intricacy of administering AI regulations in diverse legal environments results in increased compliance costs for companies that operate in multiple jurisdictions. For instance, PwC's 2021 report discovered that organisations with operations in more than five countries experienced a 30% increase in compliance costs due to the varying regulatory requirements for AI.

It is imperative to establish explicit ethical standards that regulate the utilisation of AI in audits, in addition to ensuring legal and regulatory compliance. Algorithmic bias remains a significant concern, as AI systems trained on biased historical data may inadvertently exacerbate existing disparities (Tambe et al., 2019). For instance, Hajar et al. (2023) conducted a study that

demonstrated that AI algorithms employed in healthcare audits disproportionately identified minority groups for further investigation due to biased data used to train the systems. Similar risks are present in financial and operational audits, where AI models may unjustly target specific departments or individuals. To guarantee that AI systems are utilised equitably and do not perpetuate historical inequalities, it is imperative to address algorithmic bias in AI regulations. The creation of regulatory frameworks that are compatible with AI should necessitate the cooperation of various stakeholders, including regulators, legal experts, AI developers, and auditing professionals (Baidoo-Anu et al., 2024). This collaboration guarantees that regulatory frameworks are not only comprehensive but also adaptable to the rapidly changing nature of AI technologies. 68% of audit firms indicated that they benefit from regulations that were more specifically tailored to the function of AI in auditing (Damerji & Salimi, 2021). These frameworks are continually updated to reflect the latest advancements in AI technology and the challenges they present, involving experts from various sectors in the regulatory development process.

3.6.3 Collaborative Efforts in AI Implementation

To guarantee the successful integration and implementation of AI into internal auditing processes, institutions, governments, and technology providers must form a collaborative effort (Akinadewo et al., 2024). These partnerships take various forms, including strategic collaborations, collaborative initiatives, and shared resources, all of which are designed to develop AI solutions tailored to the specific requirements of internal auditing functions. The development of customised AI tools that optimise auditing processes, enhance accuracy, and enhance efficiency throughout the audit lifecycle is achieved through effective collaboration (Abrokwah-Larbi & Awuku-Larbi, 2024). For example, the development of AI-driven solutions that automate routine audit tasks, including data reconciliation, risk assessments, and anomaly detection, has been facilitated by partnerships between public universities and technology companies (Damerji & Salimi, 2021). This has freed up auditors to concentrate on more complex analyses and judgment-based decisions. These partnerships facilitate the convergence of expertise from various industries, thereby cultivating an innovation ecosystem that promotes ongoing advancements in the development and implementation of AI tools for investigations (Indrayani et al., 2024). In recent years, industry alliances have demonstrated their significance in promoting ethical practices and establishing standards for the use of AI in audits. The International Federation of Accountants and the Institute of Internal Auditors have

collaborated with prominent AI companies to establish exhaustive guidelines for the responsible integration of AI technologies into auditing (Qadir et al., 2022). These guidelines address critical issues, including the ethical implications of using AI for decision-making, reducing algorithmic biases, and ensuring transparency in AI algorithms (Baidoo-Anu et al., 2024). These organisations strive to prevent the erosion of audit integrity or the establishment of unscrupulous outcomes, such as the reinforcement of discriminatory biases, by collaborating with both AI developers and auditors. The significance of these industry alliances is further substantiated by a study conducted by Molefi et al. (2024), which demonstrates that organisations that embrace AI with the assistance of such collaborations are more likely to develop systems that improve audit quality while maintaining ethical standards.

Shared resources are a significant additional advantage of collaborative endeavours, particularly for smaller organisations that may lack the financial resources to develop or implement their own AI solutions (Osei et al., 2023). Industry-specific frameworks, open-source AI tools, and collaborative research projects provide cost-effective solutions for AI adoption, enabling even smaller auditing firms and public institutions to reap the benefits of cutting-edge technologies. Hazaea et al. (2021) report on AI adoption, emphasising that organisations that engaged in collaborative AI initiatives experienced a 30% decrease in implementation costs in comparison to those that operated independently. This underscores the financial advantages of collaboration. Furthermore, the utilisation of shared resources enables the development of AI solutions that are more adaptable and resilient, as organisations combine their research and development efforts to create AI systems tailored to the unique requirements of specific organisations and diverse auditing environments (Ataribanam, 2024). For instance, these collaborative endeavours have expedited the development of AI solutions for small and medium-sized enterprises, thereby increasing the accessibility of AI tools to organisations that may otherwise encounter barriers to AI adoption due to the high initial costs (Qadir et al., 2022).

Government involvement is crucial for fostering collaboration between the public and private sectors, particularly in areas such as funding and promoting AI research in internal auditing (Baidoo-Anu et al., 2024). Governments offer valuable incentives, including grants, tax exemptions, and funding, to support AI-focused research initiatives aimed at enhancing the ethical use of AI in auditing and expanding its application across various industries (Agba et

al., 2023). For example, the U.S. National Science Foundation (NSF) has allocated funding to initiatives that investigate the ethical implications of AI in auditing (Ceki & Moloi, 2024). These initiatives bring together technical experts, auditors, and regulators to resolve concerns such as data privacy, bias, and accountability (Ataribanam, 2024). These government-led initiatives facilitate the development of AI solutions responsibly and sustainably by bridging the knowledge gaps between various stakeholders. Furthermore, government-sponsored partnerships help mitigate the risks associated with the unregulated use of AI, ensuring that solutions meet societal needs while adhering to ethical and regulatory standards (Ataribanam, 2024).

Furthermore, this collaborative effort may encompass global initiatives aimed at establishing benchmarks for integrating AI into auditing. The requirement for cross-border collaboration to establish consistent standards becomes increasingly urgent as multinational organisations utilise AI technologies (Baidoo-Anu et al., 2024). The Financial Stability Board has urged international collaboration to establish global guidelines for the use of AI in sectors such as finance and auditing. The FSB emphasises that harmonised regulations prevent regulatory arbitrage and ensure that AI is used consistently and responsibly worldwide (Ataribanam, 2024). 43% of large multinational companies reported experiencing delays in their AI projects due to regulatory inconsistencies. In comparison, 54% of them reported facing challenges in complying with varying AI regulations across countries (Osei et al., 2023). Institutions, governments, and technology providers also collaborate to promote a more transparent and accountable approach to the implementation of AI. These partnerships guarantee that AI technologies are incorporated into internal auditing functions in a manner that maximises their benefits while minimising potential risks by collaboratively developing and implementing ethical guidelines, sharing resources, and promoting continued innovation (Akinadewo et al., 2024). To guarantee that auditing practices remain efficient, accurate, and ethical in a world that is becoming increasingly AI-driven, it is essential to maintain and expand these collaborative endeavours as AI technologies continue to develop.

3.7 Conceptual Framework

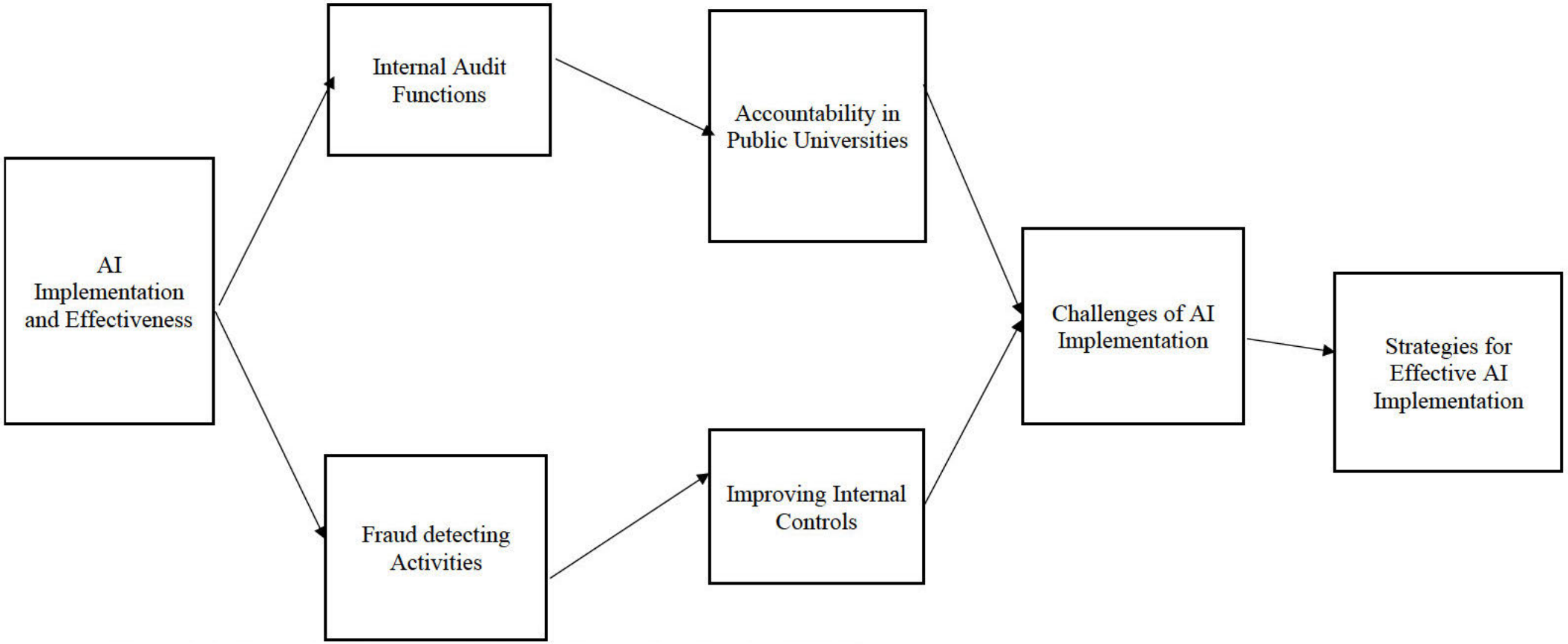


Figure 3. 1: Conceptual Framework: Source: Researcher Construct (2025)

The conceptual framework for this study offers a structured perspective through which the role of artificial intelligence in improving internal audit functions in Ghana's public universities is analysed. It establishes a connection between the research objectives and the critical elements of AI adoption, including strategies, challenges, effectiveness, and perceptions, within the distinctive operational and accountability contexts of public universities. This framework is essential for revealing actionable insights into the transformative potential of AI and addressing the complexities of its implementation. The first component of the framework involves examining the perceptions of AI's use in internal audit functions. This entails evaluating the perspectives of internal auditors regarding the integration of AI into auditing processes. Factors such as the perceived alignment of AI with institutional objectives, trust in the capabilities of AI tools, and familiarity with them all influence perceptions. Amoako et al. (2023) have asserted that positive perceptions are essential for the successful adoption of technology, as they influence users' propensity to investigate and utilise new tools. In addition, these perceptions are substantially influenced by cultural and organisational factors that are distinctive to public universities in Ghana, including resource constraints and hierarchical decision-making (Karikari Appiah et al., 2023). The study aims to identify the enablers and impediments that influence the integration of AI in internal investigations by examining these factors from various perspectives.

The second dimension assesses the effectiveness of AI in detecting fraudulent activities and improving internal controls. AI-driven tools, including predictive analytics, anomaly detection systems, and process automation, improve the efficacy and accuracy of investigations. They facilitate the rapid analysis of extensive datasets, the identification of irregularities, and the provision of real-time insights for decision-making (Karikari Appiah et al., 2023; Tetteh et al., 2022). For example, AI-powered systems continuously monitor financial transactions and identify potential hazards, which is especially advantageous in institutions with intricate financial structures, such as public universities (Karikari Appiah et al., 2023). The objective of this investigation is to assess the effectiveness of these instruments as perceived by internal auditors and their contribution to the reduction of fraud, the enhancement of accountability, and the improvement of compliance in Ghana's higher education sector. The capacity of AI to revolutionise conventional auditing procedures has been demonstrated in other sectors, including finance and manufacturing (Karikari Appiah et al., 2023), which serves as a valuable benchmark for assessing its influence on public universities.

The third component of the framework identifies the obstacles associated with implementing AI in internal audit functions. The implementation of AI is fraught with substantial obstacles, despite its potential advantages. In numerous public institutions in Ghana, technological challenges, including the absence of reliable internet connectivity and advanced infrastructure, continue to be prevalent (Ganapathy, 2023). Adoption is also impeded by organisational resistance to change, which frequently results from scepticism regarding the reliability of AI systems and fear of job displacement (Amoako et al., 2023). Furthermore, the implementation of AI technologies is further complicated by ethical concerns, such as transparency, algorithmic bias, and data privacy. Financial constraints that restrict investments in AI solutions, training, and capacity-building initiatives exacerbate these challenges. Formulating strategies that effectively resolve these barriers while ensuring sustainable adoption necessitates a comprehensive comprehension of them.

Strategies for the effective utilisation of AI in internal audits are the primary focus of the framework's final component. To create actionable strategies, it is necessary to engage stakeholders, cultivate an environment of innovation, and ensure that AI solutions align with institutional priorities. For instance, internal auditors may become more proficient in employing AI tools by enrolling in targeted training programs (Bughin et al., 2017). Thus, they may capitalise on the technology's maximum potential. Stakeholder engagement is equally critical, as it facilitates the development of trust and mitigates resistance to change by engaging decision-makers and staff in the adoption process (Karikari Appiah et al., 2023). Additionally, public universities must develop frameworks for addressing ethical concerns, such as data security and system fairness, and prioritise the procurement of dependable AI technologies (Hazaea et al., 2021). The resource mobilisation and regulatory adjustments required for effective AI integration are also facilitated through collaborative partnerships with private technology firms and policymakers.

3.8 Empirical Gaps

Existing empirical studies on Artificial Intelligence in auditing largely concentrate on developed economies and private sector organisations, creating a significant contextual limitation in understanding AI adoption in public sector institutions within developing countries. Many studies report positive outcomes of AI implementation, including improved audit efficiency, fraud detection accuracy, and enhanced data analysis capabilities (Abdullah & Almaqtari, 2024; Wassie & Lakatos, 2024; Ganapathy, 2023). However, these findings are

often derived from technologically advanced environments where institutional infrastructure, digital literacy, and regulatory support are significantly stronger than those found in developing economies. Empirical research conducted in corporate settings frequently assumes uniform technological readiness and resource availability, overlooking structural and financial constraints prevalent in public universities in Ghana (Jackson et al., 2023; Osei et al., 2023). Additionally, existing empirical studies predominantly rely on quantitative survey designs that measure technological effectiveness without exploring contextual organisational realities or stakeholder perceptions influencing adoption. This methodological limitation restricts the understanding of how institutional governance structures and regulatory environments influence AI implementation in internal auditing. By focusing on Ghanaian public universities and employing a mixed-method research approach, this study addresses these empirical gaps by providing context-sensitive evidence on AI adoption while integrating both quantitative and qualitative perspectives to capture organisational realities, behavioural perceptions, and institutional governance influences that remain insufficiently explored in existing scholarship.

Another significant empirical gap exists in the contradictory findings regarding the effectiveness of Artificial Intelligence in strengthening accountability and audit quality. Several studies suggest that AI enhances fraud detection, improves compliance monitoring, and strengthens internal control mechanisms through advanced analytics and automation (Noordin et al., 2022; Mohammed & Rahman, 2024; Hassan et al., 2025). Conversely, other empirical studies highlight concerns regarding algorithmic bias, lack of transparency in automated audit processes, and increased cybersecurity vulnerabilities associated with AI-driven auditing systems (Qadir et al., 2022; Fotoh & Lorentzon, 2023). These contradictory findings indicate that while AI offers substantial efficiency gains, it may simultaneously introduce governance and ethical risks that compromise audit reliability and stakeholder trust. Existing research rarely provides balanced empirical investigations that simultaneously evaluate both the benefits and limitations of AI adoption within public sector auditing contexts. Moreover, most empirical investigations emphasise technological performance outcomes while neglecting professional auditors' experiences and perceptions, which play a critical role in shaping implementation success. This study addresses this empirical contradiction by examining internal auditors' perceptions of AI effectiveness alongside perceived risks and implementation challenges. By adopting a perception-based evaluation framework, the study provides balanced empirical evidence that reconciles conflicting scholarly findings regarding AI's impact on accountability and audit performance in public sector institutions.

Empirical research on AI adoption in auditing also demonstrates methodological weaknesses related to limited stakeholder representation and narrow analytical scope. Many existing studies focus exclusively on senior management perspectives or external audit professionals, neglecting internal auditors who directly interact with audit technologies and possess practical insights into operational audit processes (Alina et al., 2018; Nerantzidis et al., 2022). Furthermore, numerous empirical investigations employ cross-sectional research designs that capture short-term adoption patterns without examining organisational readiness, institutional resistance, and long-term sustainability of AI implementation (Indrayani et al., 2024; Plant et al., 2019). Such methodological limitations reduce the reliability of findings and restrict theoretical advancement in understanding AI adoption dynamics within internal auditing. Additionally, empirical research frequently treats AI adoption as a uniform technological phenomenon without recognising variations in institutional culture, governance policies, and resource availability across organisations. This study addresses these methodological weaknesses by focusing specifically on internal auditors within Ghanaian public universities and employing a mixed-method research design that combines quantitative surveys with qualitative interviews. This methodological triangulation enhances empirical reliability by capturing both measurable adoption trends and in-depth professional experiences, thereby strengthening scholarly understanding of AI adoption dynamics in public sector auditing environments.

There is also a significant empirical knowledge gap concerning the interaction between organisational resource capacity, governance accountability requirements, and behavioural technology acceptance in AI adoption within internal auditing. Existing empirical studies often examine technological adoption, governance performance, or organisational capability as separate analytical constructs rather than examining their interdependence (Barney, 1991; Jackson et al., 2023; Ceki & Moloi, 2024). Research examining internal audit effectiveness frequently emphasises governance accountability and regulatory compliance but provides limited empirical evidence on how technological capability and institutional readiness influence audit innovation outcomes (Bonsu et al., 2022; Tetteh et al., 2023). Similarly, technology adoption studies emphasise behavioural acceptance and innovation diffusion but rarely examine how governance accountability pressures shape technological implementation decisions in public institutions (Damerji & Salimi, 2021; Abdullah & Almaqtari, 2024). This fragmented empirical scholarship limits a comprehensive understanding of AI adoption within public sector auditing systems. The present study addresses this empirical gap by

simultaneously examining internal auditors' perceptions of AI adoption, organisational readiness, and governance accountability implications within Ghanaian public universities. By positioning AI adoption within the intersection of behavioural, organisational, and governance factors, the study contributes empirical evidence that strengthens existing scholarship and provides a more integrated understanding of technological transformation in public sector internal auditing.

3.9 Chapter Conclusion

This chapter explored the incorporation of AI in internal auditing, examining various strategies, challenges, and considerations. The primary insights obtained underscore the growing significance of AI in transforming audit processes, enhancing audit accuracy, and increasing efficiency. The internal auditors' training and capacity development are essential components of this transformation. Auditors must have the requisite skills and knowledge to utilise these technologies as AI tools become more sophisticated and effective. To enable auditors to administer AI-driven audit systems effectively, it is essential to enrol in training programs that emphasise AI-specific technical skills, including machine learning, data analytics, and audit automation tools. In addition, this training emphasises the ethical implications of AI use, such as algorithmic transparency and the potential for bias, and cultivates a data-driven mindset. The chapter also emphasised the importance of developing regulatory frameworks that are compatible with AI to ensure the responsible application of AI in auditing functions. Key issues such as data privacy, transparency in AI decision-making, and compliance with existing legal structures should be addressed by effective regulatory frameworks. Adaptable policies that follow the evolving technologies are essential as AI adoption in auditing continues to grow. Additionally, the international collaboration on AI regulations was addressed as a method to simplify compliance and ensure consistency across jurisdictions. This cross-border standardisation helps multinational organisations overcome the obstacles presented by diverse legal requirements, thereby ensuring a more efficient and effective implementation of AI.

A central strategy for the successful deployment of AI in auditing was emphasised as collaborative efforts between institutions, governments, and technology providers. Industry alliances, partnerships, and shared resources are crucial for mitigating the financial and operational barriers to AI adoption, particularly for smaller firms and public institutions. The creation of open-source AI tools and collaborative research initiatives enables organisations to combine their resources and expertise, thereby promoting innovation and ensuring that AI

solutions are tailored to meet the unique requirements of internal auditing. Additionally, government funding and incentives are essential for promoting research on the ethical application of AI in auditing, thereby bridging the gap between technical experts and regulatory bodies. These insights establish the foundation for the investigation of the research methodology that directs this investigation, as we anticipate the subsequent chapter. The research methodology expands upon the findings presented here, employing a structured approach to investigate the practical implications of AI in internal auditing. The subsequent chapter outlines the framework for data collection and analysis, thereby enhancing comprehension of the integration of AI into auditing practices and its impact on audit quality, efficiency, and ethical considerations, while addressing the identified challenges and opportunities.

CHAPTER FOUR
RESEARCH DESIGN AND METHODOLOGY

4.1 Introduction

This chapter provides a comprehensive overview of the research design, paradigm, and methodological approaches adopted in this study. It begins by outlining the research questions that guide the study, ensuring that the investigation remains focused and relevant. The chapter then delves into the research design, explaining the chosen methodological approach and its alignment with the study's objectives. It further discusses the target population and sampling techniques, detailing the rationale behind the selection process to enhance representativeness and generalisability. The data collection procedures are elaborated upon, covering both quantitative and qualitative methods, including surveys and interviews, to ensure a holistic understanding of the research problem. Additionally, the data analysis methods are described, highlighting the statistical and thematic techniques used to interpret the findings. The chapter also addresses the validity and reliability of the instruments, ensuring the accuracy and consistency of the results. Lastly, ethical considerations, including informed consent, confidentiality, and adherence to research ethics, are discussed to maintain research integrity.

4.2 Research Questions of the Study

The study seeks to answer the following research questions:

1. What are the perceptions of using AI in internal audit functions to ensure accountability in public universities in Ghana?
2. How effective is AI perceived to be in detecting fraudulent activities and improving internal controls in public universities in Ghana?
3. What challenges do internal auditors perceive in using AI in the internal audit function in public universities in Ghana?

4.3 Research Paradigm

Research paradigms serve as the foundation for any study, guiding the researcher's philosophical stance on how knowledge is generated, interpreted, and validated. A paradigm comprises a set of beliefs and assumptions about the nature of reality (ontology), the relationship between the researcher and what is being studied (epistemology), and the methods used to obtain knowledge (methodology) (Almaqtari et al., 2024). A paradigm is a collection of beliefs and assumptions regarding the essence of reality (ontology), the relationship between the researcher and the subject of the study (epistemology), and the methods employed to acquire knowledge (methodology). Over time, various paradigms have emerged, each with a

distinct impact on the research approach. Positivism, interpretivism (or constructivism), critical realism, and pragmatism are the four primary paradigms, each of which has distinct implications for the conduct of research (Nerantzidis et al., 2022). The selection of a research paradigm is essential because it influences the entire research process, from the formulation of research questions to the interpretation of results (Creswell, 2013). The methods employed for data collection and analysis are also determined by the selected paradigm, ensuring that the philosophical underpinnings and methodological choices are consistent (Tetteh et al., 2023). Researchers make informed judgments about their approach by understanding the strengths and limitations of various paradigms, thereby ensuring that the research design aligns with the character of the study and its objectives. Each paradigm offers a distinctive perspective on the construction and validation of knowledge, necessitating a critical assessment of them before selecting the most appropriate one.

Positivism is founded on the conviction that reality is objective, independent of human perception, and is quantified through empirical observations and statistical methods (Nerantzidis et al., 2022). This paradigm is closely linked to the natural sciences and emphasises the utilisation of structured methodologies, including surveys and experiments, to establish generalisable laws and causal relationships (Almaqtari et al., 2024). Positivists believe that knowledge is derived through the rigorous testing of hypotheses and that the results should be devoid of subjective bias (Hazaea et al., 2021). Data is collected in a systematic and replicable manner to ensure validity and reliability, and researchers who adopt this paradigm typically rely on quantitative methods (Simpson et al., 2016). Researchers establish correlations, test hypotheses, and make predictions based on observed patterns, which is facilitated by the emphasis on measurement and quantification (Creswell, 2013). Nevertheless, positivism has been criticised for its incapacity to capture the complexities of human experiences, social interactions, and contextual influences, despite its high efficacy in studies that necessitate measurable outcomes and causal inference (Simpson et al., 2016). Critics contend that the rigid structure of positivism restricts the profundity of comprehension in social research, as human behaviour is frequently influenced by subjective meanings and situational factors (Bingab et al., 2018). As a result, positivism remains valuable in research that involves quantifiable variables; however, it may not be the most suitable approach for studies that necessitate an examination of social contexts, experiences, and perceptions.

In contrast, constructivism (or interpretivism) maintains that reality is subjective and socially constructed, influenced by human experiences, beliefs, and cultural contexts (Creswell, 2013). Rather than pursuing objective truths, interpretivists emphasise the significance of meaning-making in social interactions by concentrating on how individuals interpret their surroundings (Agba et al., 2023). This paradigm is frequently employed in the social sciences, particularly in qualitative research, where the objective is to investigate meanings, perceptions, and experiences rather than to establish universal laws (Almaqtari et al., 2024). Interpretive research frequently utilises ethnographic studies, focus groups, and interviews to acquire profound insights into a phenomenon, thereby enabling researchers to comprehend the intricacies of human behaviour in its natural environment (Fotoh & Lorentzon, 2023). Researchers investigate phenomena from the perspective of participants, which provides rich, detailed data that quantitative approaches may overlook, due to their emphasis on objective interpretation (Bingab et al., 2018). Interpretivism, on the other hand, has been criticised for its potential researcher bias and lack of generalisability, as the researcher's perspectives may influence interpretations (Almagrashi et al., 2023). Additionally, the applicability to broader populations may be restricted by the unreliability of qualitative data. Interpretivism remains a valuable paradigm for research that seeks to explore complex social dynamics, personal experiences, and cultural influences, despite these challenges.

Critical realism is a philosophical perspective that posits that reality exists independently of human perception but is only comprehended through social constructs and interpretations, thereby occupying a middle ground between positivism and interpretivism (Almaqtari et al., 2024). This paradigm acknowledges the intricacy of social phenomena and acknowledges that historical, cultural, and social contexts influence knowledge. Critical realism is often employed in research that seeks to identify the fundamental mechanisms influencing observable events, including power structures, institutional dynamics, and systemic inequalities (Abuazza et al., 2015). Critical realism provides a more comprehensive understanding of reality by integrating both qualitative and quantitative methodologies, allowing researchers to identify both surface-level patterns and underlying causal mechanisms (Almaqtari et al., 2024). This paradigm is particularly beneficial in research that aims to elucidate the reasons behind the events, rendering it pertinent to studies that investigate institutional and structural factors (Creswell, 2013). Nevertheless, critical realism necessitates a substantial degree of theoretical engagement and is methodologically complex, posing a challenge for researchers seeking straightforward empirical validation (Mensah et al., 2024). The necessity of multi-layered analysis and

extensive theoretical frameworks also results in critical realist studies being resource-intensive and time-consuming (Almaqtari et al., 2024). Critical realism remains a pivotal paradigm for research that seeks to reconcile the discrepancy between empirical observations and theoretical explanations, despite the challenges it faces.

Given the strengths and limitations of these paradigms, this study adopts a pragmatic research paradigm. Pragmatism emerged as a response to the rigid dichotomy between positivism and interpretivism, advocating for methodological flexibility based on what best addresses the research problem (Hassan et al., 2025). Pragmatists contend that reality is both objective and subjective, implying that knowledge is obtained through both quantitative and qualitative means (Alonge et al., 2024). Rather than being restricted to a single philosophical posture, pragmatism enables researchers to select methods that offer the most practical and valuable insights, thereby guaranteeing that the findings are both contextually relevant and empirically sound (John, 2023). This paradigm is especially advantageous for research that aims to resolve practical issues, as it emphasises practical results over theoretical integrity (Fotoh & Lorentzon, 2023). Pragmatism guarantees a comprehensive and equitable examination of intricate research enquiries by incorporating both numerical data and personal experiences (Hassan et al., 2025). The adaptability of this paradigm enables researchers to employ blended methodologies, which combine the advantages of various approaches to obtain a more comprehensive understanding of the phenomenon being investigated.

The adoption of pragmatism in this study is justified by its capacity to incorporate both quantitative and qualitative approaches, thereby guaranteeing a thorough comprehension of the research problem. The adoption of AI in internal auditing at Ghanaian public universities is a multifaceted issue that encompasses both measurable factors, such as institutional policies and technological capabilities, and subjective experiences, such as auditors' perceptions, challenges, and ethical considerations (Pimpong, 2027). An interpretive approach provides valuable insights into personal experiences. However, it may lack generalizability, while a strictly positivist approach provides statistical trends but may neglect the underlying contextual factors influencing AI adoption (Creswell et al., 2024). This dilemma is resolved by pragmatism, which enables the study to integrate structured surveys for quantitative analysis and in-depth interviews for qualitative insights, thereby guaranteeing a comprehensive and balanced examination of the subject matter. Pragmatism is the most suitable paradigm for addressing this research problem due to its adaptability, which aligns with the study's objective

of developing effective strategies for utilising AI in auditing (Hassan et al., 2025). Pragmatism guarantees that the study's findings are both actionable and meaningful by enhancing its credibility and applicability through the incorporation of diverse perspectives and methodologies.

4.4 Research Design

The research design serves as the blueprint for the study, outlining the structure, methods, and procedures that guide data collection and analysis. It ensures that the findings are valid, reliable, and consistent with the study's objectives by employing a systematic approach to researching research questions (Creswell, 2013). There are various research designs, each tailored to the unique research objectives and philosophical perspectives. Generally, research designs are categorised into three primary types: quantitative, qualitative, and mixed methods. Quantitative research design emphasises objectivity, measurement, and statistical analysis to establish relationships or test hypotheses, with a focus on numerical data (Hassan et al., 2025). It is frequently employed in research that necessitates the accumulation of large amounts of data, which enables predictive analysis and generalisability (Pimpong, 2027). Conversely, qualitative research design emphasises the in-depth examination of human experiences, social contexts, and meaning-making through non-numerical data, including interviews, observations, and textual analysis (Bryman, 2017). This method is advantageous for comprehending intricate social phenomena that are difficult to quantify. Qualitative research may be restricted in its generalisability, while quantitative research may lack contextual profundity. Despite these unique strengths, both designs also present limitations. Mixed-methods research design has emerged as a potent alternative to address these challenges, combining both quantitative and qualitative approaches to offer a more comprehensive comprehension of a research problem (Pimpong, 2027).

The mixed-methods research design integrates the advantages of both quantitative and qualitative methodologies, guaranteeing that contextual understanding is enhanced by data-driven insights (Creswell, 2013). This design acknowledges that intricate research problems often require the examination of multiple forms of evidence, thereby enabling researchers to simultaneously investigate both measurable trends and more profound explanations (Chalmers & Cowdell, 2021). Mixed-methods research is executed in a variety of ways, such as explanatory sequential, exploratory sequential, and convergent designs (Hassan et al., 2025). The convergent design entails the simultaneous collection of quantitative and qualitative data,

their subsequent analysis in isolation, and their subsequent integration to obtain a comprehensive perspective (Creswell, 2013). The exploratory sequential design commences with qualitative research to conduct a comprehensive examination of a phenomenon, which is subsequently followed by quantitative research to verify or confirm the findings on a broader scale (Mehrad & Zangeneh, 2019). This method is advantageous when the research domain lacks an adequate theoretical foundation, necessitating a preliminary qualitative investigation before developing quantifiable constructs. In contrast, the explanatory sequential design is a two-phase procedure that begins with the acquisition and analysis of quantitative data, followed by qualitative research to provide a more comprehensive understanding of the statistical findings (Simpson et al., 2016). This design is especially advantageous when researchers are required to elucidate quantitative results that are unexpected or intricate by incorporating qualitative perspectives. Mixed-methods research is becoming a more popular choice in social sciences and applied research due to its flexibility, which guarantees that studies benefit from both contextual richness and statistical rigour (Hassan et al., 2025).

The explanatory sequential mixed-methods design has been selected as the most appropriate research design for this study, given its nature. This method is particularly effective when the initial quantitative data offers a comprehensive understanding of patterns, relationships, or trends, which are subsequently investigated in greater detail using qualitative methods (Creswell, 2013). The study's objective is to create strategies for the effective use of AI by internal auditors in Ghanaian public universities. This necessitates an understanding of both contextual influences, such as auditors' experiences, challenges, and ethical considerations, as well as measurable factors, including institutional policies and AI adoption rates (Fotoh & Lorentzon, 2023). This research identifies general trends in AI adoption, auditors' perceptions, and institutional preparedness, beginning with a quantitative survey. The subsequent qualitative phase offers more detailed explanations of these findings, including the reasons behind the emergence of specific patterns and how contextual factors influence the implementation of AI in auditing (Almagrashi et al., 2024). This sequential approach guarantees that the study is the most suitable design for addressing the research problem, as it benefits from both empirical robustness and in-depth understanding (Almagrashi et al., 2023).

The justification for implementing an explanatory sequential mixed-methods design is its capacity to reconcile the divide between qualitative depth and quantitative generalisability. A quantitative approach that is exclusively quantitative enables statistical analysis, but it may fail

to consider the intricacies of individual experiences and organisational dynamics (Abuazza et al., 2015). In contrast, a qualitative approach that is exclusively qualitative generates detailed narratives, but it may not be capable of establishing broader trends or testing hypotheses (Chalmers & Cowdell, 2021). The sequential structure of this design ensures that the study is both systematic and adaptable, allowing for an iterative process in which qualitative insights contextualise and refine quantitative findings (John, 2023). Additionally, this design enhances the credibility of the research by employing methodological triangulation, which involves combining various data sources to strengthen the validity of the results (Hassan et al., 2025). It is essential to understand both contextual barriers and statistical trends to develop effective strategies, given the growing importance of AI in auditing. Consequently, the explanatory sequential mixed-methods approach serves as the most comprehensive, rigorous, and balanced framework for this investigation, guaranteeing that the results are contextually relevant and evidence-based.

4.5 Population of the Study

The study population refers to the entire group of individuals or entities relevant to the research problem, from which a sample is drawn for data collection and analysis (Mensah, 2024). The study population was composed of internal auditors employed at six public universities in Ghana that were selected from the sixteen (16) public universities listed by the Ghana Tertiary Education Commission (GTEC) as of 2024. These universities were the University of Ghana, Kwame Nkrumah University of Science and Technology, University of Cape Coast, University of Education, Winneba, Ghana Communication Technology University, and the University of Energy and Natural Resources. The selection of these institutions, situated in key locations throughout Ghana, was made to ensure fair representation of internal audit activities at both ancient and more recently established universities.

The study aimed to investigate the degree to which more established institutions possessed the requisite resources for AI adoption compared to relatively newer universities, focusing on a manageable number of universities. The research was conducted through a combination of semi-structured interviews with internal auditors at the selected universities and a survey questionnaire. The primary participants were internal auditors, who were directly responsible for financial supervision, risk management, and ensuring compliance with institutional policies and procedures. The essential stakeholders in the evaluation of AI adoption in public universities were their ability to generate high-quality audit reports that identified significant

risk areas. To evaluate the feasibility and impact of AI-driven auditing tools within Ghanaian higher education institutions, it was imperative to comprehend their perceptions, preparedness, and limitations regarding AI adoption.

Table 4. 1: List of Selected Public Universities in Ghana

No.	Name of the University	Year of Establishment	Regions	Number of Internal Audit staff (Population)	Sample Size
1.	University of Ghana	August 1948	Greater Accra	35	34
2.	Kwame Nkrumah University of Science and Technology	1951	Kumasi	47	46
3.	University of Cape Coast	October 1962	Central	52	51
4	University of Education, Winneba,	September 1992	Central	28	28
5.	Ghana Communication Technology University	November 2005	Greater Accra	9	9
6.	University of Energy and Natural Resources	December 2011	Bono	9	9
Total				180	177

Source: Authors Compilation (2024)

The study also considered the educational qualifications and professional certifications of the selected auditors, as these factors may potentially influence their perspectives on AI. Advanced Diploma (Higher National Diploma-HND), bachelor's degree, master's degree, doctorate, and professional certifications, including Chartered Accountant (CA), Certified Internal Auditor (CIA), Chartered Institute of Management Accountants (CIMA), and Association of Chartered Certified Accountants (ACCA), were among the qualification levels. These diverse qualifications provided a thorough understanding of how auditors' professional duties are

influenced by their expertise and experience with AI (Chalmers & Cowdell, 2021). One hundred seventy-seven (177) internal auditors from the six public universities that were chosen for the study comprised the study population. For the University of Ghana, the University of Cape Coast, the University of Energy and Natural Resources, and Ghana Communication Technology University, the population figures were obtained from the universities' official websites. For the Kwame Nkrumah University of Science and Technology and the University of Education, Winneba, the figures were obtained through interviews with internal audit representatives. The population division for each university was as follows.

This selection ensured that the study captured a wide range of perspectives from internal auditors operating in diverse institutional settings. Larger universities such as the University of Ghana, Kwame Nkrumah University of Science and Technology, and the University of Cape Coast had more extensive internal audit units, which may have influenced their approach to AI adoption. Conversely, smaller universities such as the Ghana Communication Technology University and the University of Energy and Natural Resources may have faced different challenges in implementing AI due to limited resources and personnel. By including universities of varying sizes and ages, the study provided a more comprehensive assessment of the role of AI in internal auditing across Ghana's public universities.

4.6 Quantitative Sample

A sample size refers to the number of observations or respondents selected from a larger population to participate in a study. It represents a subset of the population that is chosen to provide insights and generalisable findings about the entire group (Creswell, 2013). Determining an appropriate sample size is crucial for ensuring the accuracy, reliability, and validity of research results. A well-calculated sample size minimises sampling errors, enhances statistical power, and allows for meaningful inferences to be drawn (Alonge et al., 2024). A sample size of 177, representing approximately 98% of the population, is used for this study. The sample size of one hundred and seventy-seven (177) is selected using Burley's formula, which is used to find the sample size for the finite population as proposed by Yamane (1973), which is defined as:

$$n = \frac{N}{1+N(e^2)}$$

Where n = sample size, N = total population and e = margin of error (Yamane, 1973).

n = Sample size

N = population size (180)

e = margin of error (0.01)

According to Hazaea et al. (2021), a minimum sample size of 30 is required for reliable statistical analysis, while a maximum of 500 is generally sufficient. The sample size of 177 is well within the recommended range, ensuring robust and meaningful results. It also ensures representativeness and allows for confident generalisation to the entire population. Additionally, the sample size strikes a balance between precision and practical constraints, making the study both statistically sound and feasible. A larger sample size enhances confidence in the research findings and minimises sampling error (Almaqtari et al., 2022). It was imperative to select a sample size that accurately reflects the perspectives of internal auditors, as they play a crucial role in ensuring accountability and risk management in public universities. A comprehensive analysis of AI adoption among internal auditors across the selected universities is ensured by the high response rate (98% of the population).

Detailed subgroup analysis is feasible due to the selected sample size. The study examines the disparities in AI adoption by comparing the responses of auditors from older universities with those from newer institutions. Furthermore, it is possible to investigate the differences in perceptions that are influenced by the qualifications, years of experience, and familiarity with AI of auditors. The study employs inferential statistical techniques to identify correlations and trends that may not be observable in smaller samples when the sample size is sufficiently large (Almaqtari et al., 2024). Practical considerations influenced the selection of this sample size in addition to statistical justification. Although a comprehensive census, which surveyed all 180 auditors, has been optimal, it has presented logistical challenges, including time constraints, response fatigue, and resource limitations. The sample of 177 selected achieves a balance between maintaining feasibility and achieving statistical rigour.

4.7 Qualitative Sample

A purposive sampling technique was employed to select six (6) internal audit leaders from the six public universities in Ghana included in the qualitative phase of this study. Purposive sampling, also referred to as judgmental or selective sampling, involves the deliberate selection of participants who possess specialised knowledge and direct experience relevant to the research objectives (Creswell, 2013). In this study, internal audit leaders were specifically targeted because they hold strategic oversight responsibilities, make decisions regarding audit technology implementation, and possess institutional knowledge of governance accountability systems and Artificial Intelligence integration within audit processes. Their professional roles

place them in a unique position to provide detailed, context-specific insights into both operational and strategic aspects of AI adoption in internal auditing. Selecting senior audit personnel ensures that the study captures informed and experience-based perspectives rather than general staff opinions, thereby enhancing the credibility and relevance of qualitative findings (Alonge et al., 2024).

The selection of six participants is justified using the concept of information power, which suggests that smaller qualitative samples are sufficient when participants possess specialised expertise, the research aim is narrow and focused, and data collection generates rich, in-depth information (Simpson et al., 2016). Internal audit leaders within public universities represent highly specialised professionals who oversee audit strategy, technology adoption, and institutional governance processes. Consequently, each participant contributes high-quality data with strong analytical value. Additionally, the study adopts a case-focused qualitative design that prioritises depth of understanding rather than statistical generalisation. The participants were drawn from six different public universities, allowing cross-institutional comparison while capturing variations in technological readiness, institutional governance culture, and audit operational capacity. This sampling strategy enhances the diversity of institutional perspectives while maintaining the analytical depth required for thematic analysis.

Data saturation also supports the adequacy of the selected sample size. Saturation refers to the point at which additional interviews no longer generate new conceptual insights or themes relevant to the research objectives (Simpson et al., 2016; Creswell, 2013). Given that internal audit leaders operate within similar regulatory frameworks and professional auditing standards in Ghanaian public universities, their experiences often reflect shared institutional governance and accountability structures. Previous qualitative auditing and governance studies have demonstrated that expert-based samples often achieve thematic saturation with relatively small participant numbers due to the specialised nature of professional knowledge. During data collection, interviews were conducted until recurring themes related to AI adoption benefits, governance implications, technological readiness, and implementation challenges consistently emerged across participants, indicating sufficient thematic saturation for robust qualitative analysis.

Furthermore, the study acknowledges that qualitative research prioritises analytical transferability and conceptual depth rather than statistical representativeness. The use of expert purposive sampling ensures that participants provide authoritative insights into AI integration

within internal auditing processes in Ghanaian public universities. While the sample size may appear limited numerically, its strength lies in the strategic selection of participants with decision-making authority and institutional experience in audit technology adoption. This approach enhances the richness, credibility, and contextual relevance of findings while aligning with established qualitative research principles that emphasise depth of information, participant expertise, and thematic saturation as key determinants of sample adequacy. The qualitative findings are therefore intended to provide in-depth institutional insights into AI adoption in public university auditing rather than broad statistical generalisation across all public sector institutions.

4.8 Data Collection Methods

4.8.1 Questionnaire Design and Structure

The questionnaire is designed to comprehensively capture auditors' perceptions of AI adoption in internal audit functions, its effectiveness in fraud detection, the challenges faced, and potential strategies to enhance AI use in public universities in Ghana. The structured approach ensures that the study gathers relevant and targeted data, allowing for a thorough examination of AI's role in internal auditing. Each section is carefully developed to align with the study's research objectives, providing a detailed exploration of various dimensions of AI in auditing. The questionnaire employs a five-point Likert scale (1 = Strongly Disagree to 5 = Strongly Agree) to measure respondents' opinions, ensuring consistency in responses and facilitating meaningful statistical analysis. This approach enhances the reliability and validity of the collected data, as previous studies have shown that Likert-scale-based instruments are effective in capturing nuanced perceptions of technological adoption (Bingab et al., 2018).

The first section of the questionnaire focuses on demographic information, including respondents' age, gender, level of education, years of experience in internal auditing, and their university affiliation. These demographic variables provide essential contextual information that helps in analysing differences in AI perceptions among auditors based on their background and institutional affiliations. Age and experience, for instance, have been found to influence the willingness of professionals to adopt emerging technologies, as younger auditors may be more open to AI-driven tools compared to their older counterparts (Agba et al., 2023). Similarly, educational qualifications and professional certifications such as CA, CIA, CIMA, and ACCA may impact auditors' understanding of AI's potential benefits and limitations. By

collecting this data, the study examines how personal and institutional characteristics affect AI adoption in internal audit functions.

The second section of the questionnaire examines auditors' perceptions of using AI in internal audit functions to ensure accountability in public universities in Ghana. This section aims to understand the level of awareness, familiarity, and perceived benefits of AI integration in auditing. The questions are adapted from technology acceptance models, such as the Technology Acceptance Model, which highlights factors influencing technology adoption, including perceived usefulness and perceived ease of use. The study assesses whether auditors believe that AI enhances audit efficiency by automating routine tasks, improving financial reporting accuracy, and strengthening governance structures. Additionally, it explores whether AI is perceived as a valuable tool for minimising human bias in audits, thereby fostering transparency and accountability in financial oversight. If auditors hold positive perceptions of AI's capabilities, it suggests a greater likelihood of adoption and implementation in public universities' audit functions.

The third section evaluates the perceived effectiveness of AI in detecting fraudulent activities and improving internal controls in public universities. Fraud detection and risk assessment are critical components of internal auditing, and AI-driven tools have been increasingly recognised for their ability to analyse vast amounts of financial data, identify anomalies, and detect fraudulent activities in real time (Fotoh & Lorentzon, 2023). This section explores whether auditors believe AI contributes to better fraud detection, enhances compliance monitoring, and strengthens risk management frameworks within their institutions. Prior studies, such as those by Abuazza et al. (2015), emphasise that AI algorithms identify patterns of financial misreporting more effectively than traditional audit methods, thereby improving the accuracy and reliability of audits. The section also examines whether the adoption of AI in auditing leads to better resource allocation, earlier detection of financial irregularities, and improved decision-making by audit committees. The responses gathered help determine the extent to which AI is viewed as a transformative tool for enhancing fraud detection and internal controls in public universities.

The fourth section identifies the challenges internal auditors perceive in using AI in internal audit functions. AI adoption is often hindered by multiple barriers, including limited technical expertise, resistance to change, financial constraints, data security concerns, and ethical considerations (Bingab et al., 2018). This section examines these obstacles by investigating

whether auditors feel adequately trained to use AI-driven tools and whether a skills gap exists within public university audit departments. Additionally, it explores financial limitations that may prevent universities from investing in AI infrastructure, as budgetary constraints often dictate the extent of technological advancements in public institutions. Data security and ethical concerns are also addressed, as AI relies on large datasets that may raise questions about data privacy, integrity, and potential misuse. Understanding these barriers is essential for developing strategies to facilitate AI adoption and address the key concerns that auditors may have regarding AI integration in their work.

The final section of the questionnaire examines strategies developed to enhance the effective use of AI by internal auditors in public universities. This section seeks input from respondents on best practices, training requirements, policy recommendations, and areas for investment in AI infrastructure. Questions in this section are adapted from prior studies on digital transformation in auditing (Mensah et al., 2024; Hassan et al., 2025), which emphasise the need for a structured approach to AI implementation. The study investigates whether auditors believe that continuous training programs, workshops, and certification courses in AI applications can bridge the knowledge gap and enhance AI literacy among internal auditors. Additionally, it investigates the role of institutional policies and regulatory frameworks in promoting AI adoption, ensuring that AI is implemented in alignment with governance and compliance standards. The responses in this section contribute to formulating actionable recommendations that guide policymakers, university administrators, and audit committees in enhancing AI adoption and maximising its benefits in internal audit functions.

4.8.2 Questionnaire Design and Structure

The data collection process was carefully structured to ensure that the questionnaire reached a broad and relevant audience while maximising the response rate. The questionnaire was administered electronically through Google Forms and email, leveraging digital tools to facilitate efficient distribution and accessibility. The use of Google Forms offered several advantages, including ease of access for respondents, automated data collection, and the ability to track responses in real-time. Email distribution was particularly effective in reaching internal auditors across various public universities in Ghana, ensuring that participants conveniently completed the survey at their own pace. Additionally, the digital administration of the questionnaire minimised logistical challenges associated with physical distribution, reduced costs, and allowed for quicker data compilation and analysis. Prior research has highlighted the

effectiveness of online surveys in academic and organisational studies, as they enable researchers to gather large-scale data while maintaining respondent anonymity, which encourages more candid responses (Hassan et al., 2025).

To increase participation and boost the response rate, several follow-up strategies were employed. The initial invitations to participate in the study were sent via email, clearly stating the research's purpose, the significance of AI adoption in internal auditing, and the valuable contributions that respondents' insights could provide. The email also included a link to the Google Form questionnaire, along with detailed instructions on how to complete it. To ensure that potential respondents did not overlook the invitation, reminder emails were scheduled at regular intervals. A first follow-up email was sent one week after the initial invitation, politely emphasising the importance of their participation. If responses remained low, a second follow-up was sent two weeks later, highlighting the significance of the study and the valuable role that auditors' perspectives play in shaping its outcomes, specifically AI implementation strategies. Beyond email reminders, personalised communication was also used to encourage participation. For auditors who had not responded, direct messages were used via professional networks such as LinkedIn and institutional communication platforms, where appropriate. In cases where respondents had started the questionnaire but had not completed it, follow-up messages acknowledged their partial responses and encouraged them to finish the survey. This strategy helped mitigate survey fatigue and ensured that valuable insights were not lost due to incomplete submissions. Research suggests that personalised follow-ups significantly increase response rates by creating a sense of engagement and responsibility among participants (John, 2023).

To further encourage participation, the confidentiality and anonymity of responses were emphasised. Participants were assured that their answers remained strictly confidential and would only be used for academic research purposes. This assurance aimed to alleviate concerns about data security and encourage honest feedback. Ethical considerations were carefully adhered to, with respondents being informed about their right to withdraw from the study at any stage without any consequences. Understanding how data is used and ensuring privacy protection are crucial in research involving professionals, as they foster trust and improve response validity (Alonge et al., 2024). Additionally, the timing of questionnaire distribution was strategically planned to align with the auditors' work schedules. Surveys were sent during periods expected to have lower work pressure, ensuring respondents had adequate time to

provide thoughtful and detailed responses. Arrangements were made with key contacts in university audit departments to facilitate survey completion by coordinating internal reminders and encouraging participation. This collaborative approach leveraged institutional networks to enhance response rates while maintaining voluntary participation.

4.8.3 Questionnaire Pilot Study and Pre-testing

Before the full-scale deployment of the questionnaire, a pilot study was conducted with 15 internal auditors from selected public universities in Ghana. The primary objective of the pilot study was to evaluate the lucidity, relevance, and reliability of the questionnaire items, as well as to identify any ambiguities or inconsistencies that could compromise the data quality. Pilot testing is a crucial step in the research process, as it enables early detection of potential issues related to terminology, comprehension, and question structure. This ensures that respondents interpret the items as intended (John, 2023). The study ensured that the instrument was both contextually relevant and practical for the target audience by involving internal auditors in the pre-testing phase.

The 15 participants in the pilot study were selected for their professional expertise in internal auditing at public universities, as their insights were essential for refining the questionnaire. The auditors were urged to provide comprehensive feedback on each section, with a particular emphasis on the survey's overall duration, the appropriateness of the response options, and the clarity of the survey. The effectiveness of Likert scale options in capturing various levels of agreement, as well as the familiarity and clarity of terminologies used in AI adoption and internal audit processes, was of particular interest. Research indicates that pilot testing is indispensable for improving the reliability and validity of research instruments, as it facilitates the refinement of question formulation and format before large-scale administration (Hassan et al., 2025).

A comprehensive analysis was conducted to evaluate the internal reliability and consistency of the questionnaire items after the pilot participants' responses were collected. The reliability of various sections was evaluated using statistical methods, including Cronbach's alpha, to ensure they met acceptable reliability standards. A Cronbach's alpha coefficient of 0.7 or higher is generally regarded as indicative of satisfactory internal reliability (Pimpong, 2017). To enhance clarity, any items that demonstrated low reliability or caused perplexity among participants were revised or rephrased. Furthermore, the pilot study's open-ended feedback was carefully

examined to identify potential enhancements, including reordering questions to improve logical flow and adjusting question duration to prevent respondent fatigue.

Additionally, the pilot study offered an opportunity to evaluate the functionality of the digital questionnaire format, which was administered using Google Forms. Participants were requested to evaluate the overall user experience, loading time, and simplicity of navigation of the online survey. Ensuring a seamless digital experience was essential for optimising response quality and reducing disengagement rates during the primary data collection phase. The final questionnaire was designed to be both user-friendly and effective in capturing accurate data. Minor adjustments were made to improve question alignment, response option clarity, and survey instructions based on pilot feedback. The questionnaire underwent significant improvements before its full deployment, as a result of the feedback and revisions obtained from the pilot study. The overall quality of data collection was enhanced by ensuring that all items were explicit, logically structured, and aligned with the study's objectives. The study enhanced the credibility and validity of its measurement tools by incorporating feedback from experienced internal auditors. This ensured that the final questionnaire was robust, reliable, and capable of capturing meaningful insights on the adoption, challenges, and impact of AI within internal audit functions in Ghana's public universities.

4.8.4 Validity and Reliability of the Questionnaire

Ensuring the validity and reliability of the questionnaire is crucial for obtaining accurate and meaningful results in this study. In a supervisor review, experienced professionals in internal auditing and AI adoption, along with academic researchers in auditing and technology, evaluated the questionnaire items for relevance, clarity, and alignment with the study's objectives. The primary constructs under investigation, including AI adoption, challenges, and its impact on internal audit functions in public universities, were adequately conveyed by each query as a result of this process. Supervisor validation is a widely acknowledged effective method for ensuring that the questionnaire comprehensively addresses the research problem while avoiding biases, redundancies, or extraneous items (Hassan et al., 2025). To improve their accuracy and relevance to the study's context, any unclear or misleading questions identified during this review process were revised.

Factor analysis was employed to evaluate construct validity, which involves determining whether the questionnaire items are grouped under the anticipated constructs. A statistical method known as factor analysis is employed to ascertain whether multiple items that measure

the same concept are indeed correlated and belong to the same fundamental factor (Hair et al., 2019). This analysis verified that the queries intended to assess AI adoption, perceived efficacy, challenges, and accountability enhancement were appropriately structured. The overall coherence and interpretability of the findings are enhanced by the utilisation of factor analysis, which guarantees that the instrument covers distinct yet interrelated aspects of the research topic. To improve construct clarity and guarantee that the questionnaire measured the intended theoretical dimensions, items that did not load substantially onto their respective factors or exhibited cross-loadings were either modified or removed.

Cronbach's alpha, a widely recognised statistical measure for evaluating the internal consistency of survey items, was employed to assess reliability. In general, a Cronbach's alpha coefficient of 0.7 or higher is considered acceptable for reliability, which suggests that the items within a specific construct generate consistent and stable responses (John, 2023). The questionnaire's high reliability suggests that it is suitable for producing reliable and reproducible results across various contexts and samples. The reliability analysis was conducted separately for each of the main sections of the questionnaire in this study, which included AI adoption, accountability, efficacy, and challenges. Sections that demonstrated lower reliability scores were revised to enhance clarity and consistency, thereby guaranteeing that respondents interpreted the items consistently.

4.9 Interview Survey (QUAL)

4.9.1 Interview Schedule Design and Structure

The interview schedule is carefully designed to ensure that the qualitative phase of the study captures in-depth insights into the role of AI in internal auditing within public universities in Ghana. The interview questions are structured to be open-ended, allowing participants the flexibility to share their experiences, perspectives, and challenges regarding AI adoption in their institutions. This approach aligns with qualitative research principles that emphasise rich, detailed responses rather than constrained, predetermined answers (Creswell, 2013). By adopting a semi-structured format, the interviews facilitate a guided yet adaptable conversation, ensuring that all key themes are covered while allowing for the exploration of new and emerging ideas that may arise during discussions (Creswell & Lindsay, 2014).

The interviews are designed to focus on several core areas, beginning with participants' perceptions of AI adoption in internal auditing. This includes exploring their familiarity with AI tools, the extent of AI integration within their institutions, and their views on the

effectiveness of AI in enhancing audit processes. Understanding these perceptions is crucial in assessing the readiness of public universities to leverage AI for audit functions. Additionally, the interviews examine how AI is perceived in detecting fraudulent activities and strengthening internal controls. Given that fraud detection is a primary function of internal audit, it is essential to explore whether AI tools are perceived as enhancing or complicating this role (Bryman, 2017). Participants are encouraged to discuss their experiences with AI-driven risk assessment models, anomaly detection systems, and predictive analytics in identifying potential financial irregularities.

Another critical aspect of the interview schedule involves identifying the challenges associated with AI adoption in internal audits. Participants are asked to highlight technological, organisational, and regulatory barriers that hinder the effective implementation of AI. These may include issues such as limited technical expertise among auditors, resistance to change, inadequate infrastructure, and data security concerns (John, 2023). Understanding these challenges is crucial for developing effective strategies to address them and ensure the seamless integration of AI in auditing processes. Furthermore, the interviews examine the role of regulatory frameworks in AI adoption, exploring whether existing policies facilitate or hinder technological advancements in internal auditing. The final section of the interviews focuses on strategies to enhance AI utilisation in internal auditing. Participants are invited to suggest practical solutions, including training programs, policy reforms, and investment in AI-friendly audit infrastructure. Their insights contribute to the development of a framework for improving AI adoption, ensuring that internal audit functions in Ghana's public universities align with global best practices. By incorporating these perspectives, the study aims to provide actionable recommendations that enhance the efficiency and accountability of AI-driven audits (Creswell & Lindsay, 2014). The structured yet flexible nature of the interview schedule ensures a comprehensive exploration of AI's role, challenges, and potential in public university audits, making the findings highly relevant to policymakers, university administrators, and audit professionals.

4.9.2 Interview Data Collection Procedure

The data collection process for the interviews is carefully designed to ensure that detailed and meaningful insights are gathered from internal audit professionals regarding the adoption and impact of AI in auditing processes within public universities in Ghana. To improve accessibility and participation, interviews are conducted through a combination of in-person

meetings and online meetings via Zoom. The dual approach ensures that auditors with limited schedules or geographical constraints still participate through virtual means. At the same time, those who are available for face-to-face discussions engage in deeper, more interactive conversations. This arrangement allows for flexibility. Zoom has been widely acknowledged as an effective method for conducting interviews in qualitative research, as it records conversations for accurate data analysis and provides convenience (Almaqtari et al., 2024). Concurrently, in-person interviews offer the benefit of capturing non-verbal signals, such as facial expressions and gestures, which enhance the interpretation of responses (Almaqtari et al., 2023).

Informed consent is obtained from participants before each interview session to guarantee ethical compliance and adherence to research guidelines. The purpose of the study, the confidentiality of their responses, and their right to withdraw at any point without penalty are all explained to the participants. Recording interviews with the explicit consent of participants is a crucial component of the data collection process, as it facilitates precise transcription and reduces the likelihood of misinterpretation (Tetteh et al., 2023). Auditors are afforded ample opportunity to articulate their perspectives while simultaneously maintaining their engagement and concentration on the primary research themes during each interview session, which typically lasts between 45 minutes and an hour. The semi-structured format ensures that all critical themes, including AI adoption, challenges, and strategies, are addressed, while also allowing interviewees to elaborate on the areas they deem most pertinent (Nerantzidis et al., 2022).

To enhance the reliability of the data, interview recordings are transcribed verbatim, ensuring that the exact words of the participants are accurately captured for precise analysis. The data is anonymised to safeguard the identities of participants, thereby guaranteeing the confidentiality of their responses, following transcription. Additionally, member verification is implemented, allowing participants to verify the accuracy of their transcribed responses and address any misunderstandings (Tetteh et al., 2023). By guaranteeing that the interpretations precisely represent the participants' intended meanings, this phase enhances the credibility of the qualitative findings. Furthermore, field notes are recorded during the interviews to capture contextual observations, including the tone, hesitation, or emphasis of participants on specific topics. These annotations enhance the interpretation of responses by providing a deeper understanding of the transcribed data. Thematic analysis is employed to identify patterns,

recurrent themes, and emergent insights regarding AI's role in internal audit functions by systematically coding and analysing the interview data that has been collected (Hazaea et al., 2025). The study ensures a comprehensive examination of internal auditors' perspectives through this rigorous data collection process, thereby establishing a solid foundation for understanding the intricacies of AI adoption and its implications for accountability in public universities in Ghana.

4.9.3 Interview Pilot Study and Pre-testing

A pilot interview is conducted with three internal audit heads to ensure that the interview questions are clear, relevant, and capable of eliciting detailed responses. This pre-testing phase is essential in qualitative research, as it aids in the refinement of the interview structure, the identification of ambiguous or deceptive questions, and the enhancement of the overall efficacy of the data collection instrument (Creswell & Lindsay, 2014). The research obtains expert feedback on the lucidity, relevance, and comprehensiveness of the questions, thereby ensuring that they align with the study's objectives through the involvement of experienced internal auditors in the pilot study. Furthermore, the pilot interview enables the researcher to evaluate the feasibility of the estimated interview duration, the appropriateness of inquiry techniques, and the flow of the conversation (Simpson et al., 2016). Each interview is conducted during the pilot phase using the same methodology as the primary research, which includes either in-person or Zoom sessions. To facilitate transcription and analysis, the interviews are recorded with the participant's consent. Participants are requested to provide feedback on the wording and sequencing of the questions, the clarity of the questions, and whether any aspects of AI adoption in internal auditing have been neglected after each session. This iterative approach facilitates the implementation of essential refinements, including rephrasing ambiguous queries, incorporating follow-up prompts to encourage explication, and modifying the structure to ensure a natural conversational flow (Creswell, 2013).

One of the primary advantages of conducting a pilot study is that it enables the researcher to evaluate the efficacy of the data recording and transcription processes. Before the full-scale data collection commences, technical aspects, including the efficacy of assent procedures, potential connectivity issues in virtual interviews, and aural intelligibility in various environments, are assessed and resolved (Bingab et al., 2018). The final interview guide is enhanced by documenting and addressing any challenges that arise during the pilot phase, such as respondents' difficulties with the profundity of questioning or their misinterpretation of

specific terms. In addition, the pilot study provides an opportunity to evaluate the researcher's interviewing skills, with a particular emphasis on establishing rapport, using follow-up questions effectively, and maintaining neutrality. To ensure that participants are at ease sharing their insights and to obtain rich, unbiased responses, it is imperative to possess strong interviewing skills (Simpson et al., 2016). The final version of the interview guide incorporates the feedback obtained from the pilot interviews, guaranteeing that the primary study is conducted with a refined and effective data collection instrument.

4.10 Data Analysis Method

4.10.1 Questionnaire Survey

The questionnaire survey responses are systematically analysed using the Statistical Package for the Social Sciences (SPSS), a widely recognised software for quantitative data analysis. SPSS was chosen due to its efficiency in handling large datasets and its ability to generate reliable statistical outputs that enhance the validity of the study's findings (Agba et al., 2023). The analysis begins with data cleaning and coding, ensuring that all responses are accurately entered and any inconsistencies, such as missing values or outliers, are identified and addressed before proceeding with the statistical evaluation (Tetteh et al., 2023). This preliminary step is crucial in maintaining data integrity and ensuring that errors in data entry or respondent omissions do not skew the results. Descriptive statistics are employed to summarise and interpret the data, providing an overview of key trends and patterns in AI adoption within internal audit functions in public universities.

To enhance the robustness of the analysis, inferential statistical tests were carefully selected to examine significant differences in perceptions across different auditor groups. The Wilcoxon signed-rank test was chosen due to its suitability for paired data and non-normal distributions (Creswell & Lindsay, 2014). This non-parametric test allows for the evaluation of changes in perceptions within the same group of auditors before and after exposure to AI tools, making it ideal for capturing subtle shifts in attitudes that may not follow a normal distribution. The t-test was employed to compare the means of two independent groups, such as auditors from older and newly established universities, to determine whether significant differences exist in their perceptions of AI adoption, effectiveness, and challenges (Almaqtari et al., 2023). This test is appropriate when the data meet the assumptions of normality and homogeneity of variance, allowing for a robust comparison of group means. It is beneficial for assessing whether resource availability, institutional experience, or other contextual factors influence

auditors' attitudes toward AI (Simpson et al., 2016). The one-sample t-test was used to evaluate whether the mean response for key survey variables differed significantly from a neutral or predetermined benchmark value (Creswell & Lindsay, 2014). This approach helps determine whether respondents collectively perceive AI as beneficial or challenging. By using this test, the study assesses the overall sentiment toward AI adoption and identifies any significant deviations from a neutral stance.

These tests were chosen over alternatives such as the Mann-Whitney U test or ANOVA due to the nature of the data and the research objectives. The Wilcoxon signed-rank test was preferred for its robustness with non-parametric data. At the same time, the t-tests were selected for their efficiency in comparing group means and detecting significant differences (Tetteh et al., 2023). This combination enables a comprehensive analysis of patterns in responses, identifying the extent to which internal auditors perceive AI as an effective tool for fraud detection, efficiency enhancement, and improved accountability. Moreover, this approach helps uncover common challenges in AI adoption, such as technical constraints, lack of training, or resistance to change, by analysing response trends across different demographic groups, including levels of experience and qualifications. A comparative analysis provides deeper insights into institutional disparities between older and newly established universities regarding AI adoption and resource availability.

4.10.2 Interview Survey

The interview survey undergoes rigorous thematic analysis to extract meaningful insights into AI adoption, the barriers hindering its implementation, and its role in strengthening accountability frameworks within internal audit functions. Thematic analysis is a widely recognised qualitative research technique that allows for the systematic identification, analysis, and reporting of patterns within qualitative data (Braun & Clarke, 2006). This approach is beneficial for capturing the perspectives of internal audit heads, as it enables the researcher to identify recurring themes and emerging trends that may not be evident through quantitative analysis alone (Tetteh et al., 2023). The data analysis process begins with the transcription of interview recordings, ensuring that all responses are accurately documented and retaining the nuances of participants' perspectives. Transcriptions are then reviewed multiple times to familiarise the researcher with the content, a crucial step that aids in recognising key patterns and developing initial codes (Nowell et al., 2017). Coding involves systematically tagging portions of the data that relate to specific topics, such as the perceived benefits of AI in internal

audits, the challenges associated with its adoption, and the strategies required for effective implementation. These codes are then grouped into broader categories to form overarching themes that represent the core issues raised by participants (Clarke & Braun, 2017).

4.10.3 Process of Coding (Braun and Clarke's Framework)

Thematic analysis follows Braun and Clarke's (2006) six-phase framework, which provides a structured and rigorous approach to identifying patterns within qualitative data. This framework ensures a systematic examination of internal auditors' perspectives on AI adoption, associated barriers, and its impact on accountability frameworks in public universities. The six phases include familiarisation with the data, generating initial codes, searching for themes, reviewing themes, defining and naming themes, and producing the final report. The process begins with data familiarisation, where interview transcripts are carefully read and re-read to gain an in-depth understanding of participants' responses.

This initial stage allows the researcher to become immersed in the data, identifying preliminary ideas and noting recurring concepts (Braun & Clarke, 2006). Given the complexity of AI integration in internal audits, this phase helps uncover implicit meanings within the responses, providing a foundation for subsequent analysis. Audio recordings are transcribed verbatim, ensuring accuracy and completeness, while reflective notes capture emerging thoughts during the review process (Nowell et al., 2017). The next phase involves generating initial codes, where key segments of data are systematically labelled to highlight meaningful features relevant to AI adoption in internal audits. Coding is performed manually, with the aid of qualitative data analysis software, to ensure consistency and traceability. Each code represents a specific idea, such as “AI improves fraud detection,” “resistance to AI adoption,” or “lack of training on AI systems” (Braun & Clarke, 2006). These codes are crucial for identifying patterns that later evolve into broader themes. At this stage, coding remains flexible, allowing for modifications as more data insights emerge.

In the third phase, codes are grouped into potential themes, which represent broader concepts that capture significant aspects of AI adoption and its implications for internal audits. For example, codes related to auditors' scepticism, lack of AI expertise, and financial constraints may be clustered under the theme “Barriers to AI Adoption.” Similarly, responses about AI's ability to enhance transparency, accountability, and fraud detection may be categorised under the theme “AI’s Role in Strengthening Internal Controls” (Braun & Clarke, 2006). These themes provide an initial structure for organising findings in a meaningful way. Following this,

themes are reviewed to ensure coherence and validity. This phase involves checking if themes accurately represent the coded extracts and align with the overall dataset. Some themes may be refined, combined, or discarded if they lack sufficient supporting data. This iterative process ensures that the analysis remains data-driven and that the final themes are both robust and reflective of participants' perspectives (Clarke & Braun, 2017). The researcher cross-references findings with existing literature to ensure alignment with theoretical frameworks and previous studies on AI integration in audit functions.

The fifth phase entails defining and naming themes, refining each theme into a concise and clear concept. This process involves articulating what each theme represents and determining how it contributes to answering the research questions. For example, the theme “Barriers to AI Adoption” is further broken down into sub-themes such as “technical challenges,” “organisational resistance,” and “regulatory concerns.” Clear definitions are assigned to each theme, ensuring that they provide valuable insights into the experiences of internal auditors with AI (Clarke & Braun, 2017). The final phase involves producing the report, where the themes are woven into a coherent narrative, integrating direct quotations from participants to illustrate key points. This phase is crucial for presenting findings in a manner that highlights the significance of AI in internal audits while acknowledging the challenges auditors encounter. The discussion connects themes to the research questions and theoretical frameworks, offering a comprehensive analysis of AI's role in audit accountability.

4.11 Validity, Reliability, and Trustworthiness

Ensuring the validity, reliability, and trustworthiness of the study is critical to producing credible and generalisable findings. In the quantitative phase, validity is established through both content and construct validity. Content validity is ensured through expert review, where professionals in internal auditing and AI integration assess the questionnaire for relevance, clarity, and comprehensiveness (Nowell et al., 2017). This process ensures that the survey items accurately capture the constructs under investigation, such as AI adoption, its impact on accountability, and the perceived challenges associated with it. Construct validity is tested using factor analysis, which examines whether the questionnaire items align with the theoretical constructs they intend to measure (Hair et al., 2019). This statistical technique confirms that the measured variables are appropriately grouped and contribute to the broader constructs under study. Reliability in the quantitative analysis is assessed using Cronbach’s alpha, a widely accepted measure of internal consistency. A Cronbach’s alpha coefficient of

0.7 or higher indicates that the questionnaire items reliably measure the same construct (Nowell et al., 2017). This threshold ensures that responses are stable and consistent across different respondents, reinforcing the dependability of the survey instrument. Additionally, a pilot test is conducted with a small group of internal auditors before full deployment, allowing for refinements based on initial feedback. This pre-testing phase helps identify ambiguities and enhance the clarity of survey items, thereby further improving the instrument's reliability (Clarke & Braun, 2017).

In the qualitative phase, trustworthiness is ensured through credibility, transferability, dependability, and confirmability, following the framework proposed by Guba and Lincoln (1994). Credibility is enhanced through prolonged engagement with the data, member checking, and triangulation. Prolonged engagement involves conducting in-depth interviews and thoroughly analysing responses to capture the full complexity of participants' perspectives. Member checking is implemented by sharing preliminary findings with interview participants to confirm that their views have been accurately represented, reducing researcher bias and enhancing the authenticity of the data (Creswell, 2013).

Transferability, which relates to the applicability of findings to other contexts, is strengthened by providing detailed descriptions of the research setting, participant characteristics, and data collection process. This enables future researchers or practitioners to assess the relevance of the findings to their specific contexts (Almaqtari et al., 2023). Dependability is addressed by maintaining a detailed audit trail and documenting all research decisions, data collection procedures, and analytical steps. This ensures that the study is replicated under similar conditions, reinforcing the consistency of the findings (Hair et al., 2019). Confirmability, which ensures that the findings are based on participants' perspectives rather than researcher biases, is achieved through reflexivity and triangulation. Reflexivity involves acknowledging and addressing potential biases by maintaining a reflective journal throughout the research process (Hazaea et al., 2021). Triangulation is employed by integrating both qualitative and quantitative data and comparing survey results with interview findings to enhance the robustness of the conclusions (Simpson et al., 2016). By aligning statistical patterns with qualitative themes, the study ensures that conclusions are well-supported and grounded in multiple sources of evidence.

4.12 Triangulation

Triangulation is employed to enhance the validity and reliability of the study by integrating both quantitative survey data and qualitative interview insights. Through the cross-verification of results from various data sources, this methodological approach guarantees a thorough knowledge of AI use in internal audits. Almagrashi et al. (2024) assert that triangulation, which compares and contrasts many viewpoints to find patterns and inconsistencies in the data, lessens bias and increases the validity of study findings. The research offers a more comprehensive understanding of internal auditors' perspectives on the impact of AI on accountability, fraud detection, and internal controls at public universities by integrating survey data with interview results. The process of triangulation begins with analysing the survey data, where quantitative results provide statistical patterns regarding AI adoption, associated challenges, and perceived benefits. Descriptive statistics such as mean scores, standard deviations, and frequency distributions highlight overarching trends in auditors' responses.

Additionally, inferential tests, including Wilcoxon signed-rank tests, assess significant differences in auditors' perceptions based on experience, institutional affiliation, or level of AI familiarity. These statistical insights provide a comprehensive and measurable perspective on the impact of AI on internal audit functions. Following the quantitative analysis, qualitative interviews undergo thematic analysis using Braun and Clarke's (2006) framework. The interview responses provide a deeper contextual understanding, uncovering nuanced perceptions of AI integration that may not be captured through structured survey questions. Through this process, themes such as "challenges in AI adoption," "AI's role in fraud detection," and "resistance to technological change" emerge, providing qualitative insights to the survey findings. Comparing these themes with quantitative results helps validate patterns and refine interpretations, ensuring that the research findings are robust and reflective of real-world audit experiences.

The integration of both data sources occurs through convergence and complementarity. Convergence occurs when both quantitative and qualitative findings align, reinforcing key conclusions about AI's impact on audit processes. For instance, if survey respondents indicate that AI significantly enhances fraud detection, and interview participants describe real-life examples of AI-driven fraud prevention, the alignment strengthens the reliability of the conclusion (Simpson et al., 2016). Conversely, complementarity arises when qualitative insights provide explanations for patterns observed in quantitative data. For example, if

statistical results indicate a reluctance to adopt AI, interview findings may reveal underlying reasons, such as a lack of training, cost barriers, or organisational resistance. This mixed-methods approach enables a more in-depth examination of factors influencing AI adoption in internal audit functions. Furthermore, discrepancies between quantitative and qualitative data are critically examined to identify potential gaps or alternative explanations. For instance, if survey respondents express positive attitudes toward AI efficiency, but interviews highlight scepticism due to data security concerns, these contradictions are explored to determine contextual variations in perceptions. Such differences are essential for refining conclusions and ensuring that the study accurately represents diverse viewpoints across public universities.

4.13 Thick Description

A thick description provides a comprehensive and detailed account of AI implementation in internal audit functions, enhancing the study's credibility by capturing the depth and complexity of participants' experiences. This method, rooted in qualitative research traditions, facilitates a deeper understanding of AI's role in auditing by examining both the events themselves and the context in which they occur (Bryman, 2017). The research makes sure that its results are both descriptive and analytically insightful by providing rich, contextually connected narratives. This helps readers understand the broader ramifications of integrating AI into internal auditing tasks. The understanding of social and organisational behaviours associated with the adoption of AI is facilitated by thick description, which also sheds light on auditors' perspectives, difficulties, and methods for overcoming obstacles (Simpson et al., 2016). The report fosters trust and authenticity by incorporating actual comments from respondents, providing thorough descriptions of audit procedures, and offering insights into how AI impacts accountability and efficiency. By including sufficient contextual information, this approach also enhances transferability, allowing other researchers and practitioners to assess how well the results apply to other organisational contexts. Thick description, therefore, enhances the research's validity and reliability by ensuring that its results are firmly grounded in the real-world experiences of internal auditors and adequately supported by empirical data. The study's results are guaranteed to be significant, applicable, and pertinent to internal audit procedures in Ghanaian public institutions, thanks to this rigorous scientific methodology.

4.14 Peer Review

Peer review plays a crucial role in ensuring the credibility, accuracy, and rigour of the study by subjecting the findings to independent evaluation by experts in internal auditing and AI

adoption. This process enhances the validity of the research by allowing knowledgeable professionals to critically assess the methodology, analysis, and conclusions, ensuring that they align with established theories and industry practices (Chalmers & Cowdell, 2021). The involvement of external experts minimises researcher bias, enhances objectivity, and strengthens the reliability of the study's outcomes (Bryman, 2017). By engaging professionals with expertise in both AI integration and internal auditing, the review process ensures that the findings are practically relevant and methodologically sound. The peer review process includes multiple stages, beginning with an initial evaluation of the research framework, followed by a detailed assessment of data collection, analysis, and interpretation. Supervisors provide constructive feedback on areas that require refinement, ensuring the study meets high academic and professional standards. Additionally, peer review enhances the generalisability of findings by identifying potential gaps, inconsistencies, or overlooked factors that may influence AI adoption in internal audit functions. This systematic approach to validation enhances the trustworthiness of the study, ensuring that the conclusions drawn are robust, well-founded, and applicable to real-world auditing practices.

4.15 Ethical Considerations

4.15.1 Permission

To guarantee adherence to ethical research norms, consent was sought from the ethics committees of the chosen public universities before starting data collection. Studies involving human subjects should get ethical clearance to protect their rights and welfare and maintain the integrity of the study process (Creswell, 2013). A thorough research proposal, including the study's goals, methods, and participant confidentiality safeguards, had to be submitted for approval. Ethical review boards evaluated the research to ensure it complied with national and international ethical standards, including those related to participant consent, data collection methods, and the responsible handling of sensitive data (Hassan et al., 2025). Gaining institutional permission was crucial for boosting participant confidence and confirming the study's validity, which in turn increased their desire to participate.

4.15.2 Confidentiality and Privacy

Confidentiality and privacy were prioritised to protect the identities of participants and maintain the integrity of the collected data. All responses were anonymised to prevent the disclosure of personal information, ensuring that participants felt secure in providing honest and unbiased perspectives on AI adoption in internal auditing. Data was securely stored on

encrypted digital platforms with restricted access, and only authorised personnel were permitted to handle the information (Bryman, 2017). By implementing stringent privacy measures, the study adhered to ethical best practices and mitigated any potential risks associated with data breaches or unauthorised disclosures.

4.15.3 Voluntary Participation and Informed Consent

To uphold ethical research standards, respondents were explicitly informed that their participation was voluntary. All participants provided informed consent before taking part in the study, ensuring that they fully understood the nature, purpose, and potential implications of their involvement. Consent forms clearly outlined their rights, including their ability to withdraw from the study at any stage without facing any negative consequences (Simpson et al., 2016). This approach emphasised respect for autonomy and reinforced ethical research principles by granting participants complete control over their engagement in the study. Voluntary participation ensured that responses were given freely, without coercion or undue influence, thus enhancing the authenticity and reliability of the collected data. By adhering to these ethical protocols, the study maintained the highest standards of integrity, promoting ethical accountability in research involving human subjects.

4.15.4 Researcher Positionality and Reflexivity

Researcher positionality acknowledges that no researcher approaches a study as a neutral instrument; rather, personal background, academic training, professional experience, and epistemological orientation may shape data interpretation and interaction with participants (Berger, 2015). In this study, which examines Artificial Intelligence adoption within internal audit functions in Ghanaian public universities, the researcher recognises that familiarity with governance, auditing systems, and technology discourse may influence both question framing and interpretation of responses. Given the technical and institutional sensitivity surrounding audit processes and accountability systems, there was a potential risk that prior conceptual understanding of AI or internal control frameworks could shape analytical emphasis. To minimise this influence, the researcher consciously adopted a neutral stance during data collection, allowing participants to articulate their experiences without leading prompts or normative framing. Interview questions were structured to remain open-ended and exploratory, thereby prioritising participant-driven narratives rather than researcher assumptions.

Reflexivity was maintained throughout the research process as a continuous critical self-evaluation of how interpretations were constructed (Nowell et al., 2017; Creswell, 2013). The

researcher documented reflective notes during and after interviews to monitor emerging assumptions, emotional reactions, and interpretive tendencies. This reflexive practice helped distinguish between participants' lived institutional realities and the researcher's analytical interpretations. Additionally, during thematic analysis, findings were grounded explicitly in verbatim participant statements to preserve authenticity and reduce interpretive distortion. By consciously engaging in reflexive awareness, the study strengthened its credibility and confirmability, ensuring that conclusions regarding AI adoption, governance accountability, and implementation challenges reflected participants' professional experiences rather than researcher predispositions. This reflexive approach enhances transparency and aligns the study with established qualitative research standards that emphasise critical self-awareness as a key component of methodological rigour (Berger, 2015).

4.16 Overview of the Universities

The University of Ghana (UG), established in August 1948 and situated in Greater Accra, is the most prestigious and oldest public university in Ghana. UG offers a comprehensive platform for analysing the influence of AI on internal audit functions, with a sample size of 34 and a population of 35 internal audit personnel. The university's extensive history and well-established internal control systems facilitate a comprehensive examination of how AI tools improve accountability, efficiency, and fraud detection. UG is an ideal institution for comprehending the role of AI in identifying financial anomalies and enhancing risk management due to its extensive experience in administering financial systems and compliance processes. In addition, the institution's ability to access sophisticated technological infrastructure and highly qualified audit personnel enables the seamless integration of AI-driven solutions, allowing auditors to detect fraudulent activities and perform real-time data analysis more effectively. Nevertheless, the university faces specific obstacles in deploying AI, including the need for ongoing training to enhance the technical proficiency of auditors and resistance to change. This study aims to evaluate the efficacy of AI tools in enhancing internal controls and ensuring adherence to institutional policies, with a focus on the internal audit environment at UG. Ultimately, the objective is to enhance transparency and accountability within Ghana's higher education sector.

The Kwame Nkrumah University of Science and Technology (KNUST), established in 1951 in Kumasi, is renowned for its focus on science and technology education. The role of AI in internal audit functions is examined in a distinctive setting at KNUST, where the internal audit

staff population consists of 47 individuals and the sample size is 46. The university's emphasis on technological innovation and research creates an ideal environment for integrating AI tools to enhance fraud detection, efficiency, and accountability. The internal audit team at KNUST conducts real-time data analysis and anomaly detection, leveraging the institution's sophisticated technological infrastructure. This allows auditors to identify potential hazards and financial irregularities more effectively. Furthermore, the university's emphasis on ongoing professional development provides internal auditors with the requisite abilities to utilise AI-driven solutions to enhance compliance monitoring and decision-making. Nevertheless, KNUST faces obstacles, including the need to address data security and privacy concerns, as well as the limited funding available for AI implementation, despite its strengths (Amoako et al., 2023). This study aims to understand the impact of technological innovation and institutional support on the effectiveness of AI tools in enhancing internal controls and ensuring financial accountability within Ghana's public university system, by analysing KNUST's experience with AI adoption.

The University of Cape Coast (UCC), which was established in the Central Region in October 1962, is renowned for its emphasis on teacher education and research. UCC provides a comprehensive platform for evaluating the impact of AI on internal audit functions, with a sample size of 51 and an internal audit staff population of 52. The university's extensive auditing experience and well-established internal control mechanisms provide a strong foundation for integrating AI tools to enhance fraud detection, efficiency, and accountability. UCC's internal audit team employs sophisticated data analytics and machine learning algorithms to identify potential hazards in financial transactions and detect anomalies. This enables auditors to enhance compliance with institutional policies and regulations by making data-driven decisions. Furthermore, the university's commitment to ongoing professional development and training ensures that internal auditors possess the necessary technical skills to implement AI-driven solutions effectively. Nevertheless, UCC faces obstacles, including the need to mitigate cybersecurity risks associated with AI adoption and the scarcity of financial resources for AI implementation (Tetteh et al., 2022). The objective of this study is to assess the efficacy of AI tools in enhancing internal controls and fostering transparency and accountability within Ghana's public university system by analysing UCC's internal audit environment.

The University of Education, Winneba (UEW), established in September 1992 in the Central Region, focuses on teacher training and educational development. UEW offers valuable insights into the incorporation of AI in internal audit functions, with a sample size of 28 and an internal audit staff population of 28. The university's medium-sized internal audit team enables a focused evaluation of how AI tools improve accountability, efficiency, and fraud detection. UEW's internal auditors employ AI-driven data analytics to enhance risk management, monitor compliance, and identify financial irregularities. The institution's dedication to continuous learning and professional development guarantees that auditors possess the technical skills necessary to utilise AI technologies effectively. Nevertheless, UEW faces obstacles, including the need for additional funding to implement AI and limited access to advanced technological infrastructure. Furthermore, the university must mitigate potential resistance from internal audit staff to change and ensure compliance with data privacy regulations. This study aims to understand the impact of institutional policies, resource availability, and staff expertise on the effectiveness of AI tools in enhancing internal controls and ensuring financial accountability within Ghana's public university system, by analysing UEW's experience with AI adoption.

In November 2005, the Ghana Communication Technology University (GCTU) was established in Greater Accra, focusing on the education of ICT and telecommunications. GCTU offers a distinctive perspective on the integration of AI in internal audit functions, based on a sample size of 9 and an internal audit staff population of 9. GCTU's sophisticated digital infrastructure and expertise in AI-driven solutions, stemming from its technology-focused nature, allow auditors to conduct real-time data analysis and identify fraudulent activities. The university's internal audit team utilises predictive analytics and machine learning algorithms to monitor financial transactions, identify anomalies, and enhance risk management. Furthermore, the continued emphasis on professional development and innovation at GCTU ensures that auditors possess the necessary technical skills to employ AI tools effectively. Nevertheless, the GCTU faces challenges such as addressing cybersecurity risks associated with AI technologies and the limited financial resources available for AI implementation (Amonkwandoh, 2021). Additionally, the university must overcome resistance to change and ensure compliance with data privacy regulations. This study endeavours to evaluate the efficacy of AI tools in enhancing internal controls and fostering transparency and accountability within Ghana's public university system by analysing the internal audit environment of GCTU.

The University of Energy and Natural Resources (UENR), established in December 2011 in the Bono Region, specialises in energy and environmental studies. UENR offers valuable insights into the role of AI in internal audit functions within a relatively new and specialised institution, with a sample size of 9 and an internal audit staff population of 9. The internal audit team at UENR employs AI-driven data analytics to enhance risk management, monitor compliance, and identify financial anomalies. The university's commitment to technology adoption and innovation enables auditors to optimise fraud detection and efficiency by employing machine learning algorithms and predictive models. Nevertheless, UENR faces obstacles, including financial constraints and limited access to advanced technological infrastructure, which hinder the full implementation of AI tools. Furthermore, the university is obligated to address data security and privacy concerns and provide ongoing training to enhance the technical proficiency of its auditors. This study aims to understand the impact of institutional support, resource availability, and staff expertise on the effectiveness of AI tools in enhancing internal controls and ensuring financial accountability within Ghana's public university system, by analysing UENR's experience with AI adoption.

4.17 Justification for Excluding Private Universities

The study deliberately focuses on public universities in Ghana due to their distinctive governance structures, regulatory oversight, and accountability obligations that differ significantly from private tertiary institutions. Public universities operate under national public financial management regulations, government budgetary allocations, and statutory accountability frameworks that require strict compliance with external audit directives and state financial reporting standards. These institutional conditions create a unique auditing environment where internal audit units serve not only organisational management but also public stakeholders and regulatory authorities responsible for monitoring the utilisation of public resources (Bawole & Ibrahim, 2017; Bonsu et al., 2022). Artificial Intelligence adoption in internal auditing within public universities is therefore influenced by public accountability demands, regulatory compliance pressures, and governance transparency requirements, which are less pronounced in private universities that primarily operate under corporate governance and privately funded institutional structures.

Private universities typically possess greater managerial autonomy, flexible decision-making processes, and different funding mechanisms, which may influence technology adoption differently compared to publicly funded institutions. Research indicates that organisational

governance systems and regulatory frameworks significantly shape technological innovation adoption and internal audit practices across institutions (Abdullah & Almaqtari, 2024; Wassie & Lakatos, 2024). Including private universities could introduce structural heterogeneity related to funding models, governance authority, and operational independence, potentially obscuring the specific institutional dynamics influencing Artificial Intelligence adoption within public sector auditing environments. By concentrating on public universities, the study maintains analytical consistency and allows for a deeper examination of how state governance requirements, public accountability pressures, and institutional resource constraints influence AI integration in internal auditing processes. This focused approach strengthens contextual validity and ensures that findings provide policy-relevant insights tailored to public higher education governance systems in Ghana, where accountability and transparency in the management of public funds remain critical institutional priorities (Pimpong, 2017; Tetteh et al., 2023).

4.18 Fieldwork Challenges and Limitations

Conducting fieldwork within public universities in Ghana presented several operational and institutional challenges that influenced data collection. Access to internal audit departments required formal administrative approval processes, which often involved bureaucratic delays and scheduling constraints associated with public sector governance structures. To address this challenge, the study obtained official institutional permissions through formal introductory letters and followed established ethical approval procedures to build organisational trust. Additionally, the researcher maintained continuous communication with audit units and adopted flexible interview scheduling to accommodate participants' professional responsibilities. Internal auditors also demonstrated caution when discussing auditing practices and Artificial Intelligence implementation due to confidentiality concerns and institutional accountability pressures. Such sensitivity is common in governance-related research where participants may fear organisational or professional repercussions (Nerantzidis et al., 2022; Bonsu et al., 2022). To mitigate this concern, the study assured participants of confidentiality, anonymity, and voluntary participation. Data were collected using coded identifiers rather than personal or institutional identifiers to protect participant identity. Furthermore, differences in technological exposure among participants posed challenges in obtaining uniform experiential responses. This was addressed by designing interview and questionnaire items that included explanatory prompts and contextual examples of AI applications in auditing to ensure clarity and consistency in participant understanding (Abdullah & Almaqtari, 2024).

Despite these mitigation strategies, methodological limitations related to self-reported data remained. Perception-based responses may be influenced by social desirability bias, where participants provide responses aligned with perceived institutional expectations rather than personal experiences (Damerji & Salimi, 2021). To reduce this bias, the study employed methodological triangulation by combining quantitative survey data with qualitative interview findings, allowing cross-verification of participant responses and enhancing data credibility. The relatively small qualitative sample size also posed potential limitations regarding the diversity of experiences across institutions. However, this limitation was addressed through expert purposive sampling, selecting internal audit leaders with strategic oversight responsibilities and specialised knowledge of AI adoption processes. Information power and thematic saturation principles were applied during data collection, ensuring that interviews continued until recurring themes emerged consistently across participants. Logistical challenges, including geographical dispersion of universities and time constraints, were addressed through the use of hybrid data collection methods such as virtual interviews and electronic questionnaire distribution. These strategies improved participant accessibility and response rates while maintaining methodological rigour. Although contextual differences in technological infrastructure across universities may influence cross-institutional comparability, the study addressed this by incorporating institutional background variables into the analysis to capture variations in AI readiness and audit operational capacity.

4.19 Justification for Not Using Factor Analysis

Factor analysis was not employed in this study because the questionnaire was designed to measure clearly defined and observable perception variables rather than latent theoretical constructs requiring dimensional extraction. The instrument was structured into four sections aligned directly with the research objectives: perceptions of AI usage in ensuring accountability, perceptions of AI effectiveness in fraud detection and internal control improvement, perceived challenges in AI implementation, and perceived strategic measures for effective AI utilisation. Each section contained statements that measured distinct institutional experiences and professional perceptions of internal auditors rather than multiple indicators intended to represent hidden behavioural or psychological constructs. Factor analysis is primarily appropriate when researchers attempt to identify underlying latent dimensions from highly correlated variables that cannot be directly measured (Hair et al., 2019). In this study, however, the questionnaire items were intentionally developed as direct

evaluative indicators of institutional auditing practices and AI adoption experiences, eliminating the methodological need for factor extraction.

Furthermore, the questionnaire items were organised according to predetermined thematic domains that corresponded directly with the descriptive and exploratory nature of the study. Part I focused on accountability outcomes associated with AI deployment in auditing activities such as risk assessment, audit reporting, and transaction monitoring. Part II examined the perceived effectiveness of AI in fraud detection and internal control systems. Part III explored perceived organisational, technological, and ethical challenges affecting AI adoption. Part IV assessed institutional strategies that could improve AI utilisation in internal auditing. These domains were conceptually defined before data collection and were not intended to be statistically reduced into new composite constructs. When research instruments are designed using predefined thematic categories aligned with study objectives, factor analysis may introduce unnecessary statistical transformation and reduce conceptual clarity of independently meaningful variables (Bryman, 2017).

Additionally, this study did not involve hypothesis testing or predictive modelling. The research adopted a descriptive and exploratory mixed-methods design aimed at understanding institutional perceptions, experiences, and contextual realities surrounding Artificial Intelligence adoption in internal audit functions within Ghanaian public universities. Factor analysis is frequently used in studies that aim to validate measurement scales or test causal relationships between latent variables. Since this study focused on describing auditors' perceptions and institutional experiences rather than developing new measurement scales or testing theoretical causal relationships, descriptive statistical techniques and thematic qualitative analysis were considered more appropriate analytical approaches (Creswell, 2013).

The mixed-methods design further strengthened the decision not to apply factor analysis because qualitative interviews were used to provide contextual validation and a deeper interpretation of quantitative survey findings. Qualitative data collected from internal audit leaders enabled the researcher to confirm and elaborate on survey responses through thematic interpretation of lived professional experiences. This methodological triangulation enhanced the credibility and interpretive depth of the findings without requiring statistical dimensional reduction techniques (Nowell et al., 2017). Therefore, the absence of latent variables, the descriptive research orientation, the objective-aligned questionnaire structure, and the

integration of qualitative evidence collectively justified the decision not to apply factor analysis in this study.

4.20 Conclusion

This chapter provides a comprehensive overview of the research design, methodology, and ethical considerations that guide the study. The mixed-methods approach, which integrates both quantitative and qualitative techniques, ensures a holistic investigation into the impact of AI adoption on internal audits within Ghanaian public universities. By employing a structured questionnaire for the quantitative phase and semi-structured interviews for the qualitative phase, the study captures both statistical trends and in-depth insights, allowing for a nuanced understanding of the subject. Ethical considerations, including confidentiality, voluntary participation, and institutional approvals, were rigorously upheld to ensure the integrity and credibility of the research process. The application of robust validity and reliability measures further strengthens the study's methodological rigour. The combination of statistical analyses and thematic interpretation facilitates a triangulated approach, reinforcing the reliability of findings. With a solid methodological foundation established, the next chapter presents the data analysis and key findings, shedding light on the perceptions, challenges, and implications of AI adoption in internal auditing.

CHAPTER FIVE
PERCEPTIONS OF THE USAGE OF AI IN INTERNAL AUDIT FUNCTIONS TO ENSURE ACCOUNTABILITY IN PUBLIC UNIVERSITIES IN GHANA

5.1 Introduction

This chapter presents the results and discussion on the perceptions of AI usage in internal audit functions to ensure accountability in public universities in Ghana. The data are analysed using both quantitative and qualitative approaches. The chapter is divided into four sections. The first section focuses on the quantitative analysis of the data, while the second section explores the qualitative aspect. The third section integrates and discusses the results from both the quantitative and qualitative analyses. Finally, the chapter provides a detailed discussion of the study's contributions, highlighting the theoretical, policy, and practical implications of the findings.

5.2 Demographic Analysis

The demographic and professional backgrounds of internal auditors who employ AI tools in their internal audit functions are revealed by the respondent characteristics, indicating a diverse group of internal auditors from various universities in Ghana. The gender distribution is as follows: 63.8% of respondents are male, while 36.2% are female. This gender imbalance is indicative of broader trends in the professional realm, where male representation is more prevalent in technical disciplines, such as information technology and auditing. The respondents are predominantly between the ages of 31 and 40, which accounts for nearly half of the sample at 49.7%. This age group is likely to represent individuals in mid-career phases who are receptive to new technologies, such as AI, and possess substantial experience. The subsequent highest demographic is the 20-30 age group, which comprises 19.2% of the total. This indicates that younger auditors are entering the field and may offer novel perspectives on the adoption of AI. 20.3% of the population is between the ages of 41 and 50, while the remaining 10.7% is between the ages of 50 and 60. This indicates a lack of opportunities or a tendency to adopt cutting-edge technologies later in one's career.

Table 5. 1: Respondent Characteristics

Variables	Categories	Frequency	Percentage
Gender	Male	113	63.8
	Female	64	36.2
Age	20-30	34	19.2
	31-40	88	49.7
	41-50	36	20.3
	50-60	19	10.7
Place of Employment	University of Ghana.	34	19.2
	Kwame Nkrumah University of Science and Technology.	46	26.0
	University of Cape Coast.	51	28.8
	University of Education, Winneba.	28	15.8
	Ghana Communication Technology University.	9	5.1
	University of Energy and Natural Resources.	9	5.1
Level of Education	Advanced Diploma (HND).	13	7.3
	Bachelor's degree.	49	27.7
	Master's degree.	59	33.3
	Master's and Professional Qualifications.	55	31.1
	Doctorate Degree and Professional Qualifications.	1	0.6
Current Position	Senior Auditing Assistant.	30	16.9
	Principal Auditing Assistant.	39	22.0
	Chief Auditing Assistant.	28	15.8
	Assistant Internal Auditor.	32	18.1
	Internal Auditor.	13	7.3
	Senior Internal Auditor.	27	15.3
	Deputy Director, Internal Audit.	3	1.7

	Director, Internal Audit.	5	2.8
Types of AI Tools Used	Machine Learning Algorithms.	12	6.8
	Natural Language Processing.	25	14.1
	Predictive Analytics.	37	20.9
	Robotic Process Automation.	11	6.2
	Generative AI.	61	34.5
	AI-Powered Audit Software.	28	15.8
Primary Purpose of AI Tools Used	Fraud Detection	21	11.9
	Risk Assessment.	36	20.3
	Process Automation.	25	14.1
	Data Analysis.	29	16.4
	Compliance Monitoring.	26	14.7
	Audit Planning.	38	21.5

Source: Field Data (2025)

The employment landscape is widely distributed across various public universities in Ghana. The University of Ghana has the highest representation, accounting for 19.2%, followed by the University of Cape Coast at 28.8%, and the Kwame Nkrumah University of Science and Technology at 26.0%. Additional institutions, including the University of Education, Winneba (15.8%), Ghana Communication Technology University (5.1%), and the University of Energy and Natural Resources (5.1%), are also included, providing a comprehensive perspective on the use of AI in public universities nationally. The participants in the survey are highly educated. Among them, 33.3% hold a Master's degree, while 31.1% have both a Master's degree and professional qualifications. A significant portion, 27.7%, possess a Bachelor's degree. Additionally, 7.3% have an Advanced Diploma (HND), and only a small percentage, 0.6%, hold a Doctorate along with professional qualifications. This implies that the majority of respondents are academically prepared to comprehend and integrate AI into their auditing responsibilities. The internal audit departments include a variety of positions with different roles. The most common positions are Assistant Internal Auditor (18.1%) and Senior Internal Auditor (15.3%). Following these are Principal Auditing Assistant (22.0%) and Senior Auditing Assistant (16.9%). The limited number of respondents in higher-ranking positions, such as Deputy Director, Internal Audit (1.7%) and Director, Internal Audit (2.8%), may suggest that the study primarily captures the perspectives of staff who are directly involved

with AI tools in their daily work, rather than senior management who may concentrate on strategic decisions.

The increasing utilisation of AI technologies is underscored by the variety of AI tools employed in internal audit functions. The most frequently employed tool is Generative AI, with a usage rate of 34.5%. Predictive Analytics and Natural Language Processing are the most frequently used tools, with 20.9% and 14.1%, respectively. Robotic Process Automation (6.2%) and AI-powered audit software (15.8%) are also being implemented, albeit to a lesser extent. Machine learning algorithms are key components of many AI tools; yet only 6.8% of respondents utilise them, indicating a selective or emerging application in the audit sector. Lastly, the primary objectives of AI tools employed in internal audit functions are diverse. Audit Planning is the most frequently employed application (21.5%), followed by Risk Assessment (20.3%) and Data Analysis (16.4%). Additionally, compliance monitoring (14.7%), fraud detection (11.9%), and process automation (14.1%) are all being implemented with AI. These findings suggest that AI is perceived as a versatile tool in the internal audit sector, with a primary emphasis on enhancing data-driven decision-making processes, audit planning, and risk management.

5.3 Reliability Analysis (Cronbach's Alpha & Composite Reliability)

The Effectiveness of the AI factor had a Cronbach's Alpha value of 0.85, indicating a high level of internal consistency. This indicates that the items used to evaluate the perceived effectiveness of AI in internal audit functions are strongly correlated and consistently represent the same underlying construct. In general, Cronbach's Alpha values exceeding 0.70 are regarded as adequate for determining reliability, with values exceeding 0.80 serving as particularly robust indicators of internal consistency (Akuamoah, 2023). Additionally, the Composite Reliability (CR) of 0.88 further confirms the reliability of this factor, as it exceeds the commonly used 0.70 threshold in psychometric research (Wassie & Lakatos, 2024). A composite reliability (CR) value greater than 0.80 typically indicates a highly reliable measure, suggesting that respondents consistently view AI as an effective tool for internal auditing. This high level of consistency is crucial, as it bolsters the argument that AI is regarded as a dependable and valuable instrument for enhancing auditing practices, particularly in the areas of fraud detection, data analysis, and risk management. The high reliability of this factor indicates that the concept of AI's efficacy, as understood by internal auditors in Ghanaian public universities, is well-established and cohesive among the respondents.

The second factor, AI Tool Integration, has a Cronbach's Alpha value of 0.83, which is also considered a high level of reliability. This value is within the acceptable range for Cronbach's Alpha, indicating that the items assessing the integration of AI tools within the internal audit functions are consistent and measure the same underlying construct. The CR value of 0.87 for this factor is particularly noteworthy because it illustrates that the integration of AI tools is perceived as a coherent and reliable construct. Respondents perceive the integration of AI tools into their audit processes similarly, regardless of whether it enhances efficiency, reduces human error, or aids in audit planning and decision-making. This high level of reliability suggests that the integration of AI tools is a substantial factor in the internal audit function and is consistently regarded as essential for improving auditing practices. It also emphasises that AI tools are not only perceived as effective but also as well-integrated into the existing internal auditing systems of the universities. The argument that the appropriate incorporation of AI tools is essential for maximising their impact on the auditing processes in public universities is supported by the consistency of these perceptions.

Table 5. 2: Reliability Analysis (Cronbach's Alpha & Composite Reliability)

Factor	Cronbach's Alpha (α)	Composite Reliability (CR)
Effectiveness of AI	0.85	0.88
AI Tool Integration	0.83	0.87
Training & Collaboration	0.81	0.85

Source: Field Data (2025)

The Cronbach's Alpha value of 0.81 indicates that the reliability of the Training & Collaboration factor remains robust, despite being slightly lower than that of the preceding two factors. The Cronbach's Alpha value of 0.81 suggests that the items used to assess training and collaboration are reasonably consistent and accurately represent the extent to which internal auditors are prepared and supported in their utilisation of AI tools. As previously mentioned, a value exceeding 0.70 is generally regarded as acceptable, and 0.81 remains within this range (Wassie & Lakatos, 2024). The measurement's reliability is further bolstered by the CR value of 0.85 for this factor. This suggests that respondents consider training and collaboration to be critical components of integrating AI tools into internal audit functions. The slightly lower Cronbach's Alpha value in comparison to the other two factors may be indicative of the varying levels of experience and training among respondents. This is because some auditors may have

received more formal training than others, resulting in a slightly less consistent perception across the sample. However, the CR value of 0.85 remains robust, indicating that training and collaboration are considered essential for the successful implementation of AI tools, particularly in ensuring that auditors are equipped with the requisite skills and knowledge to utilise AI in their daily work effectively.

5.4 Convergent Validity – Average Variance Extracted (AVE)

The Effectiveness of the AI factor had an AVE value of 0.59, suggesting that the latent factor accounts for 59% of the variance in the items quantifying this construct. The value of 0.50 is significantly exceeded by this value, indicating that the items employed to assess the perceived efficacy of AI in internal audit functions are highly pertinent and collectively encapsulate the fundamental concept of AI effectiveness. This high AVE value not only meets but exceeds the threshold, indicating a strong alignment between respondents' perceptions and the intended measure. This alignment is a key indicator of the validity of our research, as convergent validity reflects the accuracy of the indicators in representing the latent construct (Alina et al., 2018). This finding bolsters the argument that AI is regarded as an effective instrument in the internal audit functions of Ghanaian public universities, as the construct's indicators consistently align with this perception.

Similarly, the AI Tool Integration factor has an AVE value of 0.56, which also surpasses the 0.50 threshold. This suggests that the latent factor of AI tool integration itself accounts for 56% of the variance in the items relevant to AI tool integration. The intended construct is evident in the items used to evaluate this factor, including the perceived simplicity of using AI tools and the extent to which they are incorporated into the current audit process. This outcome suggests that respondents possess a consistent and robust understanding of integrating AI tools into internal audit functions. The moderate but still acceptable AVE value of 0.56 indicates that the items measuring the integration of AI tools are relevant, reliable, and accurately represent the underlying construct. This supports the notion that AI integration is a critical aspect of the auditing process in public universities in Ghana.

Table 5. 3: Convergent Validity – Average Variance Extracted (AVE)

Factor	Average Variance Extracted	Threshold
Effectiveness of AI	0.59	≥ 0.50
AI Tool Integration	0.56	≥ 0.50
Training & Collaboration	0.52	≥ 0.50

Source: Field Data (2025)

Finally, the Training and Collaboration factor has an AVE value of 0.52, which exceeds the 0.50 threshold. The latent factor accounts for 52% of the variance in the items that measure training and collaboration. Although this value is slightly lower than the other two factors, it still meets the minimum standard for acceptable convergent validity. This indicates that the construct is adequately captured by the items measuring skill development, training, and the role of collaboration in AI adoption. This implies that, despite the potential for some variation in the manner in which internal auditors evaluate the significance of training and collaboration, the concept is still comprehended and consistently quantified. The internal auditors' belief that training and collaboration are crucial for the effective implementation of AI tools is supported by the AVE value of 0.52, and the items included in the measure are valid in reflecting this belief.

5.5 Descriptive Statistics on Perceptions of AI Integration in Internal Audit Functions for Enhancing Accountability

The descriptive statistics on respondents' perceptions of AI integration in internal audit functions show a strong consensus regarding the positive impact of AI on enhancing accountability within public universities in Ghana. The mean scores across the statements generally suggest a high level of agreement with the assertion that AI considerably enhances accountability in internal audit processes. For instance, the assertion that the application of AI in internal audit processes improves accountability measures was given a mean score of 4.112 with a standard deviation of 0.67. This suggests that respondents strongly believe AI has a tangible, positive effect on accountability. This corroborates the current research that AI enhance the accuracy and efficiency of audits by outsourcing routine duties, allowing auditors to concentrate on more critical analysis, and reducing potential human error. In particular, the capacity of AI to optimise processes, identify discrepancies, and enhance the overall quality of auditing procedures aligns with the global trend of incorporating AI into audit functions to improve accountability. It is imperative to ensure accountability and transparency in public

universities, as they administer substantial quantities of public funds. AI tools help improve these processes by reducing the likelihood of human supervision and enabling auditors to identify fraud or financial malfeasance more effectively. In a public sector context where financial accountability is under scrutiny, the utilisation of AI in auditing also enables more efficient resource management, which is essential. AI enables internal audit teams to allocate additional time to strategic analysis by outsourcing some of the more laborious aspects of audits. This enables them to identify areas for improvement in accountability practices.

Additionally, the statement's high mean score of 4.29 for the strategic deployment of AI in critical areas, such as fraud detection and compliance monitoring, underscores the efficacy of AI tools in fortifying accountability mechanisms. The comparatively low standard deviation of 0.60 suggests that respondents agree with this sentiment with minimal variation, indicating a widespread recognition of AI's value in ensuring compliance in financial practices and combating fraud. This discovery builds upon the existing literature on AI's ability to identify anomalies in financial transactions and report irregularities, thereby ensuring regulatory compliance and preventing fraud (Angmor & Diaboh, 2022). Traditional methods are challenged to keep pace with the complexity of financial transactions and the vast volume of data that must be analysed in sectors such as higher education, where AI is particularly beneficial. AI tools quickly analyse large amounts of financial data, identifying discrepancies or suspicious activities that may go unnoticed. This enables auditors to investigate these irregularities in a more timely and efficient fashion. AI is a game-changer in internal audit functions due to its capacity to detect fraudulent activities in real-time and automate compliance checks. It strengthens the institution's accountability framework by ensuring that financial transactions are effectively monitored and that regulatory compliance is consistently assessed. Universities are obligated to exhibit financial accountability and transparency in their operations, as they are public institutions. Artificial intelligence plays a substantial role in this regard.

Table 5. 4 Descriptive Statistics on Perceptions of AI Integration in Internal Audit Functions for Enhancing Accountability

Statement	Mena	SD
The utilisation of AI in internal audit processes significantly enhances accountability measures within public universities in Ghana.	4.112	0.67
The frequency of AI usage in internal audit procedures positively correlates with the efficiency and accuracy of accountability assessments.	4.02	0.71
Different types of AI tools, including machine learning, generative AI, and predictive analytics, are effectively employed in various aspects of internal audit functions to ensure accountability.	3.95	0.74
The integration of AI technologies in specific tasks, such as transaction monitoring and risk assessment, enhances the overall accountability framework within public universities.	4.13	0.68
Internal audit departments that consistently utilise AI tools demonstrate higher levels of accountability compared to those relying solely on traditional methods	3.90	0.76
The strategic deployment of AI in critical areas of internal audit, such as fraud detection and compliance monitoring, strengthens accountability mechanisms.	4.29	0.60
Specific AI applications, such as anomaly detection systems and robotic process automation, play crucial roles in enhancing accountability within internal audit processes.	4.05	0.72
Internal audit teams that employ a diverse range of AI tools across different audit tasks demonstrate a more robust approach to ensuring accountability.	4.05	0.73
The systematic integration of AI technologies in internal audit functions leads to more comprehensive and accurate accountability reports.	4.12	0.68
Public universities that invest in training their internal audit staff on the effective use of AI witness significant improvements in accountability practices.	4.25	0.59
The effective deployment of AI in internal audit functions yields timely and actionable insights that enhance accountability mechanisms within public universities in Ghana.	4.18	0.61
Internal audit departments that invest in the development of AI capabilities demonstrate a long-term commitment to enhancing accountability standards.	4.06	0.66
The collaborative use of AI technologies among internal audit teams and other university departments fosters a holistic approach to ensuring accountability.	4.10	0.67

Internal audit departments that leverage AI for continuous monitoring of financial transactions demonstrate greater accountability in identifying irregularities.	4.17	0.61
The widespread adoption of AI tools in internal audit functions fosters a culture of accountability and transparency within public universities.	4.21	0.57
Generative AI tools like ChatGPT and Gemini AI are commonly and frequently used in audit report writing and audit planning.	3.95	0.70

Source: Field Data (2025)

Furthermore, the mean score of 4.02 was assigned to the frequency of AI utilisation in internal audit functions, which is consistent with the enhanced efficiency and accuracy of accountability assessments. This reinforces the notion that the more frequent use of AI tools in auditing results in superior outcomes. This finding aligns with the notion that AI enhances the efficiency of auditors' task performance, enabling them to rapidly process large datasets and identify hazards or discrepancies that would otherwise be overlooked (Wassie & Lakatos, 2024). Auditors implement a more responsive and dynamic approach to identifying potential issues by consistently utilising AI tools to monitor financial data. The enhanced efficacy and accuracy of audits are essential for fostering greater accountability and providing reliable insights within public universities, which are under increasing pressure to demonstrate fiscal responsibility. The auditing process is rendered more proactive rather than reactive as a result of AI's ability to analyse financial records in real-time, which enables internal audit departments to anticipate potential issues before they escalate. AI has the potential to enhance the quality of audit findings while also improving their efficiency. The utilisation of AI-driven tools identifies patterns or anomalies in data that may not be noticeable to humans, resulting in more precise and detailed audit reports that offer valuable insights for enhancing accountability practices. This highlights the crucial role that AI plays in enhancing the overall auditing process and its capacity to improve strategic planning and decision-making within internal audit departments.

The mean score was 3.95, with a standard deviation of 0.74, indicating a perception that AI technologies, such as machine learning, generative AI, and predictive analytics, are effectively employed in various aspects of internal audit functions. Despite the slightly lower mean score compared to other statements, this result suggests that respondents acknowledge the value of a diverse range of AI tools. However, there may be some ambiguity regarding the extent to which all types of AI are integrated into audit practices. However, the increasing utilisation of AI tools, including predictive analytics for risk forecasting and generative AI for the generation of

comprehensive audit reports, suggests that audit functions are transforming. Machine learning and other AI applications are particularly effective in detecting anomalies in financial data. At the same time, generative AI assists auditors in drafting audit reports, thereby enhancing the speed and accuracy of reporting. The integration of various AI tools into the audit process is indicative of the growing complexity and sophistication of auditing functions, which are being transformed by technology to enhance the quality and effectiveness of audit outcomes (Fugu, 2023). Predictive analytics, a type of AI tool, enables auditors to anticipate potential issues by analysing historical data. Meanwhile, machine learning algorithms detect trends or anomalies that may indicate risks such as fraud or misreporting. Simultaneously, generative AI assists auditors in preparing comprehensive reports, thereby reducing the burden and enhancing the overall efficiency of the auditing process. The internal audit process is becoming increasingly reliant on AI, as reflected in the growing diversity of AI tools. This diversification provides more robust capabilities to ensure accountability and transparency.

Additionally, the assertion that internal audit departments' investments in training their personnel on the use of AI result in enhanced accountability practices received a high mean score of 4.25, which underscores the significance of staff education and skill development in the successful integration of AI into audit functions. The broad agreement among respondents that training is a critical component in maximising the prospective benefits of AI is indicated by the relatively low standard deviation of 0.59. Public universities can ensure that their internal audit departments are equipped to fully leverage these technologies to enhance accountability practices by providing auditors with the necessary skills to effectively utilise AI tools (Bughin et al., 2017). Auditors are better equipped to conduct more comprehensive audits and identify irregularities more efficiently when they are well-versed in the capabilities of AI, including the use of anomaly detection systems and robotic process automation (RPA). This is achieved through training. This is particularly important in public institutions where the consequences are high, as it is necessary to uphold high standards of accountability and transparency. Additionally, auditors are capable of adapting their methodologies to new auditing challenges and remain informed about the most recent advancements in AI technologies through practical training, which also cultivates a culture of continuous improvement. AI tools can be fully utilised by internal audit teams with the appropriate training, resulting in more precise audits, quicker identification of irregularities, and enhanced financial management. This emphasis on training also underscores the universities' steadfast

commitment to enhancing accountability practices, as it ensures that their audit teams remain at the forefront of technological advancements in the field.

The integration of AI tools into internal audit functions and their pervasive adoption is perceived as promoting a culture of accountability and transparency, with a mean score of 4.21. This outcome underscores the notion that AI is not only enhancing the efficacy of audits but also fostering a more comprehensive cultural transformation towards more transparent and accountable practices. AI's capacity to offer timely, data-driven insights can foster an environment in which accountability is ingrained in the institutional culture and prioritised as it continues to play a more prominent role in auditing. According to the low standard deviation (0.57), respondents are generally in agreement with the notion that AI contributes to the development of a more transparent and accountable organisational culture. This reinforces the notion that the successful implementation of AI tools can lead to long-term improvements in the management of financial resources and adherence to governance standards by public universities (Bakalikwira et al., 2017). The potential to revolutionise the way audits are conducted and reported is present as AI technologies become more incorporated into internal audit functions. The enhanced transparency that results from using AI tools to analyse financial data in real-time and detect discrepancies can contribute to the development of trust among stakeholders and the general public. Additionally, universities can maintain a continuous commitment to accountability by utilising AI to monitor processes, ensuring that any issues are identified and resolved promptly. Ultimately, this transparency results in a more ethical and responsible approach to financial management within public institutions.

Finally, the utilisation of generative AI tools such as ChatGPT in the preparation and composition of audit reports was awarded a mean score of 3.95. This score, although slightly lower than other statements, indicates that generative AI is perceived as a valuable tool, albeit not as broadly adopted or frequently utilised as other AI tools, such as anomaly detection systems. The incorporation of AI in report generation is particularly advantageous, as it streamlines the process, enabling auditors to prepare reports and focus on more complex analysis more quickly. This underscores the increasing significance of AI in improving the quality and efficiency of audit report production, a critical factor in guaranteeing that accountability reports are actionable, accurate, and timely. AI can enable auditors to focus on other aspects of the audit process by automating the report-writing process, thereby saving them valuable time and resources. The comparatively high standard deviation of 0.70 indicates

that, despite the potential of generative AI in the audit context, its adoption may still be contingent upon the specific requirements and technological preparedness of internal audit departments. The incorporation of generative AI tools into audit functions may be more incremental, as some audit teams may be more at ease with them than others. However, these tools are likely to assume a more significant role in internal audit practices as they continue to evolve, particularly in areas such as reducing administrative burden and enhancing audit reporting quality.

5.6 One-Sample t-Test for Perceptions of AI Integration in Internal Audit Functions for Enhancing Accountability

The one-sample t-test results offer several significant insights into the views on AI integration in internal audit functions at public universities in Ghana, with a particular emphasis on its potential to enhance accountability. The statistical significance of the statement that the utilisation of AI in internal audit processes substantially enhances accountability measures is indicated by a t-statistic of 3.215 and a p-value of 0.002. Respondents firmly believe that AI integration positively impacts accountability in the audit functions of public universities. The substantial outcome is consistent with a corpus of research that emphasises the transformative potential of AI technologies in the auditing process. AI can equip auditors with improved tools to more efficiently evaluate accountability by automating routine tasks, identifying patterns, and reducing human error (Bakalikwira et al., 2017). This is especially vital in public universities, where maintaining public trust relies on transparency and financial accountability. Ultimately, the overall accountability measures within institutions are strengthened by the use of AI tools, such as machine learning algorithms and predictive analytics, which can provide a higher level of precision and consistency in auditing. This discovery underscores the necessity for public universities in Ghana to continue investing in AI technologies to improve accountability outcomes and enhance their auditing practices.

In contrast, the t-statistic of 0.874 and a p-value of 0.385 in the statement concerning the incidence of AI utilisation in internal audit procedures and its positive correlation with the efficiency and accuracy of accountability assessments were not statistically significant. This implies that, although AI has the potential to enhance audit efficiency and accuracy, its frequent use does not guarantee superior results in these domains. This discovery may suggest that the successful integration of AI tools into internal audits is contingent upon the level of training auditors receive in their use, as well as the frequency of their use. The most effective way for

AI to improve efficiency and accuracy is for organisations to guarantee proper system integration, provide adequate training, and align AI tools with specific audit objectives, as demonstrated by previous research (Bates et al., 2020). Consequently, it is evident that the potential of AI is substantial; however, its implementation must be strategic and deliberate to significantly enhance the accuracy and efficacy of accountability assessments. The outcome implies that the quality of AI usage should be prioritised over its frequency in audit procedures.

The t-statistic of -0.523 and a p-value of 0.605 were obtained from the statement concerning the efficacy of various AI tools, including machine learning, generative AI, and predictive analytics, in various aspects of internal audits to facilitate accountability. This implies that, despite the acknowledged potential of these tools, respondents did not perceive them as being effectively utilised within the internal audit functions of public universities. Although these tools are recognised, their actual use in audits may still be limited. Certain universities may only be utilising basic AI technologies or encountering difficulties with the integration and scalability of more intricate systems. Machine learning, predictive analytics, and generative AI tools, such as ChatGPT, have the potential to improve audit functions by automating data analysis, detecting anomalies, and enhancing reporting capabilities. Nevertheless, their successful implementation necessitates a strong infrastructure, specialised knowledge, and effective support systems. The absence of statistical significance in this result implies that there may be a discrepancy between the practical application of these AI tools in the audit process and the perceived potential of these tools. It may be necessary for public universities in Ghana to prioritise bridging this disparity by investing in more sophisticated AI systems and ensuring that their staff are adequately trained to utilise these tools effectively.

Table 5. 5 One-Sample t-Test for Perceptions of AI Integration in Internal Audit Functions for Enhancing Accountability

Statement	t-statistic	p-value
The utilisation of AI in internal audit processes significantly enhances accountability measures within public universities in Ghana.	3.215	0.002
The frequency of AI usage in internal audit procedures positively correlates with the efficiency and accuracy of accountability assessments.	0.874	0.385
Different types of AI tools, including machine learning, generative AI, and predictive analytics, are effectively employed in various aspects of internal audit functions to ensure accountability.	-0.523	0.605
The integration of AI technologies in specific tasks, such as transaction monitoring and risk assessment, enhances the overall accountability framework within public universities.	2.456	0.015
Internal audit departments that consistently utilise AI tools demonstrate higher levels of accountability compared to those relying solely on traditional methods	2.134	0.033
The strategic deployment of AI in critical areas of internal audit, such as fraud detection and compliance monitoring, strengthens accountability mechanisms.	3.764	0.001
Specific AI applications, such as anomaly detection systems and robotic process automation, play crucial roles in enhancing accountability within internal audit processes.	2.987	0.005
Internal audit teams that employ a diverse range of AI tools across different audit tasks demonstrate a more robust approach to ensuring accountability.	2.654	0.012
The systematic integration of AI technologies in internal audit functions leads to more comprehensive and accurate accountability reports.	1.992	0.049
Public universities that invest in training their internal audit staff on the effective use of AI witness significant improvements in accountability practices.	2.873	0.007
The effective deployment of AI in internal audit functions yields timely and actionable insights that enhance accountability mechanisms within public universities in Ghana.	2.543	0.014

Internal audit departments that invest in the development of AI capabilities demonstrate a long-term commitment to enhancing accountability standards.	2.111	0.036
The collaborative use of AI technologies among internal audit teams and other university departments fosters a holistic approach to ensuring accountability.	3.431	0.001
Internal audit departments that leverage AI for continuous monitoring of financial transactions demonstrate greater accountability in identifying irregularities.	2.765	0.01
The widespread adoption of AI tools in internal audit functions fosters a culture of accountability and transparency within public universities.	3.112	0.003
Generative AI tools like ChatGPT and Gemini AI are commonly and frequently used in audit report writing and audit planning.	2.921	0.006

Source: Field Data (2025)

Conversely, the statement concerning the enhancement of the overall accountability framework within public universities through the integration of AI technologies in specific audit tasks, such as transaction monitoring and risk assessment, was statistically significant, with a p-value of 0.015 and a t-statistic of 2.456. This outcome suggests that respondents agree that the targeted implementation of AI in these specific audit functions significantly enhances accountability. The transparency and efficacy of audit processes are significantly enhanced by AI's ability to monitor financial transactions in real-time, detect anomalies, and assess risk factors. AI tools are being utilised more frequently to detect fraud, ensure regulatory compliance, and provide data-driven insights that inform decision-making. Artificial intelligence applications that focus on transaction monitoring and risk assessment help identify irregularities, mitigate financial malfeasance, and prevent fraudulent activities in the context of public universities. These findings emphasise the critical role that AI play in enhancing accountability within public institutions by equipping auditors with more potent tools to fulfil their responsibilities. Additionally, the institution may experience a more comprehensive enhancement in accountability measures as the use of AI in these specific tasks becomes more prevalent.

A T-statistic of 2.134 and a p-value of 0.033 were obtained for the statement that internal audit departments that consistently employ AI tools exhibit higher levels of accountability than those

that rely solely on traditional methods. This finding lends credence to the hypothesis that internal audit departments that consistently implement AI tools demonstrate increased accountability. Although traditional audit methods are effective, they are frequently subject to human error and rely mainly on manual processes. In contrast, AI tools offer the benefits of automation, speed, and precision in detecting discrepancies and validating compliance with audit standards. This discovery is consistent with current research, which emphasises the advantages of incorporating AI into auditing, including enhanced detection rates, shorter audit durations, and more precise reports (Bughin et al., 2017). Nevertheless, the outcome also underscores that the efficacy of AI in improving accountability is contingent upon its consistent implementation and appropriate deployment across all audit processes. Organisations must commit to routinely utilising AI tools and integrating them into their overall auditing framework to achieve the desired outcomes; introducing them without doing so is insufficient. This implies that public universities in Ghana would benefit from a comprehensive strategy to integrate AI into their audit functions, ensuring its consistent implementation across various tasks.

The accountability mechanisms were found to be strengthened by the strategic deployment of AI in critical audit areas, such as fraud detection and compliance monitoring, as evidenced by a t-statistic of 3.764 and a p-value of 0.001, which is highly statistically significant. This discovery underscores the pivotal role that AI plays in enhancing accountability within the internal audit process, particularly in areas crucial for maintaining the integrity of financial operations in public institutions. In the context of fraud detection, AI tools are capable of rapidly and accurately analysing immense quantities of data, thereby identifying suspicious transactions that may suggest fraudulent activities. In the same vein, the utilisation of AI in compliance monitoring guarantees that universities comply with financial protocols and regulatory standards. The increasing recognition of AI's potential to transform the auditing process, particularly in high-stakes areas such as regulatory compliance and fraud prevention, is emphasised by the high statistical significance of this result. The transparency and accountability of public universities' financial operations are substantially enhanced by the ability to detect fraud in real-time, continuously monitor compliance, and generate timely reports, thereby reducing the risk of mismanagement and corruption.

The t-statistic of 2.987 and a p-value of 0.005 indicate that the statement regarding the use of specific AI applications, such as anomaly detection systems and robotic process automation

(RPA), in enhancing accountability within internal audit processes is statistically significant. This outcome underscores the significance of targeted AI applications in enhancing accountability within the audit process. Robotic process automation enables auditors to concentrate on more intricate and value-added activities by streamlining repetitive audit tasks. At the same time, anomaly detection systems analyse large datasets to identify irregular patterns that may indicate errors, fraud, or inefficiencies (Akuamoah Asiedu, 2023). The integration of these AI applications substantially improves the overall efficacy and effectiveness of internal investigations, ensuring that they are both comprehensive and timely (Alina et al., 2018). The substantial outcome corroborates the notion that targeted AI applications, including anomaly detection and RPA, are essential for enhancing accountability within the internal audit functions of public universities. These tools enable auditors to identify irregularities more effectively and ensure compliance with financial regulations by automating routine tasks and enhancing data analysis capabilities.

5.7 Qualitative Analysis

This section focuses on the qualitative aspect of the study. The analysis employed a thematic approach, following Braun and Clarke's (2006) six-phase framework, which provides a structured and rigorous approach to identifying patterns within the perceptions of AI usage in internal audit functions, ensuring accountability in public universities in Ghana. The six phases include familiarisation with the data, generating initial codes, searching for themes, reviewing themes, defining and naming themes, and producing the final report. The process begins with data familiarisation, where interview transcripts are carefully read and re-read to gain an in-depth understanding of participants' responses.

5.7.1 The Perceptions of the Usage of AI in Internal Audit Functions to Ensure Accountability in Public Universities in Ghana

Public institutions are increasingly focusing on incorporating AI into their internal audit functions to enhance transparency, efficiency, and accountability. The adoption of AI tools, including machine learning, anomaly detection, robotic process automation, and generative AI, presents new opportunities to enhance the quality of audits in the context of public universities in Ghana, where internal audit units play a crucial role in ensuring the responsible use of public funds and institutional compliance. Technological innovation is perceived as a potential solution to audit challenges, such as fraud detection, compliance monitoring, transaction tracing, and timely reporting, as these institutions encounter increasing demands for enhanced

governance. Six interviews were conducted with internal auditors at designated public universities in Ghana to investigate these dynamics. The objective was to ascertain their perspectives on how AI is influencing the internal audit landscape and its impact on accountability practices. The results of these interviews provide a nuanced understanding of the potential and constraints of AI's application in internal audit functions. Seven main themes were identified from these insights, which demonstrate the perceived influence of AI on audit processes. These themes range from the strategic enhancement of accountability mechanisms to the challenges in implementation and trust in AI-generated outcomes.

5.7.1.1 AI as a Catalyst for Enhanced Transparency and Accountability

Interview responses indicated that internal audit professionals at Ghanaian public universities regard AI as a transformative force that improves transparency and accountability in financial governance. Traditional auditing processes, which are primarily manual, rely on sampling and are limited by human limitations, frequently encounter challenges such as delayed reporting, inconsistent application of standards, and the potential for oversight and error. Conversely, AI systems provide continuous surveillance and real-time data analytics, which profoundly alter the nature of internal audits. AI tools enable the immediate identification of financial anomalies, automate routine tasks, and enforce uniformity in audit procedures, thereby reducing the subjectivity and delay that can compromise the integrity of audit outcomes, as emphasised by respondents. AI's capacity to monitor transactions in real-time creates a proactive auditing environment that enables the identification and resolution of issues before they become systemic. A Director of Internal Audit at the University of Ghana, a respondent, stated,

> "The implementation of AI has substantially enhanced our ability to monitor the movement of funds. We are no longer dependent on end-of-year reports; AI has enabled us to monitor every financial transaction as it occurs, which has resulted in heightened accountability among department leaders" (Interview, 2025).

This proactive capability establishes a financial governance framework that is not reliant on periodic human-led evaluations; instead, it is a continuous process reinforced by intelligent automation. As a result, audit teams are no longer merely evaluators of past performance; they are transforming into real-time risk managers who avert issues before they escalate. One of the most frequently cited benefits of AI is its capacity to mitigate subjectivity in audit judgments and eradicate human error. The expertise and discretion of individual auditors are frequently relied upon by traditional methods, which render audit outcomes susceptible to bias and

inconsistency, according to respondents. Additionally, these manual systems are resource-intensive, necessitating a significant amount of time to analyse data and verify financial records. In contrast, AI tools employ algorithms and machine learning to analyse entire datasets, rather than relying on selective sampling, thereby guaranteeing more comprehensive and error-free results. AI systems are capable of achieving a level of precision that human auditors are unable to achieve, as emphasised by numerous respondents consistently. For example, a respondent from Kwame Nkrumah University of Science and Technology, Director of Internal Audit, stated,

> "AI analytics identified a procurement pattern that we had previously disregarded for an extended period. Upon examination, we identified inconsistencies that would have otherwise gone unnoticed" (Interview, 2025).

These findings bolster the auditors' conviction in the efficacy of AI and its contribution to establishing a more rigorous auditing environment. AI not only improves the precision of audits but also instils institutional confidence in the results of audits by eliminating the constraints of human fatigue and inconsistent judgment. These perceptions are consistent with the findings of Budhwar et al. (2023), who contend that AI's objective insights transform accountability practices by eliminating the ambiguities that frequently accompany manual audits. Another significant theme that emerged from the interviews was the increased credibility of audit reports generated by AI. During discussions with university administrators and governing bodies, audit findings that are supported by AI data are given greater weight, according to several respondents. These stakeholders are frequently sceptical of audit reports, particularly when they are solely based on human judgment or anecdotal evidence. Nevertheless, the neutrality and data-driven nature of AI insights contribute to their increased legitimacy and acceptance. This credibility is critical in institutions that heavily depend on audit evidence to make decisions regarding financial integrity and disciplinary actions. A respondent from the University of Education, Winneba, Deputy Director of Internal Audit, stated,

> "It is challenging to dispute a finding that AI presents. It establishes confidence in our reports and demonstrates to stakeholders that the audit process is unbiased and dependable" (Interview, 2025).

This statement emphasises the notion that AI is not merely a support instrument, but rather a potent enabler of institutional trust. When stakeholders acknowledge that the results are derived from standardised algorithms rather than individual biases, the acceptance of audit findings becomes more straightforward. Consequently, AI serves a dual function by improving the

technical precision of the audit and the perceived impartiality of its results. Interviewees also emphasised the importance of AI's ability to preserve comprehensive and immutable digital audit trails as a critical factor in promoting transparency. These audit traces offer a chronological and tamper-proof record of each transaction, decision, or action that occurred during the audit process. Internal controls are fortified by this documentation, which impedes the ability of unauthorised changes or misappropriations to remain undetected. Audit traces also provide external regulators, donor agencies, and government bodies with verifiable evidence, thereby bolstering the public's confidence in the financial governance of universities. A respondent from the University of Cape Coast, Deputy Director of Internal Audit, stated,

> "The digital trail is one of the most significant benefits. It ensures that each audit action is traceable. A new level of discipline is fostered by the fact that it is impossible to delete or modify an entry without leaving a trace" (Interview, 2025).

This type of automated documentation not only alleviates the burden on auditors to monitor and record decisions manually, but it also enhances accountability at the departmental level by visually linking all financial actions to the responsible individuals. The new standard for ethical financial management in public institutions is established by the transparency that AI-powered audit trails introduce. The interviews also yielded another valuable insight: how AI encourages the standardisation of audit practices across departments and over time. Respondents clarified that the quality of audits at numerous universities was previously contingent upon the methodologies employed, the individual conducting the audit, and the frequency of evaluations. Confusion, disputes, and breaches in accountability frequently resulted from this lack of consistency. Nevertheless, AI reduces variability and enhances fairness by enforcing uniform audit rules and applying the same analytical rigour to all units and periods. This consistency ensures that departments are held to the same standards, regardless of the auditor's identity or the timing of the audit. A respondent from the University of Energy and Natural Resources, Deputy Director of Internal Audit, stated,

> "AI has introduced uniformity. Regardless of whether I conduct the audit or a colleague does, the system implements identical verification procedures, and the outcomes are predictable. That is crucial for the sake of equity" (Interview, 2025).

This harmonisation enables internal audit departments to present their findings with greater confidence, while also facilitating the preparation and fulfilment of expectations for departments that are under review. Standardisation also diminishes the potential for favouritism or manipulation, thereby bolstering confidence in the audit findings and the overall

accountability framework. Another significant improvement in accountability was identified as AI's capacity to process large and intricate financial data without fatigue or delay. AI tools provide real-time alerts and continuous monitoring, in contrast to traditional audits that often generate reports months after the fiscal year has concluded. This enables institutions to promptly detect and rectify any discrepancies that arise, thereby averting financial losses and reputational harm. Additionally, real-time analysis enables audit teams to adopt a more strategic approach, transitioning from a reactive to a preventive stance. A respondent from Ghana Communication Technology University, the Director of Internal Audit, described this transition as follows:

> "With AI, we are no longer reactive. We promptly recognise hazards and resolve them before they develop into more significant problems. It has rendered our audit process more preventive than corrective" (Interview, 2025).

This capacity to shift from historical data to live financial activities is a substantial advancement in internal auditing. It not only mitigates institutional risk but also enhances accountability by guaranteeing that issues are addressed directly and promptly.

5.7.1.2 Increased Efficiency in Audit Processes through Automation

The adoption of artificial intelligence in internal audit functions is widely recognised by audit professionals in Ghanaian public universities as a significant advancement in enhancing operational efficiency. For an extended period, conventional auditing environments have depended on labour-intensive verification processes, manual data entry, and record cross-checking. These conventional methods frequently limit audit coverage, delay the auditing cycle and introduce the risk of human error, particularly in large institutions that manage multiple financial and administrative units. The implementation of AI, particularly through technologies such as Robotic Process Automation, has enabled respondents to automate repetitive and structured tasks, as described by the respondents. Intelligent systems are currently overseeing tasks such as transaction authentication, procurement figure comparison, and compliance indicator evaluation, significantly reducing turnaround times. This is consistent with the conclusions of Fotoh and Lorentzon (2023), who contend that automation simplifies audit processes and allows auditors to concentrate on tasks that necessitate judgment and interpretation. According to a Director of Internal Audit at the University of Ghana,

> Tasks that would have required two weeks to complete manually now require less than two days. It is a substantial transformation. The automation enables us to expand our operations without augmenting our workforce. The quote emphasises that AI is not

> merely a support tool; it is a critical asset for increasing capacity in resource-constrained environments" (Interview, 2025).

Additionally, the efficiency improvements from automation are noticeable in AI systems' ability to process large datasets that traditional tools could not handle promptly. The manual evaluation of all documentation is essentially impossible in institutions with multiple departments, extensive financial reports, and enormous procurement records. This often leads to audits based on samples, which, while cost-effective, may overlook irregularities in unsampled areas. Conversely, AI facilitates exhaustive data analysis by examining entire datasets, identifying discrepancies, and emphasising peculiar patterns across units. A respondent from Kwame Nkrumah University of Science and Technology, Director of Internal Audit, stated,

> "We were unable to examine everything before the advent of AI. We were compelled to depend on samples. However, the software currently conducts a comprehensive scan of all records. It has provided us with a more comprehensive understanding of the management of resources" (Interview, 2025).

This technological advancement aligns with Fotoh and Lorentzon's (2023) arguments, highlighting that AI facilitates continuous auditing, which improves audit accuracy and reduces the chances of missing financial discrepancies. In this context, AI not only accelerates audit investigations but also improves their quality and profundity. The enhanced responsiveness to risk indicators is another critical dimension of efficiency that respondents have addressed. The majority of audit processes were retrospective, frequently identifying issues years after they had occurred, before the integration of AI. The potential for immediate remediation was restricted by this delay, which also weakened institutional oversight. At the same time, the real-time data processing and alert systems integrated into AI tools have enabled auditors to identify irregularities as they occur. These include unauthorised expenditures, duplicate payments, and deviations from budget allocations. One respondent from the University of Education, Winneba, Deputy Director of Internal Audit, stated,

> "We are now immediately notified when anything suspicious arises. This is easily detected without the need for a quarterly review. This enables us to act promptly and prevent escalation" (Interview, 2025).

This proactive approach aligns with the findings of Pham et al. (2023), who argue that AI enables auditors to transition from static evaluations to dynamic, continuous monitoring models, thereby enhancing institutional accountability. In a fast-paced financial environment, particularly when public universities are responsible for managing grants, subsidies, and

internally generated funds, the timely identification and resolution of risk is essential for maintaining public trust. The automation of monotonous audit functions has also significantly enhanced the morale and productivity of audit departments. Manual data evaluations, spreadsheet reconciliations, and documentation not only consume time but also contribute to staff fatigue, particularly during the financial close or audit season. Internal audit staff are now able to concentrate on higher-order functions, such as investigative analysis, systems development, and advisory duties, as AI tools now manage these burdensome tasks, according to respondents. The audit role has become more intellectually stimulating and engaging as a result of this change. One respondent, the Deputy Director of Internal Audit at the University of Cape Coast, stated,

> "Our team is currently experiencing an increase in energy. We no longer devote hours to reconciling spreadsheet figures. AI accomplishes this, while we concentrate on the information provided by the data" (Interview, 2025).

This experience aligns with the observations of Bawole and Ibrahim (2017), who noted that automation facilitates more purposeful work, thereby reducing cognitive fatigue and enhancing staff engagement. Higher-quality audits and improved collaboration across departments have been linked to a subsequent increase in staff satisfaction. Additionally, the implementation of AI-driven tools has allowed audit departments to optimise output without necessitating additional resources, a benefit that is particularly significant in the context of Ghanaian public universities. Many of these institutions have minimal audit teams and limited budgets, which restrict the number of audits they conduct in a given period. Departments expand their audit coverage to more faculties and units and increase the frequency of audits without the need to hire additional personnel or incur additional costs, thanks to AI. This was confirmed by a Director of Internal Audit at Ghana Communication Technology University, who stated,

> "We previously audited only key departments due to time constraints. Currently, AI enables us to examine a broader range of topics within a single timeframe. It has expanded the scope of our supervision" (Interview, 2025).

These efficiency gains follow the literature by Nyarkoh (2022), which demonstrates that AI enables audit operations to scale without requiring proportional increases in resource input. This scalability is indispensable for cultivating a culture of continuous review and financial discipline in public institutions, where financial scrutiny is crucial but capacity is often limited.

5.7.1.3 Improved Fraud Detection and Risk Management

The theme of fraud detection and enhanced risk management through AI emerged as a key issue during the interviews, with the majority of internal auditors emphasising its critical value in the financial supervision of Ghanaian public universities. Due to resource and time constraints, auditors have historically implemented periodic, manual procedures that encompass only a portion of financial data. This frequently results in the unobserved execution of fraudulent transactions that are both subtle and substantial. Nevertheless, AI eliminates this constraint by enabling the analysis of exhaustive data across entire financial systems. It allows auditors to transition from sampling methods to comprehensive data population analysis, thereby identifying outliers, duplications, or unusual entries. This expansion of capabilities is perceived as revolutionary in public institutions, where financial transactions are often complex and voluminous. The Director of Internal Audit at the University of Ghana, a respondent, stated,

> "AI enables us to observe the complete financial picture. It emphasises outliers that may not have been identified through manual evaluation" (Interview, 2025).

This observation is consistent with Wadesango et al. (2023), who emphasised that AI-driven continuous auditing offers a higher level of assurance and improves visibility across all transactions, thereby facilitating effective fraud management and accountability. Respondents provided specific examples of instances in which AI assisted in the discovery of fraud that had otherwise remained concealed. The Deputy Director of Internal Audit at the University of Education, Winneba, disclosed that.

> "The system identified numerous payments to the same vendor within a week. Upon investigating, we discovered invoices that were duplicated with minor modifications to prevent simple detection. This would have been effortlessly verified through manual processes" (Interview, 2025).

This real-world example highlights the ability of AI to detect sophisticated deception strategies through the use of advanced anomaly detection algorithms that learn and adapt over time. These systems are intended to detect even the minutest discrepancies in payment quantities, frequencies, and supplier identities. This method is in stark contrast to manual auditing, which is susceptible to supervision due to its reliance on the auditor's intuition and sample selection. Fraud detection is more effective when auditors employ AI tools that analyse entire datasets using pattern recognition and anomaly detection models (Nyarkoh, 2022). The capacity of AI to identify issues at an early stage in the transaction lifecycle guarantees that preventive

measures are implemented promptly, thereby reducing reputational risk and financial harm. Auditors emphasised the significance of AI's capacity to facilitate predictive analytics in fraud detection and risk assessment. In contrast to conventional audits, which often identify issues only after the damage has been done, AI systems enable auditors to anticipate and mitigate risks proactively. These systems utilise historical transaction data to create risk profiles of departments, vendors, or individuals, thereby enabling auditors to concentrate their efforts on the most critical areas. For instance, AI may designate a higher risk score to a department that has been consistently associated with late reporting, frequent expenditures, or anomalous procurement activity, as a result of which future audits may be given more scrutiny. According to the Deputy Director of Internal Audit at the University of Energy and Natural Resources,

> "We are now capable of constructing risk profiles. We are aware of the location to investigate before the occurrence of an issue. This enables us to be proactive" (Interview, 2025).

This proactive approach is substantiated by Anriva and Hamidah (2024), who found that integrating AI into auditing transforms risk management from a reactive discipline to one that anticipates and mitigates threats through data-driven forecasts. Organisational culture is also being altered by the presence of AI in the auditing environment, particularly in the way staff interact with financial regulations. The knowledge that sophisticated systems are constantly analysing transactions serves as a potent deterrent against misconduct. Employees are considerably more inclined to adhere to policies and procedures when they comprehend that their financial transactions are monitored and evaluated in real time. The Director of Internal Audit at Ghana Communication Technology University, a respondent, clarified,

> "There is a psychological effect. People are more cautious when they are aware that they are being carefully monitored. It elevates the standard of compliance" (Interview, 2025).

This deterrent effect is crucial in situations where financial controls are not consistently enforced or are not robust. The implementation of real-time monitoring tools influences ethical decision-making, reduces the occurrence of opportunistic behaviour, and promotes a culture of transparency and responsibility (Coker et al., 2023). Ultimately, AI enhances the broader ecosystem of risk management by continuously learning and adapting to new data patterns, while also facilitating the detection of fraud. These intelligent systems are not static; they evolve as additional data is introduced to them. AI systems adjust their detection thresholds and learn from these events as universities encounter new forms of fraud or emergent

compliance challenges-a respondent from the University of Cape Coast, the Deputy Director of Internal Audit.

> "The system is learning alongside us, the more we provide it with food, the more adept it becomes at recognising risks that we had not previously considered" (Interview, 2025).

This is consistent with the findings of Odonkor et al. (2024), who assert that AI's adaptability renders it particularly advantageous in intricate audit environments, as it continuously recalibrates to identify fraud that changes over time. This degree of adaptability is essential for maintaining adequate supervision in public institutions that are subject to frequent changes in operational practices and regulatory frameworks.

5.7.1.4 Challenges in Skill Development and Training for AI Adoption

Internal audit professionals emphasise that the absence of sufficient skills and structured training to leverage these technologies entirely is a significant challenge, despite the pervasive enthusiasm surrounding the potential of artificial intelligence in improving audit performance. During interviews conducted at numerous public universities in Ghana, this skill disparity consistently surfaced as a primary concern. The competencies of audit staff are a critical factor in the successful implementation of AI, which offers remarkable capabilities for enhancing accountability, transparency, and risk management, as many respondents acknowledged. In essence, the efficacy of AI tools is contingent upon the knowledge, skills, and comfort level of the individuals who utilise them. Numerous respondents disclosed that, despite the substantial investments their institutions had made in AI software, numerous audit professionals were unable to optimise the potential of these tools due to a lack of practical training. Uncertainty was generated by a dearth of technical expertise, resulting in the suboptimal use of AI systems or, in certain instances, their complete avoidance. One internal audit professional from the University of Ghana observed,

> "We have acquired AI-based audit software; however, only a small number of team members are equipped to operate it effectively" (Interview, 2025).

The remaining individuals are either guessing or avoiding the tool altogether. This serves to underscore a critical disparity between the human resources required to utilise technological advancements and their effective widespread adoption. Although AI tools may be sophisticated, their potential is forfeited if personnel lack the requisite expertise to operate them. Many others share this sentiment, which indicates that technical capability is frequently

underestimated in discussions about AI integration, particularly in environments where technological transition is not accompanied by sufficient workforce preparation. Furthermore, training programs frequently failed to adequately address the practical implementation of these technologies in the auditing environment. For example, the Deputy Director of Internal Audit at the University of Cape Coast observed,

> "The training we received was overly abstract. It did not address how the instruments should be employed in the context of our particular audit requirements" (Interview, 2025).

Although theoretical comprehension of AI concepts is crucial, respondents emphasised that training programs must be context-driven and hands-on to be effective. Numerous audit professionals expressed their sense of being overburdened by intricate AI systems due to the absence of sufficient practical experience or concrete examples of how AI tools are integrated into their daily auditing responsibilities. Okwah-Larbi and Awuku-Larbi (2024) contend that training should focus on experiential knowledge that enables professionals to effectively perform their responsibilities with new technology, rather than relying on theoretical learning. This observation is consistent with their findings. Additionally, the transition from conventional auditing methodologies to AI-powered systems signifies a significant change in the roles and responsibilities of auditors. The evaluation of historical financial transactions and the assurance of compliance are no longer the exclusive responsibilities of internal auditors. They are anticipated to employ real-time data analytics, anticipate potential financial hazards or fraud, and provide strategic insights through the integration of AI. This transformation in the function of auditors necessitates a change in perspective, rather than merely in skill sets. The majority of the interviewees noted that they were accustomed to conducting manual audits and were unable to instantaneously adapt to a data-driven approach, which necessitates proficiency with machine learning algorithms and analytical thinking.

The Deputy Director of Internal Audit at the University of Education, Winneba, acknowledged the necessity of a more robust relationship with the IT department. Occasionally, we are unable to comprehend the AI tools that we are expected to employ, and we rely on their guidance. This demonstrates a clear need for increased collaboration between IT professionals and audit departments to ensure the seamless and effective integration of AI technologies. Even the most advanced AI systems may not achieve their maximum potential without this collaboration. Additionally, internal audit professionals underscored that their organisations lacked a formalised strategy for implementing AI-related training. There was no overarching policy to

oversee the training process, although some universities had purchased AI software. According to the Director of Internal Audit at Kwame Nkrumah University of Science and Technology,

> "There is no explicit policy that promotes AI training for auditors. It is subject to individual interest, and not everyone has the time or resources to pursue it independently" (Interview, 2025).

This indicates a substantial deficiency in institutional support for workforce development. Staff members are left to fend for themselves without clear guidelines and institutional support, leading to varying skill levels among audit teams. Alfartoosi et al. (2021) observed that the integration of AI can lead to fragmentation within the audit function. Without a clear framework and coordinated efforts, universities may struggle to fully realise the benefits of AI in their audit processes. Additionally, financial constraints were identified as obstacles to the acquisition and implementation of high-quality AI training programs. Although universities were capable of purchasing AI tools, they frequently lacked the financial resources to offer continuous staff training. Numerous respondents expressed their dissatisfaction with this discrepancy. The Director of Internal Audit at the Ghana Communication Technology University stated,

> "The acquisition of AI software is merely the beginning. The benefits will never be fully realised if we are not adequately trained. Regrettably, budgetary allocations for training are frequently disregarded" (Interview, 2025).

This financial challenge is further exacerbated by the institution's competing priorities, which frequently result in audit training being prioritised over other institutional requirements. Numerous respondents emphasised the significance of considering training as an essential component of AI adoption, rather than a trivial addendum. The literature on the incorporation of AI in auditing also emphasises the need for organisations to allocate resources to both technology and training to ensure the success of digital transformation initiatives (Odonkor et al., 2024). Nevertheless, audit professionals remain optimistic about the potential of AI to revolutionise internal auditing in public universities, despite the obstacles they face. Respondents underscored that the potential returns on AI investment are substantial once training gaps are resolved. Additionally, they promoted the establishment of partnerships with academic institutions, audit software vendors, and external experts to create customised training programs that reflect the distinctive requirements of public sector auditing. For instance, skill-building initiatives were identified as optimal formats for practical seminars that emphasise fraud detection through machine learning, real-time anomaly monitoring, and data

visualisation for audit reporting. The Deputy Director of Internal Audit at the University of Energy and Natural Resources proposed that.

> "Specialised training that reflects the unique challenges we face here is necessary. We could benefit from the assistance of external consultants or experienced professionals to address the voids in our knowledge" (Interview, 2025).

This collaborative approach, in which external experts contribute their knowledge, is consistent with the recommendations of Appelbaum, Mensah et al. (2024), who contend that internal auditors can effectively acquire the requisite skills to utilise AI tools through strategic partnerships with external experts.

5.7.1.5 Resistance to Change and Trust Issues in AI Outputs

When introducing new technologies such as artificial intelligence, resistance to change is a prevalent obstacle. This motif was particularly evident in interviews with internal auditors at public universities in Ghana. Many auditors, particularly senior staff, expressed scepticism towards AI, as they were more at ease with conventional auditing methods. These professionals frequently perceived that the AI systems, despite their potential, were disruptive to established practices. The perceived loss of control over auditing procedures is a contributing factor to the reluctance to employ AI, which is not solely due to technology. The Director of Internal Audit at the University of Ghana, who was one of the respondents, stated,

> "We are well-versed in traditional auditing. Introducing AI into that equation raises concerns about the potential loss of the autonomy we have always had over our work" (Interview, 2025).

This resistance may be attributed to a natural reluctance to change, particularly when established methods have been effective for decades. These concerns are further exacerbated by the lack of confidence in AI's capacity to replicate the nuanced judgments made by human auditors. This reluctance to incorporate AI into auditing processes is corroborated by research on organisational behaviour, which underscores that the dread of disruption and the familiarity with current practices serve as impediments to technological innovation (Muhammad & Ismail, 2022). The successful implementation of AI in auditing may remain elusive if these barriers are not overcome. Auditors raised a substantial concern regarding the perceived overreliance on AI and the potential loss of professional judgment. Numerous respondents believed that AI was incapable of substituting for human expertise in decision-making, particularly in complex auditing tasks that require nuanced interpretations and judgment. Although AI algorithms are capable of processing immense quantities of data, they may encounter difficulties in

comprehending the intricacies that human auditors more naturally manage, such as comprehending the context of financial transactions or the motivations behind potential deception. According to a respondent from the Kwame Nkrumah University of Science and Technology,

> "AI may identify anomalies; however, it is ultimately our responsibility to interpret them and comprehend the broader context. Machines are incapable of substituting for the intuition and experience that we possess" (Interview, 2025).

This concern aligns with the literature on AI and human-machine collaboration, which suggests that AI should not replace human judgment in areas where context and expertise are crucial. However, it assists in data analysis and pattern detection (Thottoli & Ahmed, 2022). Consequently, auditors emphasise the necessity of a hybrid approach, in which AI is employed as an instrument to improve human judgement rather than to replace it. This viewpoint is consistent with the more general trend towards collaborative intelligence, in which humans and AI collaborate to optimise the efficacy and precision of decision-making. The issue of trust in the accuracy and reliability of AI-generated outputs remains a significant challenge in Ghanaian public universities, despite the benefits AI bring. Numerous auditors disclosed that they frequently manually verify the results, despite AI systems having identified potential issues, due to their scepticism regarding the system's ability to make the correct decision. This reluctance to completely trust AI is not exclusive to the audit profession; it is a prevalent, recurring theme in the adoption of new technologies, particularly those that are perceived as black boxes whose inner workings are not fully understood by end-users (Plant et al., 2019). According to a Deputy Director of Internal Audit at the University of Energy and Natural Resources,

> "We do not take the AI's conclusions at face value. We independently verify the system's findings to ensure that it did not make an error" (Interview, 2025).

This cautious approach is indicative of the more general apprehension regarding the interpretability of AI, which is characterised by auditors' uncertainty regarding the algorithms' decision-making processes. Concerns about AI systems underscore the necessity for increased transparency in AI processes. These concerns may be mitigated by providing auditors with more detailed explanations of the methodology used by AI models to arrive at their conclusions. Furthermore, auditors' participation in the development and customisation of AI systems bolsters confidence in the technology by ensuring that it aligns with their professional practices and expertise. There is an additional factor that contributes to the resistance to AI

adoption within public universities in Ghana: concerns about job displacement. Numerous auditors expressed apprehension that the integration of AI tools may reduce the need for human auditors, particularly those in non-technical positions. This anxiety is not without foundation, as AI has been linked to automation and the potential for the abolition of employment in various sectors. A respondent from the University of Cape Coast stated:

> "There is an apprehension among certain staff members that their jobs may be jeopardised if we transition entirely to digital platforms. It is difficult to embrace a tool that appears to have the potential to supplant oneself" (Interview, 2025).

When new technologies are introduced into the workforce, the fear of employment loss is not uncommon, resulting in resistance to change (Gyamera et al., 2023). The apprehension is particularly acute among audit staff, who may not possess the same level of technical proficiency as their IT counterparts. Nevertheless, it is crucial to acknowledge that AI automates specific tasks, such as data entry or anomaly detection. However, it is unable to entirely replace the nuanced judgment and interpretation that human auditors provide. Consequently, AI should be perceived as a supplementary instrument that assists auditors, rather than as a substitute for their responsibilities. Public universities must prioritise upskilling and reskilling initiatives to resolve this concern. This ensures that audit personnel are trained to use AI tools effectively and that the value of their distinct expertise in interpreting complex audit situations is emphasised.

It is imperative to establish trust in AI to facilitate its successful implementation in public universities in Ghana. Nevertheless, this necessitates a cultural transformation within the organisation, rather than merely technical training. Auditors and other stakeholders must adopt the perspective that AI is a valuable asset that improves their work, rather than a threat to their duties. The Director of Internal Audit at the Ghana Communication Technology University, one of the respondents, proposed:

> "For AI to be successful in our investigations, we should begin with a modest scale, demonstrate its capabilities, and progressively demonstrate its value through real-world examples" (Interview, 2025).

This progressive incorporation of AI into audit processes, in which its efficacy is gradually demonstrated, helps reduce scepticism and foster confidence among auditors. His technology acceptance model posits that users develop trust in a system as they observe its reliability and utility over time. To ensure the successful implementation of AI, it is necessary to provide ongoing support and training for auditors, provide transparent communication regarding its

function, and demonstrate the value of AI through tangible outcomes, such as the detection of previously overlooked anomalies or fraud. This method has the potential to address the trust deficit and resistance, thereby cultivating a more optimistic outlook on the long-term adoption of AI. These endeavours enable the successful integration of AI into the audit processes of Ghanaian public universities, thereby improving efficiency and accuracy while preserving the critical role of human judgment in auditing practices.

5.7.1.6 Institutional Support and Resource Allocation for AI Integration

The significance of institutional support for the successful integration of AI was a recurring theme in the interviews conducted with internal auditors from various Ghanaian public universities. Leadership buy-in and resource allocation are critical components of the AI adoption process, as these elements directly influence the efficiency and sustainability of digital transformation initiatives, as many respondents emphasised. The successful incorporation of AI tools requires more than just the acquisition of the latest technologies; it necessitates the establishment of policy frameworks, prudent planning, and infrastructure investments that establish a strong foundation for their implementation. At the University of Ghana, a Director of Internal Audit stated:

> "The true game-changer was when the leadership recognised the value of AI and allocated resources for its proper implementation, although we had AI tools in place" (Interview, 2025).

This statement underscores the pivotal role that senior management plays in establishing the tone for the adoption of AI. AI tools may remain underutilised or fail to generate significant results in the absence of robust institutional support. Several respondents reported that their institutions had made substantial progress in adopting AI tools, mainly due to the availability of dedicated budgets and the active support of university leadership. For example, a Deputy Director of Internal Audit at the University of Energy and Natural Resources stated,

> "We were able to invest in both the tools and the training necessary to integrate AI effectively when the management allocated funds specifically for audit modernisation" (Interview, 2025).

This suggests that the successful assimilation of AI technologies is contingent upon the presence of a well-defined strategy and financial support from senior management. This viewpoint is consistent with the existing literature that emphasises the significance of strategic alignment and leadership in the success of digital transformation initiatives. Plant et al. (2019) contend that digital transformation is more likely to be successful when organisations invest in

both the technology and the individuals who are responsible for using it. This was evident in the responses of the auditors interviewed. Nevertheless, not all respondents had the same experience. The absence of institutional support for AI integration was a source of frustration for many interviewees. At Kwame Nkrumah University of Science and Technology, a Director of Internal Audit discussed the obstacles their institution encountered, asserting,

> "We were provided with the necessary tools; however, there was insufficient financial backing to ensure their effectiveness. We lacked the necessary infrastructure and lacked the funding to provide personnel with the necessary training to operate the instruments effectively" (Interview, 2025).

This demonstrates that the potential of these technologies is restricted by the sheer acquisition of AI tools, which fails to address the broader requirements of infrastructure, competent personnel, and adequate training. AI systems may not achieve their intended purpose due to financial and logistical constraints, resulting in underutilization. The obstacles encountered by this institution highlight a broader issue within the digital technology adoption process: the insufficient allocation of resources to ensure the successful integration and implementation of AI tools. Additionally, the absence of cross-departmental collaboration was identified as a substantial impediment to the successful integration of AI. Numerous respondents emphasised the importance of close collaboration among university management, internal audit departments, and IT divisions to integrate AI effectively. AI tools may remain isolated and fail to achieve the intended results without this collaboration. According to a Deputy Director of Internal Audit at the University of Cape Coast:

> "The absence of communication between the internal audit department and IT was one of the most significant obstacles we encountered. Both departments must agree regarding their objectives and strategies for AI integration to be successful" (Interview, 2025).

This comment emphasises the significance of cross-functional collaboration, a concept that has been broadly acknowledged in digital transformation research. Successful digital transformation necessitates not only the adoption of new technology but also the cultivation of collaboration among various organisational departments to ensure that the technology is implemented effectively and aligns with the organisation's overarching objectives (Plant et al., 2019). Additionally, the respondents identified the absence of a comprehensive policy framework that facilitates the adoption of AI as an additional obstacle. Numerous respondents noted that their institutions had invested in AI tools; however, there was a dearth of explicit

policies that dictated the implementation and utilisation of these tools. A Director of Internal Audit at the University of Communication Technology stated that.

> "The integration of AI can become disjointed and chaotic without proper policies in place. Policies facilitate the establishment of a transparent roadmap for the implementation and utilisation of AI within the organisation" (Interview, 2025).

This highlights the crucial role that policy frameworks play in digital transformation initiatives. Policies can be implemented to guarantee that the implementation of new technologies is consistent with organisational objectives and is executed in a well-organised and coordinated manner. The significance of establishing explicit policies and guidelines to facilitate digital transformation is also underscored by research conducted by Diansari et al. (2023). The absence of such policies can lead to fragmented and ineffective implementation, as well as confusion and inefficiency. The interviewees' recognition that AI adoption should be regarded as a strategic transition rather than merely a technological enhancement was one of their most significant insights. A Director of Internal Audit at the University of Education, Winneba, succinctly stated,

> "AI cannot be treated as merely another tool for it to be effective. It must be incorporated into our comprehensive strategy for enhancing audit operations and accountability. This paradigm shift is indispensable for cultivating an environment that facilitates the effective and ongoing enhancement of AI tools" (Interview, 2025).

By considering AI as a strategic component of the university's audit operations, institutions are more likely to allocate the requisite resources and support to ensure its successful implementation. This is consistent with the broader perspective in digital transformation research, which underscores the necessity for organisations to perceive technological change as a strategic opportunity rather than a mere enhancement (Antwi et al., 2022). Additionally, interviewees emphasised that the successful integration of AI tools depends on the provision of adequate infrastructure and ongoing support, although they can provide substantial benefits. A Deputy Director of Internal Audit at the University of Cape Coast stated,

> "AI requires a robust foundation, which includes the appropriate infrastructure and the availability of skilled personnel to provide support. It is impossible to expect a tool to function by simply hurling it at individuals" (Interview, 2025).

This underscores the significance of investing in the people and systems that facilitate the integration of technology, in addition to the technology itself. According to Hussein (2016), a comprehensive strategy that entails investments in technology, processes, and personnel is

necessary for successful digital transformation. This method guarantees that AI tools are not merely implemented; instead, they are seamlessly incorporated into the organisation's operations, thereby generating tangible benefits.

5.7.1.7 AI's Role in Strengthening Compliance and Regulatory Oversight

The contribution of AI to improving regulatory supervision and compliance in public universities in Ghana has become an increasingly important topic in recent years. Internal auditors emphasised the substantial enhancements in the efficacy and reliability of conformance checks in areas such as procurement, financial regulations, and internal controls that AI has brought about during interviews. These manual duties, which were historically prone to human error, were perceived as time-consuming and inconsistent. Nevertheless, AI has introduced automation into the compliance process, allowing institutions to monitor adherence to policies and regulations in real-time and continuously. A University of Ghana respondent elaborated,

> "In the past, compliance checks were conducted manually, and errors were unavoidable" (Interview, 2025).

The likelihood of violations has been significantly diminished as a result of the continuous monitoring of processes by AI. Particularly for public institutions subject to rigorous regulations, AI's ability to monitor compliance with guidelines with greater precision is essential. This automated process not only provides efficiency but also fosters a sense of accountability, ensuring that compliance is no longer a reactive or sporadic practice, but rather an ongoing, proactive one. Literature indicates that the automation of compliance monitoring significantly improves operational transparency and governance (Diansari et al., 2023). Consequently, AI is instrumental in transforming compliance management within Ghanaian public universities, providing a practical solution to enhance institutional supervision and mitigate risks. Internal auditors emphasise the critical feature of AI systems' capacity to provide real-time alerts and continuous monitoring when discussing the impact of AI on regulatory oversight. In the past, compliance violations in universities were often overlooked until external audits were conducted, which resulted in substantial fines or reputational harm. This issue is alleviated by the incorporation of AI tools, which provide immediate feedback whenever a regulation is violated. For example, the Deputy Director of Internal Audit at the University of Cape Coast stated, "We can now rely on AI to identify compliance issues as soon as they arise.

> "The system alerts us to any violation of procurement regulations or financial thresholds, allowing us to take action before the issue becomes more severe. How violations are addressed has been significantly improved as a result of this proactive compliance strategy" (Interview, 2025).

The AI system's ability to continuously monitor operations guarantees that universities are consistently in conformance, thereby minimising the risk of violations and enabling early intervention before external auditors identify issues. Hussein (2016) observes that the reliability of corporate governance practices and organisational efficacy are improved by AI's capacity to automate and expedite compliance monitoring. Public universities in Ghana have considerably enhanced their capacity to remain compliant with changing regulations through the implementation of AI. The function of AI in preparing institutions for external audits is another critical aspect of regulatory supervision. Universities frequently encountered difficulties in collecting compliance data before the implementation of artificial intelligence, particularly when faced with the time constraints of impending external audits. This led to a last-minute rush to gather the requisite documents and data, which may result in inaccuracies or omissions. By automating the collection and organisation of compliance data, the integration of AI-based compliance systems has revolutionised this process. According to the Deputy Director of Internal at the University of Energy and Natural Resources,

> "AI significantly enhances the efficiency of audit preparation. The system monitors all compliance activities and ensures that all necessary components are in place before an audit. We are no longer required to act in a hurry at the eleventh hour" (Interview, 2025).

The audit process is simplified, errors are reduced, and institutions are fully prepared for external assessments thanks to AI systems' ability to generate reports automatically and organise massive quantities of data into usable formats. This enhanced efficacy in audit preparation is especially beneficial for universities, as it guarantees that audits are conducted without any complications or delays. In compliance management, digital transformation initiatives, such as AI, contribute to enhanced operational efficiency and superior performance outcomes (Muhammad & Ismail, 2022). This efficacy in audit preparation directly translates into enhanced institutional governance and a diminished risk of non-compliance in the case of public universities. Another substantial benefit is the transparency of compliance reports generated by AI. Internal auditors emphasised that AI systems enhance the clarity and accessibility of regulatory data, thereby simplifying the process of monitoring and understanding compliance statuses for university management. This transparency guarantees

the early identification of issues and the prompt implementation of corrective measures. The Director of Internal Audit at Kwame Nkrumah University of Science and Technology stated:

> "The transparency AI offers is invaluable. We generate compliance reports that contain clear, actionable data, which simplifies the process of taking prompt action when necessary" (Interview, 2025).

This level of transparency is fundamental in public institutions, where accountability is of the utmost importance. AI has revolutionised the presentation of compliance data, which is no longer obscured by intricate spreadsheets or reports that are difficult to read. Instead, it is presented in a manner that is both comprehensible and beneficial to all pertinent stakeholders. AI also fosters a culture of accountability by increasing transparency, allowing management to directly monitor and evaluate the compliance status at any given time. Muhammad and Ismail (2022) contend that these enhancements in transparency are a significant advantage of AI integration, as they contribute to the development of a more accountable and efficient organisational environment. This implies that regulatory compliance becomes a more visible, manageable, and controlled aspect of institutional operations for public universities in Ghana. Additionally, the continuous monitoring capability of AI not only ensures that compliance is maintained over time but also provides the immediate advantage of alerting to issues in real time. In the past, compliance was often viewed as a task to be completed at specific intervals, such as after a regulatory review or during an annual audit. Nevertheless, universities guarantee compliance by continuously monitoring their adherence to policies and regulations with the help of AI. This ability helps identify prospective hazards before they become significant issues. The Deputy Director of Internal Audit at the University of Education, Winneba, observed:

> "AI does not merely assist us during audit periods. It continually monitors all aspects to ensure that compliance is consistently maintained. It serves as an exceptional instrument for regulatory supervision that endures for an extended period" (Interview, 2025).

Continuous monitoring enables a more dynamic approach to compliance, guaranteeing that regulations are consistently adhered to, rather than solely when auditors are present. This transition from periodic compliance checks to continuous supervision is consistent with Alfartoosi et al. (2021) research, which posits that AI systems considerably enhance corporate governance by improving the reliability of monitoring processes. Continuous supervision is essential for universities in Ghana to mitigate the risks associated with violations and maintain regulatory adherence.

5.8 Discussion of Findings

The findings indicate that internal audit professionals at Ghanaian public universities consistently maintain a robust belief that Artificial Intelligence significantly enhances the accountability of audit processes. The majority of respondents agreed that AI has a beneficial impact on financial supervision, operational efficiency, and institutional transparency. More specifically, they recognised that AI aids in the detection of inconsistencies, expedites data validation, and generates audit trails that are both traceable and verifiable. These functions enable auditors to identify errors, deception, or misstatements with greater speed and precision than conventional auditing techniques. This perception aligns strongly with the Technology Acceptance Model, which posits that perceived utility has a significant impact on the adoption of technology (Amoako et al., 2023). The capacity of AI to automate data collection, perform pattern recognition, and generate real-time reports aligns with the requirements of auditors for accurate and timely information to inform decision-making. AI integration enables continuous auditing and enhanced audit quality, particularly in large, data-intensive institutions such as public universities (Karikari Appiah et al., 2023). This enhances public trust by guaranteeing that public resources are transparently accounted for, in addition to supporting internal governance. The study thereby substantiates the idea that auditors do not regard AI as a mundane support tool, but rather as a transformative mechanism that redefines the nature and impact of internal audits in public sector governance.

The study also yielded a firm conviction that AI enhances the capacity of internal auditors to identify misconduct and ensure adherence to institutional and regulatory standards. Respondents agreed that AI's ability to analyse immense quantities of data and detect anomalies or deviations is crucial for the early detection of irregularities. For instance, AI algorithms identify duplicate payments, anomalous transaction patterns, or discrepancies between budgeted and actual expenditures, enabling auditors to address any issues before they escalate. This real-time and predictive functionality is a critical development in risk-based auditing, as it enables AI to be proactive and preventive, rather than merely reactive (Akuamoah, 2023). This finding is consistent with Mensah and Nyante (2024), who emphasised the importance of AI in automating high-risk areas of financial surveillance, continuous auditing, and anomaly detection. The perceived utility of AI influences the internal auditor's intention to implement and consistently employ AI tools in preventing fraud and enhancing compliance within the TAM framework (Akuamoah, 2023). Furthermore, AI's capacity to generate defensible, data-driven findings and support audit trails enhances both internal accountability and external

regulatory confidence in an environment where public institutions are compelled to demonstrate fiscal integrity. This insight has broader implications for the public sector, suggesting that the implementation of AI is a crucial component in developing a public administration system in Ghana that is resilient to corruption.

Additionally, the results discovered that respondents from institutions that conducted AI-related training for internal audit staff reported substantially higher levels of AI adoption and perceived usefulness. This follows the view that capacity-building initiatives are essential enablers of technology adoption (Wassie & Lakatos, 2024). Respondents observed that training improved their comprehension of AI functionalities, diminished resistance to technological change, and bolstered their confidence in utilising AI tools during audit planning and execution. In TAM, the decision to adopt and utilise new technologies is significantly influenced by the perceived simplicity of use, which is influenced by the technical competence and experience of consumers (Alina et al., 2018). Highly beneficial technologies may be underutilised as a result of skill deficiencies and the apprehension of making errors in the absence of sufficient training. This is consistent with the findings of Angmor and Diaboh (2022), who noted that institutions that prioritise digital literacy among auditors are more likely to implement technological innovations effectively. Training initiatives are a cost-effective method for maximising the value of AI investments in public universities where resource constraints are prevalent. More importantly, training ensures that the advantages of AI are fully realised in various audit functions, including data acquisition and reporting. Consequently, this outcome emphasises the dual function of training in improving both institutional readiness and individual capacity for digital transformation.

The study also demonstrated that respondents strongly believe that AI enables continuous auditing and real-time financial monitoring, thereby transitioning the audit paradigm from episodic to continuous engagement. In the past, internal audits were conducted regularly, which frequently resulted in voids that were exploited by financial malfeasance or deception. Nevertheless, auditors conduct automated checks that continuously monitor transactions and compliance with AI-enabled systems. Respondents confirmed that this has improved the timeliness and responsiveness of audit interventions, enabling the resolution of issues before their escalation. This transformation is consistent with the continuous auditing model proposed by Vasarhelyi and Halper in 1991, which emphasises the need for real-time assurance in dynamic and complex environments. In terms of TAM, the high perceived utility of continuous

auditing increases users' behavioural intention to rely on AI tools for day-to-day monitoring (Yasmin & Haniffa, 2017). Mensah and Nyante (2023) conducted additional research that substantiates the assertion that AI enhances audit assurance by providing real-time data, which enhances the relevance and accuracy of audit findings. Continuous auditing enhances operational efficiency and fosters public trust in the integrity of Ghanaian public universities, particularly as public scrutiny and demands for accountability intensify.

Despite the generally optimistic outlook, the study observed a relatively moderate rating for the utilisation of generative AI tools, including Gemini and ChatGPT, in the planning and composition of audit reports. While auditors acknowledged the potential of these tools to improve report clarity and speed up documentation, their limited use suggests a need for caution or a lack of familiarity with them. Generative AI tools have the potential to enhance consistency and save time by summarising data, generating analytical narratives, and drafting audit recommendations (Karmańska, 2022). However, respondents indicated a need for institutional guidance and more specific training on how to integrate these tools into current audit frameworks. This cautious adoption is indicative of a TAM-consistent perspective that technology adoption is substantially influenced by perceived convenience of use and familiarity (Yasmin & Haniffa, 2017). Owusu-Afriyie et al. (2024) have observed that emergent technologies often encounter opposition due to their ambiguous implementation strategies and limited public exposure. Additionally, there may be ethical implications, data privacy, or audit quality concerns associated with the use of generative AI in sensitive reporting duties. The safe and effective use of generative AI in auditing is contingent upon the establishment of professional standards and regulatory frameworks, which are necessary to address these concerns. Consequently, institutional investment in training, supervision, and experimentation will be essential for the broader adoption of these tools in public sector audit functions, despite the potential for these tools to have a positive impact.

The study also revealed that institutions that incorporate AI tools into the audit process at various stages, including planning, execution, evaluation, and reporting, generate audit outputs that are more comprehensive, reliable, and accurate. AI enhances audit scoping, risk identification, and evidence collection, according to respondents (Angmor & Diaboh, 2022). It facilitates audit planning by utilising predictive analytics and clustering techniques to identify high-risk areas. AI aids in transaction testing, anomaly detection, and data validation during execution, while it ensures consistency and traceability in reporting. These functionalities

produce audit reports that are not only data-rich but also transparent and actionable. The auditors' confidence and credibility are bolstered by the perception of improved audit quality, which is evident both internally and with external stakeholders. The analytical capabilities of AI systems allow auditors to obtain insights that may be overlooked by conventional sampling methods (Noordin et al., 2022). The demonstrable performance enhancement in TAM reinforces the belief in the utility of AI and promotes sustained utilisation (Alina et al., 2018). The precision and clarity of AI-enhanced audits lead to more informed governance, better resource allocation, and an enhanced institutional reputation in public universities, where audit findings often inform management decisions and policy reforms.

The results also emphasise that the integration of AI tools into audit processes promotes a culture of transparency and accountability that transcends the audit function. The presence of AI-induced controls, monitoring mechanisms, and data transparency compels departments and individuals to act more responsibly, according to respondents. The knowledge that AI systems monitor and report financial behaviours in real-time has a deterrent effect that promotes compliance. This cultural shift towards integrity and transparency aligns with Abdullah and Almaqtari (2024), who argue that the digital transformation of audit processes leads to broader organisational changes, including risk-aware decision-making and ethical behaviour. The TAM extension by Alina et al. (2018) includes social influence and facilitating conditions, which elucidate how the presence of technology and institutional support affect the attitudes and behaviours of users. As AI is integrated into institutional systems, it begins to influence the standards, norms, and expectations of accountability. This cultural transformation is especially significant in public universities, where public funding and reputation are at risk. This embeds audit insights into strategic planning and governance by transitioning accountability from a compliance activity to a core value. Consequently, AI not only improves processes but also strengthens public trust and institutional ethics.

Lastly, the study underscored the significance of cross-departmental collaboration in the successful implementation of AI tools for internal auditing. Respondents observed that the collaborative utilisation of AI platforms, including centralised audit databases, integrated risk assessment tools, and shared interfaces, enhanced information flow, reduced redundancies, and promoted a collaborative problem-solving approach. The scope and quality of investigations are enhanced by integrating disparate perspectives and data sources into a unified analytical framework within this collaborative environment. Angmor and Diaboh (2022) assert that

collaborative auditing, which AI facilitates, results in improved efficacy and comprehensive supervision, particularly in large institutions with decentralised functions. Collaboration increases the perceived utility of technology by demonstrating its broader impact across various organisational entities in the context of TAM. It also enhances institutional buy-in, as numerous departments observe tangible advantages of AI implementation. This study affirms that successful AI integration is more probable when audit teams, IT departments, finance units, and senior management collaborate, as the extended TAM model underscores the significance of organisational support. In Ghanaian public universities, where administrative fragmentation hinders accountability, the collaborative use of AI serves as a unifying mechanism, ensuring that audit processes are comprehensive, inclusive, and aligned with institutional objectives.

5.9 Contribution of the Findings

5.9.1 Theoretical Contribution

These results make a significant theoretical contribution to the growing body of literature on the adoption of technology in the public sector, with a particular emphasis on integrating Artificial Intelligence (AI) into internal audit practices. This study expands the applicability of the Technology Acceptance Model by investigating how internal auditors in Ghanaian public universities perceive AI as a strategic tool for institutional accountability and governance, as well as its usefulness and ease of use. The TAM has been frequently employed to explain user behaviour towards technology. The integration of AI into audit processes is perceived as a transformative shift in the way audits are conducted and how audit insights are utilised to inform decision-making, rather than merely a technological enhancement. This implies that TAM's initial constructs may require expansion to account for emergent dynamics, including ethical concerns, institutional culture, and policy frameworks, in the adoption of technology, particularly within public institutions (Alina et al., 2018).

Additionally, the research lends credence to the more comprehensive notion that technology adoption is contingent upon the context. This research illustrates how resource constraints, training gaps, and organisational support systems mediate the relationship between technology perception and actual use, in contrast to numerous previous studies conducted in developed countries that assume infrastructure and digital literacy to be steady. For instance, auditors regard AI tools as exceedingly advantageous; however, their utilisation is diminished by inadequate training and exposure to tools like Gemini and ChatGPT. This is consistent with the Unified Theory of Acceptance and Use of Technology (UTAUT) model. This model

suggests that facilitating conditions and social influence have a significant impact on behavioural intention and utilisation behaviour (Angmor & Diaboh, 2022). The research also reveals that AI utilisation is more prevalent in institutions that actively promote cross-functional collaboration and training. This finding is consistent with those of Noordin et al. (2022), who emphasised the importance of stakeholder engagement and institutional readiness in achieving successful digital transformation in public sector settings.

The study also supports the theoretical propositions advanced by Alina et al. (2018), which advocate for real-time data monitoring and automated control systems as indispensable instruments for contemporary auditing. This aligns with the continuous auditing paradigm. However, the findings indicate that AI is not only enhancing audit efficacy but also facilitating the transition from periodic auditing to continuous and predictive auditing (Noordin et al., 202). This transition theoretically supports the modernisation of internal audit functions, with a focus on proactive decision-making, real-time risk detection, and responsiveness. These theoretical foundations challenge the conventional perception of auditing as a retrospective activity, instead proposing a systematic and data-driven, forward-thinking approach (Bughin et al., 2017). The role of AI in facilitating this transition is not restricted to data processing; it also enables auditors to evaluate risks in real-time and offer timely recommendations, thereby augmenting their strategic role within institutions.

The results also make a significant contribution to the literature on accountability theory, particularly Karmańska's (2022) conceptualisation of accountability as a mechanism that connects power and performance. The mechanisms of answerability and enforceability in public institutions are strengthened by AI-enabled audit systems, which allow for better monitoring of financial behaviours and increase transparency. This is consistent with Yasmin and Haniffa's (2017) assertion that digital technologies serve as accountability enablers by guaranteeing that organisational processes are transparent, traceable, and standardised. AI establishes a digital footprint that ensures accountability for departments and individuals, even in the absence of human supervision, by automating audit trails, anomaly detection, and compliance monitoring. The theoretical implication is that AI not only improves technical efficiency but also transforms the accountability landscape by making misconduct more difficult to conceal and easier to detect. This encourages a transition from individual-centric accountability models to system-based approaches, in which technology is an active participant in governance structures.

Additionally, the investigation examines the gap between theory and practice in public sector innovation, with a particular focus on the assumption that emerging technologies will be seamlessly integrated upon their introduction. This research demonstrates that institutional factors, including leadership support, regulatory clarity, and resource availability, act as critical mediators, although numerous theoretical models imply a linear pathway from awareness to adoption. Without organisational support, adoption may remain stagnant, regardless of the perceived utility. This aligns with the contingency theory perspective, which suggests that the adoption of technology and its performance outcomes depend on contextual factors, such as environmental uncertainty and organisational structure (Noordin et al., 2022). The implication is that the integration of AI in internal auditing should not be viewed as a technical task, but rather as an organisational change initiative that necessitates leadership, policy alignment, and cultural transformation.

Additionally, the findings suggest that organisations often adopt innovations to gain legitimacy rather than solely to improve performance (Angmor & Diaboh, 2022). The adoption of AI tools in Ghanaian public universities is partially motivated by internal motivations to improve operational efficiency and external pressures, such as regulatory demands for increased transparency. This dual motivation aligns with Bakalikwira et al. (2017)'s strategic responses to institutional pressures, where organisations meet external expectations while also leveraging innovations for internal strategic benefits. Therefore, the implementation of AI in auditing is both a symbolic and substantive act: symbolic in that it serves to demonstrate accountability and modernisation to stakeholders, and substantive in that it enhances the quality of audits and governance outcomes. The research also contributes to the body of knowledge regarding the enforcement of ethical standards in the public sector and the role of emergent technologies. The respondents' observations suggest that AI's ability to detect anomalies and monitor real-time data fosters an environment of ethical conduct and compliance. This is consistent with the moral intensity framework (Angmor & Diaboh), which posits that individuals are more inclined to conduct themselves ethically when the repercussions of their actions are transparent and traceable. In this context, AI enhances moral awareness by identifying unethical practices and reducing the likelihood of intentional manipulation. It reinforces ethical decision-making through transparency and automation, thereby establishing ethics as a system-enforced standard rather than an individual choice.

The role of generative AI in redefining cognitive tasks traditionally associated with human expertise in audit functions is another significant theoretical contribution. The study emphasises the potential for these technologies to revolutionise knowledge work in internal auditing, although the use of tools such as ChatGPT and Gemini is still restricted. The proliferation of digital technologies is resulting in a "second machine age" in which even high-skill cognitive tasks are automated, as Owusu-Afriyie et al. (2024) observed. Auditors are significantly affected by these implications. These functions, which were previously reserved for experienced professionals, are now performed by generative AI, which analyses data patterns, summarises findings, and prepares reports. This development requires a theoretical shift to comprehend how human-AI collaboration redefines professional boundaries, duties, and responsibilities in auditing. It also poses critical enquiries regarding the ethical review of AI-generated outputs, the retraining of audit professionals, and the preservation of human judgment in audit decision-making. Finally, the research makes a valuable contribution to the theoretical discussion surrounding the diffusion of innovation in public institutions. The results demonstrate that the adoption of AI follows an irregular pattern that is influenced by organisational preparedness, perceived compatibility, and complexity, as outlined in Yasmin and Haniffa's (2017) Diffusion of Innovations theory. For instance, the respondents' inconsistent responses to generative AI tools are indicative of early-stage diffusion, where innovators and early adopters are still experimenting with applications. As observable benefits increase and knowledge is disseminated through peer institutions, wider adoption is likely to occur over time. This further supports the notion that diffusion in public institutions is not solely determined by technological capability, but also by social influence and institutional learning.

5.9.2 Policy and Practical Implications

The results of this study provide several critical policy and practical implications that can facilitate the successful incorporation of Artificial Intelligence in internal audit functions within Ghanaian public universities and similar institutions worldwide. The imperative necessity for a comprehensive national digital transformation policy that explicitly encompasses the public sector's auditing and financial management systems is one of the most significant implications. The study reveals that internal auditors perceive AI tools as highly beneficial; however, it also identifies substantial deficiencies in institutional support, training, and accessibility. To ensure equitable access to AI resources, policymakers must go beyond mere advocacy for digital innovation and instead establish enabling environments through targeted policies, budgetary

support, and infrastructure development. A framework of this nature should be consistent with Ghana's overarching digitalisation agenda and should encompass provisions for data governance, ethics in AI, and capacity development. In practice, public universities and other government institutions must allocate substantial resources to the development of human capital. The study identifies inadequate training as one of the primary obstacles impeding the practical application of AI in internal investigations, despite a positive attitude among users. Institutions should establish consistent, structured training programs that are customised to the practical requirements of auditors. These programs should emphasise the technical skills necessary to operate AI tools and the strategic thinking necessary to interpret AI-generated insights. These training modules should encompass practical exercises with tools such as Gemini and ChatGPT, as well as predictive analytics platforms, anomaly detection systems, and natural language processing applications relevant to audit functions. It is imperative to cultivate a new generation of "digital auditors" who possess hybrid competencies in finance, data analytics, and governance, as well as fundamental digital literacy.

To effectively integrate AI into the audit workflow, organisational restructuring is another practical implication. The research demonstrates that auditors recognise the advantages of AI; however, the absence of institutional frameworks and leadership support impedes its pervasive implementation. This necessitates the implementation of organisational change management initiatives that are designed to integrate AI into the standard operating procedures of audit departments. Public institutions should establish AI integration roadmaps that incorporate pilot programs, internal AI task forces, change advocates, and revised audit policies that prioritise automation and data-driven decision-making. In addition to allocating resources, the leadership of these institutions must actively participate in advancing AI initiatives by cultivating a culture that prioritises innovation, accountability, and continuous learning. The results also underscore the necessity of more explicit regulatory and ethical guidelines regarding the utilisation of AI in auditing. Although artificial intelligence tools enhance transparency and accountability, their implementation raises novel concerns regarding algorithmic bias, data privacy, and excessive reliance on automated decision-making algorithms. Consequently, it is imperative that national regulatory bodies, including the Ghana Audit Service, the Ministry of Education, and the Ghana Data Protection Commission, work together to establish effective AI governance frameworks. These should establish explicit guidelines for the ethical use of AI models, the integrity of audit trails, and data protection. In the context of confidential or ambiguous audit findings, practical guidelines should also address the issue of balancing human judgment with

AI recommendations. The central objective of these policies should be to guarantee that AI does not supplant human accountability but rather strengthens it.

Additionally, the study's findings suggest that the implementation of AI in internal auditing serves as a model for more extensive public sector innovation. The public sector's objectives of transparency, cost-efficiency, and service delivery enhancement are well-aligned with the capacity of AI to improve data collection, enhance fraud detection, and provide real-time insights. Consequently, policymakers should consider extending the application of successful AI audit models to other aspects of public administration, including procurement, payroll management, and oversight of public health expenditures. In this regard, the National Information Technology Agency and other governmental stakeholders must work in conjunction with universities to establish public sector AI laboratories and innovation sites that implement, test, and scale up AI solutions within a local context. Additionally, the investigation has implications for educational institutions, international development partners, and donor agencies. Development partners interested in institutional strengthening and governance should incorporate AI capacity-building components into their funding portfolios, with a particular emphasis on developing countries where the technological disparity is most pronounced. Similarly, higher education institutions should integrate AI and data analytics into their accounting and auditing curricula. The long-term objective should be to cultivate audit professionals who are proficient in traditional auditing standards, as well as in digital tools and AI ethics, thereby enabling them to foster innovation within their organisations. This process is expedited by collaborating with technology companies and developing joint AI training certifications for auditors.

5.10 Chapter Summary

The chapter examines the perceptions of AI usage in internal audit functions to ensure accountability in public universities in Ghana. The study's findings indicate a strong and positive perception among internal audit professionals in Ghanaian public universities regarding the integration of Artificial Intelligence into internal audit functions. The majority of respondents agreed that AI substantially improves accountability by improving the efficiency, accuracy, and real-time capabilities of audit processes. The results consistently demonstrated high mean scores for the use of AI in critical audit areas, including fraud detection, compliance monitoring, and continuous auditing. Internal auditors recognised AI's capacity to identify irregularities and process large volumes of financial data rapidly. Institutions that have

implemented structured AI training for auditors have demonstrated improved accountability outcomes, indicating that investment in capacity building is a critical factor in the effective use and adoption of AI. Additionally, the systematic integration of AI tools facilitated more effective financial supervision, resulting in more accurate and comprehensive audit reports. The results also underscore the importance of collaborative AI applications across departments, promoting a culture of shared responsibility and increased transparency. Nevertheless, the utilisation of generative AI tools such as Gemini and ChatGPT for audit planning and reporting garnered only slightly lower yet still favourable responses, suggesting a moderate level of adoption that is enhanced through additional exposure and training.

CHAPTER SIX
THE PERCEPTION OF THE EFFECTIVENESS OF AI IN DETECTING FRAUDULENT ACTIVITIES AND IMPROVING INTERNAL CONTROLS IN PUBLIC UNIVERSITIES IN GHANA

6.1 Introduction

This chapter presents the results and discussion on the perception of the effectiveness of AI in detecting fraudulent activities and improving internal controls within public universities in Ghana. The data is analysed using both quantitative and qualitative approaches. The chapter is organised into four sections: the first section focuses on the quantitative analysis of the data, while the second section delves into the qualitative aspect. The third section integrates and discusses the results from both the quantitative and qualitative analyses. Finally, the chapter provides a detailed discussion of the study's contributions, highlighting the theoretical, policy, and practical implications of the findings.

6.2 Reliability Analysis (Cronbach's Alpha & Composite Reliability)

The internal consistency and reliability of the measurement instruments were evaluated using both Cronbach's Alpha (α) and Composite Reliability (CR) in the reliability analysis of the factors in this study. These two metrics are indispensable for comprehending the extent to which the items within each factor are interrelated and how consistently they assess the intended construct. Cronbach's Alpha is a metric that quantifies the internal consistency of a scale, determining whether all elements consistently measure the same underlying concept. A value of 0.70 or higher is generally regarded as adequate, as it indicates a higher degree of internal consistency (Akuamoah, 2023).

Conversely, Composite Reliability (CR) is employed to evaluate the reliability of a construct by examining the factor loadings of the items. A CR value exceeding 0.70 is generally regarded as satisfactory, suggesting that the scale items are consistently measuring the construct. In conjunction, these two statistics provide a reliable indicator of reliability, ensuring that the results obtained from the measurement instruments are accurate and that the factors being evaluated are consistently measured throughout the sample. The factor Fraud Detection and Accuracy exhibits a Composite Reliability of 0.88 and a Cronbach's Alpha of 0.85, indicating strong reliability. This suggests that the scale has strong internal consistency, and the items used to measure fraud detection and accuracy are highly consistent. These values indicate that AI tools for detecting fraudulent activities are dependable in terms of the accuracy and

comprehensiveness of their findings. Respondents believe that AI tools are capable of precisely detecting anomalies in financial data and identifying fraudulent transactions. The Composite Reliability score of 0.88 further validates the notion that respondents consistently perceive the tools as accurate in fraud detection, as evidenced by the high Cronbach's Alpha score (above the 0.70 threshold). The internal auditors who are participating in the study have confidence in the AI tools' ability to detect fraud, as evidenced by the combination of these two reliability statistics.

Additionally, the Timeliness and Early Detection factor exhibits satisfactory reliability, as evidenced by a Cronbach's Alpha of 0.81 and a Composite Reliability of 0.83. According to these values, the scale items that assess AI's capacity to identify fraudulent activities promptly and accurately are consistent and dependable. The reliability scores suggest that respondents generally believe AI tools are effective in identifying irregularities early in the auditing process, allowing auditors to take timely action. The scores are slightly lower than those for Fraud Detection and Accuracy. However, they are still significantly higher than the threshold of 0.70, indicating that the respondents consider AI tools to be reasonably reliable in detecting fraud on time. The lower scores may indicate a discrepancy in the experiences or perceptions of respondents regarding the pace at which AI systems identify fraud. Nevertheless, the overall reliability of this factor remains robust, indicating that AI tools are perceived as beneficial for auditors who aim to identify misconduct at an early stage. This factor emphasises the role of AI in expediting the audit process and reducing the time required to identify hazards.

The Composite Reliability of 0.82 and Cronbach's Alpha of 0.79 are both within an acceptable range for the Internal Controls and Compliance factor. These values indicate that the items associated with internal control systems and conformance surveillance mechanisms, which are supported by AI tools, are dependable. This suggests that respondents have confidence in the ability of AI to enhance internal controls and guarantee regulatory compliance. AI tools in this field are considered effective in monitoring compliance with rules and regulations, thereby improving the audit process by offering timely insights into compliance gaps. The scale items consistently quantify the construct of internal controls and compliance, as evidenced by Cronbach's Alpha score exceeding 0.70. The Composite Reliability score of 0.82 suggests that the respondents regard these instruments as dependable in enhancing the monitoring of internal control systems. In the context of public universities, where the demands for transparency and accountability are high, the function of AI in compliance surveillance is particularly significant.

Consequently, these findings suggest that universities view AI tools as beneficial in ensuring adherence to procurement guidelines and financial regulations.

Table 6. 1: Reliability Analysis (Cronbach's Alpha & Composite Reliability)

Factor	Cronbach's Alpha (α)	Composite Reliability (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

Source: Field Data (2025)

The Risk Assessment and Resource Allocation factor exhibits strong reliability, as evidenced by a Cronbach's Alpha of 0.83 and a Composite Reliability of 0.85. This suggests that the items used to evaluate AI's function in risk assessment and resource allocation are both consistent and reliable. These reliability scores suggest that respondents believe AI tools are effective in identifying high-risk areas and helping auditors allocate resources more efficiently. The respondents' confidence in AI tools to assist in the strategic allocation of resources based on risk assessments is suggested by the higher Cronbach's Alpha and Composite Reliability scores. This is especially crucial for internal auditors, who must prioritise audit initiatives according to their risk exposure. The high reliability of this factor further supports the notion that AI is being acknowledged for its capacity to simplify the risk assessment process, thereby enabling auditors to allocate resources more effectively and efficiently. The findings emphasise the significance of AI in assisting auditors in making informed decisions regarding the direction of their efforts, thereby improving the overall efficacy and impact of audit operations.

Finally, the Efficiency and Predictive Analytics factor exhibits the highest reliability, with a Composite Reliability of 0.89 and a Cronbach's Alpha of 0.87. These scores indicate that respondents believe AI tools are highly effective in enhancing the efficacy of audit processes and in utilising predictive analytics for future risk forecasting. The high-reliability values

suggest that AI is regarded as a potent instrument for optimising processes, automating routine audit tasks, and offering valuable predictive insights into potential risks and anomalies. In an auditing environment, the capacity to utilise predictive analytics is especially critical, as it enables auditors to foresee potential fraud or non-compliance in advance, resulting in more proactive interventions. The AI tools employed in this context are perceived as consistently dependable in providing these advantages, as evidenced by the high Composite Reliability of 0.89. This outcome suggests that respondents are acutely aware of the potential of AI to enhance the efficacy and foresight of audit processes, and the tools are considered essential for improving overall audit performance and reducing manual efforts.

6.3 Convergent Validity – Average Variance Extracted (AVE)

Convergent validity is a critical concept in evaluating the degree to which a collection of objects, each of which is intended to measure a specific construct, is consistent with the construct they are intended to represent (Odonkor et al., 2024). The degree of convergent validity for each factor is assessed using the Average Variance Extracted in this study. AVE is a metric that quantifies the variance captured by a construct over the variance due to measurement error. A value of 0.50 or higher is deemed adequate (Hussein, 2016). The indicators are robust representations of the construct, as the construct explains at least 50% of the variance in the indicators. The AVE values for each factor in this study exceed the 0.50 threshold, indicating that the items used to measure the respective factors are closely aligned with the underlying constructs and that each construct has ample convergent validity. The results emphasise that the selected indicators effectively measure the constructs of fraud detection, timeliness, internal controls, risk assessment, and predictive analytics, which provides confidence in the validity of the measurement model and the study's findings.

The Fraud Detection and Accuracy factor exhibits an AVE of 0.61, which is significantly greater than the 0.50 threshold. This suggests that the items used to assess this construct are highly effective in conveying the fundamental concept of fraud detection. A fraud detection construct explains over half of the variance in the indicators, as indicated by an AVE value of 0.61. This indicates a robust relationship between the measurement items and the concept under evaluation. This outcome emphasises that the internal auditors who participated in the investigation regard AI tools as highly accurate and dependable in detecting fraud. Respondents have indicated that AI-based fraud detection systems are a critical aid in audit processes, as they considerably improve the precision of detecting fraudulent activities. The strong

convergent validity of this factor implies that the survey items utilised to evaluate AI's function in fraud detection are in good agreement with auditors' perceptions of its capabilities. The hypothesis that AI is an effective instrument in audit functions targeted at fraud prevention is further supported by a value of 0.61, indicating that respondents have reached a consensus on the role of AI in identifying fraudulent activities.

The AVE value for the Timeliness and Early Detection factor is 0.55, which exceeds the 0.50 threshold. This indicates that the items employed to evaluate this construct are sufficient to capture the substance of AI's capacity to detect fraud on time. The AVE of 0.55 suggests that the timeliness construct explains over half of the variance in the indicators, indicating that the respondents regard AI as a valuable instrument for early fraud detection. Respondents underscored that the prompt identification of fraudulent activities enables more rapid intervention, potentially averting further escalation of problems. The findings suggest that AI tools provide the necessary alerts and insights to enable auditors to act promptly and implement corrective measures before fraudulent activities cause substantial harm. Although the AVE value for timeliness is marginally lower than that for fraud detection, it still indicates a robust alignment between the construct and the items. The notion that AI is a critical asset in enhancing overall efficiency and expediting the audit process is substantiated by the respondents' confidence in AI's capacity to identify fraud at an early stage.

The Internal Controls and Compliance factor has an AVE value of 0.52, which is just above the 0.50 threshold. This value suggests that the items used to quantify this construct are effective in representing the concept of internal controls and compliance. The AVE value of 0.52 indicates that the internal controls construct explains over half of the variance in the indicators, indicating that AI is regarded as a critical tool for enhancing conformance monitoring and enforcing internal control procedures. Respondents indicated that AI systems are being utilised more frequently to automate compliance checks, monitor regulatory compliance, and guarantee that departments adhere to established protocols. The utilisation of AI facilitates the identification of potential violations and the implementation of real-time interventions, thereby improving the overall accountability of institutions. Although the AVE for internal controls and compliance is slightly lower than that of the other factors, it still satisfies the criteria for acceptable convergent validity. This finding underscores the consensus among respondents that AI is an indispensable instrument for governance in public universities, as it effectively reinforces regulatory compliance and internal controls.

Table 6. 2: Convergent Validity – Average Variance Extracted (AVE)

Factor	Average Variance Extracted	Threshold
Fraud Detection and Accuracy	0.61	≥ 0.50
Timeliness and Early Detection	0.55	≥ 0.50
Internal Controls and Compliance	0.52	≥ 0.50
Risk Assessment and Resource Allocation	0.58	≥ 0.50
Efficiency and Predictive Analytics	0.64	≥ 0.50

Source: Field Data (2025)

The Risk Assessment and Resource Allocation factor has an AVE value of 0.58, which is significantly higher than the 0.50 threshold. This indicates that the items used to measure this factor are highly effective in capturing the construct. The risk assessment and resource allocation construct accounts for over half of the variance in the indicators, as evidenced by an AVE of 0.58, which suggests robust convergent validity. Respondents perceive AI as a valuable tool for efficiently allocating resources in the event of potential hazards during the audit process. The audit function's overall efficacy is enhanced by AI's predictive capabilities, which enable auditors to prioritise audit activities and concentrate resources on areas with higher risk levels. The high AVE value indicates that internal auditors have confidence in AI's capacity to identify areas that require additional attention, which in turn facilitates strategic resource allocation decisions. The results indicate that AI not only aids in risk assessment but also optimises the utilisation of available resources, thereby guaranteeing that the audit function operates at its highest efficiency.

The Efficiency and Predictive Analytics factor has an AVE value of 0.64, which is well above the 0.50 threshold. This high AVE score suggests that the items used to assess the effectiveness of AI in audit operations and its role in predictive analytics are very reliable in reflecting the underlying construct. The respondents regard AI tools as highly effective in enhancing audit efficiency and providing valuable predictive insights, as evidenced by an AVE of 0.64. A more proactive approach to audit management is facilitated by AI, which is perceived as a tool that improves auditors' capacity to anticipate future issues and anomalies. AI assists auditors in focusing on more complex and strategic matters by automating routine tasks and providing

advanced analytics. The increasing recognition of AI's potential to revolutionise audit processes by enhancing efficiency, reducing manual errors, and offering insights that were previously challenging to obtain is evidenced by the high AVE value for this factor. This outcome further substantiates the idea that AI is not only enhancing the efficacy of the audit function but also providing actionable insights through predictive analytics, which assist auditors in anticipating and mitigating risks before they escalate.

6.4 Descriptive Statistics on the Perception of the Effectiveness of AI in Detecting Fraudulent Activities and Improving Internal Controls

The implementation of AI-powered fraud detection systems has significantly altered how organisations identify and respond to fraudulent activities. The substantial increase in the number of fraudulent activities identified using AI, compared to traditional methods, is a critical indicator of this transformation. The effectiveness of AI in this regard is underscored by the mean score of 4.32 (SD = 0.68) for the statement that AI-powered fraud detection systems have significantly increased the detection of fraudulent activities. AI-powered systems are engineered to analyse vast quantities of data in real time, identifying patterns and anomalies that may be too intricate for human auditors or conventional detection methods. For example, machine learning algorithms continuously learn and adapt to new fraud techniques, ensuring that the system remains effective even as fraudsters evolve their tactics (Coker et al., 2023). Research has consistently demonstrated that AI systems outperform traditional methods in detecting fraud, prompting widespread discussion regarding the accuracy of AI fraud detection systems (Abrokwah-Larbi & Awuku-Larbi, 2024). The use of AI technologies marks a shift from reactive to proactive fraud detection, significantly improving organisations' ability to identify and prevent fraudulent activities before they lead to financial consequences.

The introduction of AI technologies into internal audit processes has also significantly enhanced the accuracy of fraud detection, as demonstrated by the mean score of 4.10 (SD = 0.75) for the corresponding statement. The incorporation of AI technologies into the audit process enables organisations to identify fraudulent activities with greater precision and fewer errors than conventional methods. AI systems are capable of detecting subtle patterns in financial transactions that human auditors or rule-based systems may overlook. These systems employ a combination of anomaly detection techniques, natural language processing, and machine learning to more accurately identify potential fraud. AI algorithms were found to enhance the precision of fraud detection models by focusing on relevant features in extensive

datasets and mitigating the impact of noise, as reported in a study by Thottoli and Ahmed (2022). The outcome is a more precise identification of fraudulent activities, which in turn results in a reduction in the number of false positives and false negatives. This accuracy results in a reduction in the number of false alarms, thereby enhancing the overall efficacy of fraud detection efforts and saving time and resources. Furthermore, AI systems become more proficient at identifying subtle and evolving fraudulent strategies that human auditors may overlook as they continue to accumulate knowledge from previous fraud cases (Plant et al., 2019).

The overall efficacy of fraud detection is significantly improved by the substantial reduction in false positives, which is another notable benefit of AI-powered fraud detection systems. One of the primary benefits of AI technology is the assertion that AI-enabled internal controls have resulted in a decrease in false positives (mean = 4.15, SD = 0.71). Traditional fraud detection systems often incorrectly label legitimate transactions as fraudulent, leading to unnecessary investigations and processing delays. In contrast, AI algorithms are designed to more accurately distinguish between regular and suspicious activity, which helps to reduce the number of false positives. In comparison to rule-based systems, machine learning models employed in fraud detection have exhibited superior performance in minimising false positives (Plant et al., 2019). Organisations not only enhance the speed and precision of identifying fraudulent activities but also guarantee that superfluous red flags do not impede legitimate transactions by integrating AI into fraud detection processes. This decrease in false positives has a cascading effect on organisational efficiency, enabling internal auditors to concentrate on cases of greater priority and alleviating the burden on audit resources.

Table 6. 3 Descriptive Statistics on the Perception of the Effectiveness of AI in Detecting Fraudulent Activities and Improving Internal Controls

Statement	Mena	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 within internal audit processes.	4.10	0.75
AI-enabled internal controls have led to a substantial decrease in false positives, thereby enhancing the efficiency of fraud detection efforts.	4.15	0.71
The adoption of AI technologies has led to a higher rate of early detection of fraudulent activities, minimising potential financial losses for the organisation.	4.23	0.69
The integration of AI into internal control processes has resulted in a more comprehensive and adaptive approach to fraud prevention and detection.	4.18	0.72
AI-powered risk assessment tools have improved the prioritisation of audit efforts, focusing resources on areas with the highest likelihood of fraudulent activities.	4.12	0.74
AI-based internal controls have improved the timeliness of response to detected fraud incidents.	4.22	0.70
AI-enabled internal controls have enhanced the organisation's ability to comply with regulatory requirements related to fraud prevention and detection.	4.05	0.77
The integration of AI has reduced the time and resources required to investigate potentially fraudulent activities.	4.08	0.73
AI technologies have strengthened the ability to detect complex fraud schemes that may go unnoticed by traditional methods.	4.29	0.66
AI-enabled fraud detection systems have enhanced the depth and breadth of fraud detection capabilities.	4.17	0.74
AI algorithms have improved the adaptability of internal control systems to evolving fraud schemes.	4.11	0.78
AI-driven predictive analytics have improved the forecasting of potential fraud risks within university operations.	4.14	0.75

AI-based fraud detection systems have reduced false positives and negatives in identifying suspicious activities.	4.21	0.71

Source: Field Data (2025)

Another notable consequence of AI adoption in fraud detection is the increased rate of early detection of fraudulent activities, as demonstrated by the mean score of 4.23 (SD = 0.69) for the corresponding statement. The capacity of AI technologies to identify fraud at an early stage is crucial for preventing potential financial losses and reputational harm. AI-powered fraud detection systems are engineered to analyse transactions in real time, enabling the identification of suspicious activities. Organisations take immediate action by blocking suspicious accounts or identifying fraudulent transactions for further investigation through early detection. In terms of financial loss and harm to trust, this capacity to act promptly and efficiently substantially mitigates the organisation's exposure to fraud (Diansari et al., 2023). Additionally, the implementation of AI technologies enables organisations to anticipate fraud risks before they escalate, thereby establishing an additional layer of proactive defence. Gyamera et al. (2023) discovered that AI-based systems equipped with predictive analytics can anticipate potential fraud risks, enabling organisations to implement preventive measures and thereby prevent fraudulent activities from occurring in the first place. Organisations place a high value on early detection as a means of safeguarding organisational assets and sustaining a competitive advantage.

The integration of AI into internal control processes has also resulted in a more comprehensive and adaptive approach to fraud prevention and detection, as evidenced by a mean score of 4.18 (SD = 0.72). AI-powered systems are capable of dynamically adapting to evolving circumstances, fraud patterns, and organisational contexts, in contrast to conventional methods that depend on immutable, predefined rules and patterns. By learning from new data, machine learning algorithms enable AI systems to continuously enhance their detection capabilities, thereby becoming more adaptive over time (Almgrashi & Mujalli, 2023). This adaptability is crucial for organisations that operate in an environment where fraudsters continually refine their strategies to circumvent detection. For example, AI systems are capable of identifying intricate fraud schemes that necessitate multiple stages or subtle manipulations, such as synthetic identity fraud, which conventional methods may overlook. Organisations can sustain an effective fraud detection system over time without the need for manual updates or reconfiguration of the system, as AI adjusts its parameters and models in response to emerging

threats. Providing organisations with an adaptive tool that scales with their requirements, this dynamic capability guarantees that AI-powered fraud detection systems remain pertinent and effective in the face of ever-changing fraudulent tactics (Antwi et al., 2022).

The prioritisation of audit efforts has been enhanced by AI-powered risk assessment tools, which concentrate resources on areas with the highest likelihood of fraudulent activities, as evidenced by the mean score of 4.12 (SD = 0.74). By optimising their audit processes, organisations identify the most critical areas to concentrate on using AI in risk assessment, which is based on historical data and risk patterns. This prioritisation enables auditors to allocate resources more effectively, ensuring that high-risk areas receive the necessary attention while minimising unnecessary investigations in low-risk areas. AI systems employ sophisticated analytics to identify potential fraud centres and accurately predict the locations where fraudulent activities are most likely to occur (Coker et al., 2023). AI assists auditors in concentrating their efforts on the areas that pose the highest risk to the organisation by reducing the scope of the audit. This targeted approach enhances audit efficiency and ensures that potential fraud is identified and resolved before it escalates. Artificial intelligence has been demonstrated to improve the overall efficacy of internal audits by facilitating the prioritisation of audit efforts, thereby providing greater protection against financial loss and fraud (Almgrashi & Mujalli, 2023).

The improvement in the timeliness of responses to detected fraud incidents is another critical benefit of AI-based internal controls, with a mean score of 4.22 (SD = 0.70). The ability of AI systems to process data in real time allows for quick detection and response to fraudulent activities. Organisations may be susceptible to ongoing deception if they depend on conventional fraud detection methods, such as periodic audits or delayed reviews. Conversely, AI systems facilitate the immediate identification of suspicious transactions, which in turn trigger automatic alerts and enable immediate intervention. In industries where fraud occurs in high volumes, such as banking or e-commerce, this capability is particularly valuable. Almgrashi and Mujalli (2024) assert that the implementation of AI technologies has resulted in a significant reduction in response times, which has allowed organisations to promptly avert or mitigate the consequences of fraud. AI must be able to respond promptly to safeguard the organisation's reputation and assets and to mitigate the effects of fraudulent activities. Furthermore, AI-driven systems generate comprehensive reports and suggest remedial measures, thereby simplifying the response process (Thottoli & Ahmed, 2022). AI ensures that

fraud is addressed before it escalates out of control by reducing the time gap between detection and response, resulting in increased organisational resilience.

The incorporation of AI in internal controls has also improved organisations' capacity to meet regulatory requirements regarding fraud prevention and detection, as evidenced by the mean score of 4.05 (SD = 0.77). Organisations are continuously focused on regulatory compliance, especially in sectors that face strict financial reporting and fraud detection standards. By outsourcing tasks such as monitoring financial transactions, detecting suspicious activities, and generating reports for regulatory authorities, AI-powered systems facilitate compliance. Organisations ensure they meet their obligations efficiently and on time by configuring systems to comply with the specific requirements of various regulatory bodies. Additionally, artificial intelligence technologies autonomously adjust their operations to comply with new regulations and guidelines, thereby adapting to changes in regulations. Hazaea et al. (2021) conducted research that revealed that AI systems have substantially reduced the time and resources necessary for compliance monitoring, while also improving the accuracy of reporting. The importance of AI in compliance is growing as organisations are subjected to increased scrutiny from regulators and customers. AI contributes to the overall integrity and transparency of organisational operations by enhancing the efficacy of fraud detection and ensuring that regulatory standards are met.

Lastly, AI technologies have decreased the time and resources necessary to investigate potentially fraudulent activities, resulting in a mean score of 4.08 (SD = 0.73). Manual processes, such as evaluating extensive transaction data and conducting interviews, are frequently employed in conventional fraud investigations. These processes are resource-intensive and time-consuming. Nevertheless, this process is streamlined by AI-powered systems, which automatically identify suspicious transactions and offer auditors comprehensive insights into potential fraud cases. AI is capable of detecting patterns and anomalies that may not be readily evident to human investigators due to its capacity to analyse large volumes of data rapidly and efficiently. Tetteh et al. (2022) conducted a study that demonstrated that the implementation of AI in fraud investigations has resulted in a 50% reduction in investigation durations, thereby enabling auditors to pinpoint the most promising leads. AI reduces the overall cost of fraud investigations and frees up resources by automating routine duties and providing auditors with more accurate and relevant data. Organisations

seeking to enhance their fraud detection capabilities while maintaining operational efficacy must prioritise these time and cost reductions.

6.5 One-Sample T-Test for the Perception of the Effectiveness of AI in Detecting Fraudulent Activities and Improving Internal Controls

AI-powered fraud detection and internal control systems substantially improve various aspects of fraud prevention and detection processes, as demonstrated by the One-Sample t-test results in the table. The respondents' strong consensus regarding the efficacy of AI in combating fraudulent activities within organisations is indicated by the high t-statistics and low p-values across all statements. The importance of these discoveries lies in the fact that they demonstrate that AI technologies are not only perceived as superior but also statistically proven to outperform conventional methods in various domains. An in-depth examination of each outcome is provided below to facilitate an understanding of how AI is impacting fraud detection systems.

The first statement, which investigates whether AI-powered fraud detection systems have substantially increased the number of fraudulent activities identified in comparison to traditional methods, reports a p-value of 0.000 and a t-statistic of 4.512. This finding suggests that nearly all respondents agree that artificial intelligence systems are more effective than conventional methods for detecting fraud. Traditional fraud detection systems often rely on manual interventions and rule-based algorithms, which are prone to errors and are slow. In contrast, AI systems are capable of analysing enormous quantities of data in real-time, utilising advanced algorithms such as deep learning and machine learning to identify patterns that suggest fraudulent activity. Legacy systems may be limited by their immutable nature, whereas the AI's ability to identify intricate data patterns and acquire new knowledge without human intervention renders it significantly more efficient. Furthermore, AI systems identify fraudulent activities that do not adhere to predetermined rules or historical patterns, thereby revealing previously undetected schemes (Amoako et al., 2023). The respondents in this study have corroborated that this level of precision and efficiency significantly enhances the detection of fraud.

The second statement investigates whether the accuracy rates of fraud detection have significantly increased since the implementation of AI technologies, as evidenced by a t-statistic of 3.874 and a p-value of 0.001. The enhancement of accuracy is essential, as the objective of any fraud detection system is to detect fraud with the minimum amount of error.

Although traditional systems are beneficial, they may struggle to differentiate between legitimate and fraudulent activities, particularly in intricate cases. False positives, which occur when legitimate transactions are identified as fraudulent, are both disruptive and expensive for businesses. In contrast, false negatives, which occur when fraudulent transactions are not detected, are even more detrimental, as they lead to financial losses. The accuracy of predictions is enhanced as AI systems, particularly those that employ machine learning, are exposed to more data. For instance, the accuracy of fraud detection is considerably enhanced by the ability of machine learning models to analyse large datasets and adjust to new inputs (Amoako et al., 2023). The accuracy of fraud detection is significantly enhanced as AI systems continue to refine their detection capabilities through evolution and learning from new fraud patterns, as evidenced by the findings of this study.

Table 6. 4 One-Sample t-Test for the Perception of the Effectiveness of AI in Detecting Fraudulent Activities and Improving Internal Controls

Statement	t-statistic	p-value
AI-powered fraud detection systems have significantly increased the number of fraudulent activities identified compared to traditional methods.	4.512	0.000
The accuracy rates of fraud detection have noticeably improved since the implementation of AI technologies within internal audit processes.	3.874	0.001
AI-enabled internal controls have led to a substantial decrease in false positives, thereby enhancing the efficiency of fraud detection efforts.	3.456	0.001
The adoption of AI technologies has led to a higher rate of early detection of fraudulent activities, minimising potential financial losses for the organisation.	4.215	0.000
The integration of AI into internal control processes has resulted in a more comprehensive and adaptive approach to fraud prevention and detection.	3.754	0.001
AI-powered risk assessment tools have improved the prioritisation of audit efforts, focusing resources on areas with the highest likelihood of fraudulent activities.	4.025	0.000
AI-based internal controls have improved the timeliness of response to detected fraud incidents.	3.987	0.000

AI-enabled internal controls have enhanced the organisation's ability to comply with regulatory requirements related to fraud prevention and detection.	3.543	0.001
The integration of AI has reduced the time and resources required to investigate potentially fraudulent activities.	4.128	0.000
AI technologies have strengthened the ability to detect complex fraud schemes that may go unnoticed by traditional methods.	3.765	0.001
AI-enabled fraud detection systems have enhanced the depth and breadth of fraud detection capabilities.	4.543	0.000
AI algorithms have improved the adaptability of internal control systems to evolving fraud schemes.	3.876	0.001
AI-driven predictive analytics have improved the forecasting of potential fraud risks within university operations.	4.321	0.000
AI-based fraud detection systems have reduced false positives and negatives in identifying suspicious activities.	3.654	0.001

Source: Field Data (2025)

Additionally, the statement suggests that the substantial reduction has significantly enhanced the efficiency of fraud detection efforts, as evidenced by the achievement of false positives by AI-enabled internal controls, as indicated by a t-statistic of 3.456 and a p-value of 0.001. In traditional fraud detection systems, false positives are a significant concern, as they result in unnecessary investigations and disruptions when legitimate activities are incorrectly identified as fraudulent. AI's capacity for sophisticated anomaly detection and learning from past data enables it to reduce false positives. The occurrence of false alarms is reduced by training AI models to identify characteristics that are specific to fraudulent transactions while distinguishing them from everyday activities (Karikari Appiah et al., 2023). Machine learning techniques, such as supervised learning, help the system refine its detection methods over time, thereby improving its ability to distinguish between legitimate and fraudulent behaviour. AI not only conserves valuable resources but also enhances the overall user experience by decreasing false positives, which reduces the likelihood of customers and employees encountering unnecessarily frustrating situations. Additionally, this efficiency enhancement enables organisations to focus their resources on genuine fraud cases, ensuring that fraud prevention initiatives are both cost-effective and efficient.

Another statement evaluates whether the implementation of AI technologies has resulted in an increased rate of early detection of fraudulent activities, thereby reducing the likelihood of financial losses, which had a t-statistic of 4.215 and a p-value of 0.000. It is imperative to detect fraud at an early stage, as the potential for financial harm increases as fraudulent activities continue to go undetected. AI is a valuable asset in the early detection of fraud due to its real-time monitoring capabilities. For instance, sophisticated machine learning algorithms identify dubious activities in real-time by analysing transactions as they transpire. Organisations mitigate the impact of fraud by promptly suspending accounts, alerting authorities, or initiating investigations through early detection. In addition, the likelihood of fraud expanding to larger-scale operations is diminished by early detection, which results in substantial financial losses and harm to an organisation's reputation (Plant et al., 2019). AI has a unique advantage in identifying fraud before it causes significant damage due to its adaptability to emergent fraud patterns and its ability to process and analyse data swiftly. Consequently, organisations that implement AI-powered systems promptly respond, thereby mitigating the financial and operational consequences of fraud.

The t-statistic of 3.754 and a p-value of 0.001 suggest that the integration of AI into internal control processes has led to a more comprehensive and adaptive approach to fraud prevention and detection. The evolution of fraud schemes frequently poses a challenge for conventional fraud detection systems, necessitating frequent updates and manual adjustments to keep pace with this evolution. Conversely, AI systems alter their detection methods in response to new data and learn from it. This renders AI particularly effective in dynamic environments, where deception tactics are subject to rapid change. Even as fraudsters develop more sophisticated methods, AI systems maintain the effectiveness of the fraud detection process by perpetually analysing incoming data and modifying their detection techniques based on new information. Furthermore, AI systems are configured to oversee a diverse array of activities within an organisation, including financial transactions and employee conduct, thereby offering a more comprehensive perspective on potential hazards. AI-powered systems possess a distinct advantage over conventional methods, which may only concentrate on specific categories of fraud or rely on obsolete data, due to their adaptability and extensive monitoring capabilities.

Also, it is reported that AI-powered risk assessment tools have enhanced the prioritisation of audit efforts by concentrating resources on areas with the highest likelihood of fraudulent activities, as evidenced by a t-statistic of 4.025 and a p-value of 0.000. A critical element of

fraud detection is risk assessment, which enables organisations to identify areas of vulnerability and allocate resources accordingly. AI's capacity to analyse extensive datasets and recognise fraud-related patterns enables it to generate exceedingly precise risk assessments. Organisations prioritise their audit efforts by utilising AI to determine the likelihood of fraud, rather than implementing generic auditing measures across all areas. For example, AI analyses historical fraud data to identify departments or transactions that are most likely to experience fraudulent activity, enabling auditors to concentrate their efforts where they are most required. This targeted approach not only enhances the efficacy of audits but also guarantees the efficient utilisation of resources, thereby minimising waste and optimising fraud prevention strategies (Plant et al., 2019). AI enables organisations to prevent fraud before it becomes a significant issue by identifying high-risk areas early, resulting in long-term savings of both time and money.

The t-statistic of 3.987 and a p-value of 0.000 of the extent to which AI-based internal controls have enhanced the timeliness of response to detected fraud incidents. It is imperative to respond promptly to fraud to minimise the damage and prevent the recurrence of fraudulent activity. Organisations respond to detected fraud more expeditiously by automating various aspects of the fraud investigation process with the help of AI systems. AI initiate predefined responses, such as flagging suspicious transactions, alerting relevant personnel, and even initiating remedial actions such as suspending accounts, once fraud is detected. This automation not only expedites the response time but also mitigates human error, guaranteeing that responses are both consistent and adequate. Additionally, AI prioritises the severity of fraud incidents, enabling organisations to concentrate on the most pressing cases first, thereby reducing the potential impact of fraud. In fast-paced industries, such as banking and e-commerce, the capacity to act promptly is especially critical, as fraud rapidly escalates if left unchecked. AI systems play a crucial role in enhancing fraud detection outcomes by facilitating quicker and more efficient responses.

Another statement investigates whether the organisation's capacity to comply with regulatory requirements regarding fraud prevention and detection has been improved by AI-enabled internal controls, with a t-statistic of 3.543 and a p-value of 0.001. Regulatory compliance is a significant concern for organisations, particularly in industries such as finance, healthcare, and insurance, where non-compliance can lead to substantial penalties and reputational damage. By automating reporting, monitoring, and documentation related to fraud detection, AI helps

organisations comply with regulatory requirements. For example, AI systems produce comprehensive audit trails and compliance reports, ensuring that organisations maintain precise records of their fraud detection efforts. Additionally, AI systems assist organisations in maintaining compliance with evolving regulations by consistently monitoring the compliance landscape and altering fraud detection strategies as necessary. This proactive compliance strategy guarantees that organisations circumvent potential legal complications and penalties. AI is a valuable tool for organisations that wish to enhance their fraud prevention and detection efforts while maintaining compliance with industry regulations, due to its capacity to automate and expedite compliance processes (Angmor & Diaboh, 2022).

According to another statement, AI has decreased the time and resources necessary to investigate potentially fraudulent activities, as indicated by a t-statistic of 4.128 and a p-value of 0.000. The process of investigating fraud is frequently resource-intensive, requiring significant time and personnel to analyse large datasets to identify suspicious patterns. Nevertheless, AI systems have the potential to automate a significant portion of this process, thereby reducing the time and resources required to investigate fraud. AI rapidly identifies anomalies that necessitate further investigation by analysing large datasets in real-time, thereby eradicating the necessity for auditors to review each transaction manually. This automation not only expedites the investigation process but also decreases the expenses associated with fraud detection and investigation. AI enables auditors to concentrate on more strategic aspects of fraud detection, such as analysing intricate fraud strategies or undertaking in-depth investigations, by liberating them from time-consuming manual duties. In the end, this leads to a more effective utilisation of organisational resources and a more rapid identification and resolution of fraudulent activities.

With a t-statistic of 3.765 and a p-value of 0.001, another statement posits that AI technologies have enhanced the capacity to identify intricate fraud schemes that may go undetected by conventional methods. Traditional fraud detection methods often rely on predetermined rules or patterns, which can render them ineffective in identifying new or sophisticated forms of fraud. Nevertheless, AI is particularly adept at detecting intricate and constantly changing fraud strategies by employing sophisticated algorithms, including deep learning, neural networks, and anomaly detection. These methods enable AI to identify subtle patterns in large datasets that may indicate fraud, even if these patterns do not align with conventional fraud indicators. AI is capable of detecting fraud schemes that are overlooked by traditional methods through

the use of sophisticated techniques. Consequently, organisations are equipped with a potent weapon against the growing sophistication of fraud. Additionally, AI's capacity to consistently enhance its detection methods and learn from new data guarantees its continued efficacy in identifying emergent fraud strategies. This renders AI an indispensable asset in the pursuit of intricate fraud.

6.6 Qualitative Analysis

This section focuses on the qualitative aspect of the study. The analysis employed a thematic approach, which follows Braun and Clarke's (2006) six-phase framework, which provides a structured and rigorous approach to identifying patterns within the perception of the effectiveness of AI in detecting fraudulent activities and improving internal controls in public universities in Ghana. The six phases include familiarisation with the data, generating initial codes, searching for themes, reviewing themes, defining and naming themes, and producing the final report. The process begins with data familiarisation, where interview transcripts are carefully read and re-read to gain an in-depth understanding of participants' responses.

6.6.1 The Perception of the Effectiveness of AI in Detecting Fraudulent Activities and Improving Internal Controls in Public Universities in Ghana

The potential of AI to improve organisational processes, particularly in areas such as internal controls and fraud detection, has garnered significant interest as it is increasingly integrated into various sectors. Public universities in Ghana, like many institutions worldwide, face challenges related to internal control systems that are often inefficient, mismanaged, and vulnerable to financial misconduct. AI has emerged as a tool that assists in detecting fraudulent activities and enhancing the effectiveness of internal controls, in response to the increasing complexity of financial transactions and the need for transparency. The perception of AI's efficacy in these domains is essential, as it influences the decision-making process about the adoption and implementation of AI technologies. Given this, the objective of this interview guide is to investigate the perspectives of critical stakeholders in public universities in Ghana regarding the role of AI in enhancing internal controls and detecting fraud. The results reveal seven themes, which are discussed below.

6.6.1.1 Increased Fraud Detection Efficiency

The detection and management of fraudulent activities at public universities in Ghana have been significantly enhanced by AI-powered fraud detection systems, which have replaced conventional methods. In the past, the detection of fraud in financial systems has been heavily

reliant on manual audits, which are labour-intensive, time-consuming, and susceptible to human error. The process is automated by AI, which enables systems to continuously scan and analyse immense quantities of data in real-time, detecting irregularities and highlighting suspicious activities that might otherwise go undetected. This approach addresses these issues. In the context of universities, which conduct a multitude of financial transactions daily, including tuition fees and research grants, the capacity to process large volumes of data is a substantial advantage of AI technologies. A Director of Internal Audit at the University of Energy and Natural Resources said.

> "AI's capacity to analyse data from multiple sources and in real-time has been a game-changer for us. It has significantly enhanced the quickness and accuracy of fraud detection" (Interview, 2024).

Not only has the volume of fraudulent activities identified increased as a result of the transition from traditional methods to AI-powered detection, but it has also led to a more accurate and rapid response, allowing auditors to intervene before the fraud escalates. AI has been demonstrated to substantially improve the speed and accuracy of fraud detection in various sectors, including higher education, as shown in previous studies, such as the one conducted by Anin et al. (2024). The efficacy of AI in detecting fraud stems from its ability to process data and continually refine its detection algorithms. Conventional fraud detection systems are typically rule-based, meaning they operate following predetermined patterns and thresholds established by human auditors. Although these methods are capable of detecting basic fraud schemes, they are unable to identify complex or emergent fraud tactics because fraudsters are constantly adapting to circumvent detection methods. Nevertheless, AI employs machine learning techniques to enhance and develop its detection capabilities over time. It is capable of detecting even the most subtle patterns of fraudulent behaviour by learning from past data. According to the Director of Internal Audit at the University of Ghana,

> "AI adapts to new data and fraud schemes, making it more effective in detecting fraud as it becomes more sophisticated" (Interview, 2025).

AI's capacity to continuously learn and improve is a substantial advantage, as it guarantees that fraud detection systems remain pertinent and capable of detecting emerging fraud trends. In an environment where fraudulent activities are becoming increasingly complex, this AI feature helps universities stay ahead of fraudsters. Another study conducted by Almagrashi et al. (2023) emphasises the adaptability of AI systems in detecting fraud by learning from new data, thereby enhancing the accuracy of fraud detection over time. The potential of AI technologies

to accelerate fraud detection has significant implications for preventing additional financial losses in public universities. Traditional fraud detection methods frequently operate on a delayed timeline, particularly when they depend on periodic audits or manual evaluations of financial data. The financial consequences of fraud incidents are substantial, rendering it more challenging for institutions to recoup their losses as they accumulate over time. In contrast, AI operates in real-time, allowing for the immediate identification of suspicious transactions. This rapid identification is essential for preventing the escalation of fraudulent activities, as it enables internal auditors to implement prompt corrective measures. The Deputy Director of Internal Audit at the University of Education underscored that.

> "What previously required weeks of investigation can now be identified in a matter of hours, and we can promptly resolve the issue, thereby preventing the university from incurring substantial losses" (Interview, 2025).

This immediate response is especially critical in educational institutions, where the timely recovery of funds is crucial for the uninterrupted operation of operations and the preservation of financial stability. Additionally, AI's real-time fraud detection capabilities substantially reduce the risk of reputational harm by enabling swift actions to mitigate the exposure of fraudulent activities to the public or regulatory bodies. Angmor and Diaboh (2022) illustrated that real-time AI fraud detection systems facilitate faster intervention, which mitigates reputational damage and prevents financial losses for organisations. In comparison to conventional manual assessments, AI-powered systems provide a significantly more comprehensive approach to fraud detection. Auditors frequently concentrate on discrete, individual transactions or specific data points that they perceive as dubious using conventional methodologies. Nevertheless, auditors frequently encounter a complex web of interconnected transactions across multiple accounts or departments, which complicates the process of detecting fraud through isolated reviews. In contrast, AI examines the relationships between various data points across an entire network, thereby revealing fraudulent activities that extend across multiple transactions or departments. The Director of Internal Audit at Kwame Nkrumah University of Science and Technology stated that,

> "AI is capable of identifying fraud schemes that are more intricate and would necessitate a significant amount of time and effort from human auditors" (Interview, 2025).

AI's capacity to incorporate and cross-reference data from various sources enables auditors to identify intricate fraud patterns that may not be immediately apparent using conventional

methods. This comprehensive approach to fraud detection enables a more precise and comprehensive identification of potentially fraudulent activities, guaranteeing that no stone is left unturned. According to a study conducted by Xie et al. (2020), AI systems are comprehensive, as they are capable of integrating and cross-referencing data from a variety of sources. This approach offers a more comprehensive understanding of fraud risk and detection compared to conventional methods.

Another significant advantage of AI in the detection of fraud is its capacity to minimise the occurrence of false positives. False positives, which occur when legitimate transactions are inaccurately identified as illicit, are a potential issue with traditional fraud detection systems, particularly rule-based systems. This results in the squandering of valuable time and resources through the implementation of superfluous investigations. The accuracy of fraud detection systems in distinguishing between legitimate and fraudulent activities is enhanced as they become more sophisticated with AI. Machine learning algorithms are capable of identifying the context of each transaction by learning from historical data, thereby decreasing the probability of labelling legitimate transactions as fraudulent. According to the Deputy Director of Internal Audit at the University of Cape Coast,

> "AI's accuracy is one of its most significant enhancements. We have observed a substantial decrease in the number of false positives, which has enabled us to concentrate on more pressing matters" (Interview, 2025).

This decrease in false positives not only enhances the effective allocation of auditors' time and resources but also enhances the efficiency of fraud detection. Investigating non-issues consumes fewer resources, thereby facilitating the faster resolution of actual fraudulent activities. In previous research, such as that conducted by Jori. (2023), it has been demonstrated that AI technologies substantially reduce false positives by employing sophisticated algorithms that continuously refine and alter their detection models, thereby enhancing overall accuracy. Another critical factor in the efficacy of AI in fraud detection is its adaptability. As previously mentioned, fraud schemes are in a state of perpetual evolution as perpetrators develop new strategies to exploit the vulnerabilities of conventional detection systems. Nevertheless, AI is engineered to adjust to these modifications. AI systems enhance their capacity to detect previously unseen fraud schemes by perpetually updating their fraud detection algorithms with new data, a process known as machine learning. According to the Director of Internal Audit at Ghana Communication Technology University,

> "AI enhances its fraud detection capabilities by adapting to the data it processes. It has the potential to acquire the ability to recognise novel deception strategies that may have been unexpected" (Interview, 2025).

This adaptability is essential for guaranteeing that fraud detection systems continue to function effectively in a constantly evolving environment. AI's learning process enables it to remain responsive to emergent threats without the necessity for continuous human intervention, in contrast to traditional methods that necessitate manual updates or predefined rules. This adaptability is especially advantageous in public universities, where the complexity and diversity of financial transactions necessitate an ever-changing fraud detection strategy. Nyarkoh (2022) also underscored the adaptability of AI systems, demonstrating that machine learning models rapidly adapt to new fraud techniques by continuously learning from new data.

Substantial time and cost reductions are also provided by the integration of AI into fraud detection processes. Traditional fraud detection methods, particularly manual audits, are resource-intensive and labour-intensive. The need for extensive human intervention is reduced by the automation of numerous aspects of the fraud detection process by AI-powered systems. The Deputy Director of Internal Audit at the University of Energy and Natural Resources stated,

> "AI has not only enhanced the accuracy and speed of detection but has also drastically reduced the time and money we spend investigating fraud." We are now able to concentrate on other matters" (Interview, 2025).

AI enables auditors to allocate additional time to high-priority areas that require human expertise by automating routine tasks such as transaction monitoring and pattern recognition. This not only reduces operational costs but also saves time, enabling universities to allocate resources more effectively across their departments. The financial savings that public universities achieve as a result of the overall efficiency benefits from AI-powered fraud detection systems are crucial in a resource-constrained environment. Ataribanam (2024) conducted prior research that demonstrated that the integration of AI in fraud detection systems significantly reduced operational costs by outsourcing commonplace tasks and enhancing the efficacy of audits. Additionally, the scalability of AI fraud detection systems offers an additional benefit as public universities expand in size and complexity. As institutions expand, conventional fraud detection methods often struggle to scale effectively, leading to a higher likelihood of fraud going undetected. Conversely, AI is inherently scalable and capable of managing substantial volumes of data and transactions without compromising performance. AI

systems seamlessly scale to meet the demands of universities as they expand and handle an increasing number of financial transactions. The University of Ghana's Director of Internal Audit observed,

> "The volume of data we process increases in tandem with the university's expansion. AI is essential for maintaining pace with the growing complexity of our operations, as it accommodates that growth without decreasing performance" (Interview, 2025).

This scalability guarantees that AI-powered systems remain effective as public universities expand, enabling them to maintain robust fraud detection capabilities irrespective of their size. Ataribanam. (2024) emphasised the scalability of AI in large organisations, demonstrating that AI systems process progressively larger datasets without a degradation in performance. This makes AI an ideal solution for institutions that are expanding, such as universities.

6.6.1.2 Improved Accuracy in Fraud Detection

The implementation of AI-powered fraud detection systems in public universities in Ghana has resulted in substantial improvements in the reliability and accuracy of fraud detection processes. Traditional fraud detection methods, particularly those that rely on human judgment or fundamental rule-based systems, often struggle to detect subtle indicators of fraud. Especially in complex financial transactions, cognitive biases or the overwhelming volume of data may cause human auditors to overlook red flags. Although rule-based systems are effective in identifying established fraud patterns, they encounter challenges when confronted with novel or evolving strategies that fraudsters may implement. AI addresses these challenges by employing sophisticated machine learning and data analysis techniques that improve the accuracy of fraud detection. AI systems are intended to analyse extensive transactional data, thereby identifying intricate relationships and concealed patterns that are challenging for humans to discern. The Director of Internal Audit at the University of Energy and Natural Resources stated,

> "AI assists us in detecting fraud that would otherwise evade our manual audits, and it does so with a level of precision that was previously unattainable" (Interview, 2025).

AI algorithms continually enhance their detection capabilities by learning from new data, ensuring they adapt to emerging fraud strategies and improve over time. This continuous learning process reduces the probability of legitimate transactions being falsely identified as fraudulent (false positives) and minimises the risk of missed fraud (false negatives). In addition to detecting fraud, the accuracy of AI-powered fraud detection systems is also enhanced by

enhancing the overall reliability of the detection process. AI systems analyse historical fraud cases and apply the resulting insights to new data using machine learning. The machine learning models do not depend on predefined principles; instead, they develop a comprehension of what is considered normal behaviour by analysing historical data. The system's ability to differentiate between legitimate and fraudulent transactions improves as it processes more data. This capability is especially critical in environments such as public universities, where the scope and diversity of financial transactions are challenging for human auditors to keep up with. The Deputy Director of Internal Audit at the University of Education stated that;

> "The machine learning models become more accurate over time as they adapt to the data we input. It is akin to a system that becomes increasingly intelligent with each transaction it processes" (Interview, 2025).

The system's accuracy is significantly improved by its ability to autonomously refine its algorithms in response to new data, making it a dependable tool for ongoing fraud detection. Machine learning models are highly effective at identifying anomalous activities that deviate from standard patterns, as they perpetually enhance their performance as they process more data, as demonstrated by a study conducted by Şen (2023). AI's capacity to mitigate both false positives and false negatives is a significant advantage over conventional fraud detection methods. False positives, which are legitimate activities that are incorrectly identified as fraudulent, are a prevalent issue in traditional systems. Auditors are required to manually investigate legitimate transactions that have been identified by the system, resulting in the wastage of time and resources (False Positives). Furthermore, auditors' confidence in the accuracy of a system decreases as the number of false positives increases, which may result in human oversight or errors in judgment. Conversely, false negatives arise when fraudulent activities are not detected, thereby permitting them to persist without detection. These issues are mitigated by AI-powered systems, which employ sophisticated algorithms that consider the context of transactions, including the frequency, timing, and patterns of payments, to make more informed decisions. The Director of Internal Audit at the University of Ghana stated,

> "The reduction of false positives is one of the most significant enhancements of AI. We are no longer wasting time investigating legitimate transactions" (Interview, 2025).

AI enhances the overall accuracy of the fraud detection process by minimising false positives and false negatives through the continuous refinement of the model based on data, which is achieved through the use of machine learning. Agba et al. (2023) also discovered that machine learning substantially reduces false positives and negatives, thereby enhancing the system's

ability to detect misconduct expeditiously. Additionally, the accuracy of fraud detection is enhanced by AI systems, which consider a broader range of variables than conventional methods. Traditional fraud detection systems typically analyse a restricted set of factors, such as transaction amount or account history, to identify fraudulent behaviour. Nevertheless, fraudsters frequently exploit the vulnerabilities of these systems by implementing minor, imperceptible modifications to their operations. Conversely, AI is capable of detecting more sophisticated deception strategies and analysing a much broader range of variables. For instance, AI integrates contextual data, including the geographical location of transactions, the device used for payments, and the time of day the transaction occurred, to provide more comprehensive insights into potential deception. The Director of Internal Audit at Kwame Nkrumah University of Science and Technology observed,"

> The capacity of AI to evaluate numerous variables and compare them to historical data has enabled us to identify fraudulent activities that would have been overlooked by conventional systems (Interview, 2025).

This comprehensive method allows AI to identify more intricate and sophisticated fraud patterns that are challenging to detect when using a limited set of parameters. AI-powered systems enhance detection accuracy and decrease the probability of fraud evading detection by integrating a broader range of data points. Previous research, including that conducted by Fotoh and Lorentzon (2023), has demonstrated that AI is more effective at detecting complex and emergent fraud techniques than traditional methods due to its capacity to analyse multiple factors simultaneously. Another critical factor that contributes to AI's accuracy is its ability to enhance its detection algorithms continually. Manual revisions and intervention are frequently necessary to modify rules and thresholds in response to emerging fraud patterns in conventional fraud detection systems. These revisions are typically reactive, addressing fraud schemes after they have been detected. In contrast, AI-powered systems are proactive and capable of learning from each new dataset, adjusting their detection methods autonomously. This ongoing learning process enables AI systems to continually improve their performance over time and adapt to new fraud strategies without requiring external intervention. The Deputy Director of Internal Audit at the University of Cape Coast stated,

> "The system improves over time as it learns from each transaction. The more data it processes, the more precise it becomes in identifying fraud. AI not only improves the accuracy of detection but also assists in the identification of previously unknown fraud schemes, as it continues to learn from real-time data" (Interview, 2025).

AI systems are more resilient and efficient than traditional fraud detection methods, which are often limited by the capacity and expertise of auditors, as they can adapt to new fraud patterns without requiring human intervention. In a study conducted by Almagrashi et al. (2023), it was discovered that the continuous learning capabilities of AI substantially improve the accuracy of fraud detection and render AI systems more adaptable to emergent fraud techniques.

A more transparent and consistent approach to fraud detection is also provided by AI, which improves its reliability and accuracy. The detection process in conventional systems is subjective, as auditors frequently depend on their judgment to identify suspicious activities. This subjectivity introduces the potential for inconsistencies in fraud detection outcomes. Furthermore, the manual nature of conventional fraud detection methods often leads to human error, resulting in the misidentification or oversight of fraudulent activities. In contrast, AI-powered systems are constructed from data-driven algorithms that make decisions based on predetermined criteria and patterns identified from historical data. According to the Deputy Director of Internal Audit at Ghana Communication Technology University,

> "AI offers a dependable and impartial method of identifying fraud. We no longer depend exclusively on human judgment, which occasionally is influenced by fatigue or biases" (Interview, 2025).

AI ensures that the detection process is transparent and consistent, thereby reducing the likelihood of errors or oversights resulting from human biases. In addition to enhancing the credibility of the fraud detection process, this transparency also improves detection accuracy, as all decisions made by AI systems are founded on plain and traceable data patterns. The reliability and accuracy of fraud detection are considerably enhanced by AI's capacity to make objective and consistent decisions, as demonstrated by a study conducted by Segbenya et al. (2023).

6.6.1.3 Reduction of False Positives

Internal auditors or rule-based systems often rely on predetermined conditions, such as anomalous patterns or unusual transaction quantities, to detect fraudulent activities using conventional methods. Nevertheless, these systems may be excessively simplistic, resulting in a high number of false positives. For instance, a legitimate significant transaction may be flagged as fraudulent due to its non-conformity to a standard transaction pattern. The consequences of these false positives are substantial, necessitating that auditors allocate time and resources to investigating transactions that are not fraudulent, thereby postponing the

detection of genuine fraud. Conversely, AI-powered systems offer a more advanced method of fraud detection, significantly reducing the incidence of false positives. These systems employ machine learning algorithms that are capable of analysing intricate datasets, identifying patterns, and acquiring the intricacies of what is considered normal behaviour for a specific institution. AI systems more accurately differentiate between legitimate and suspicious activities by refining their comprehension of "normal" transactions, thereby reducing the number of legitimate transactions that are incorrectly flagged. According to the Director of Internal Audit at the University of Energy and Natural Resources,

> “The AI system has significantly diminished the incidence of false positives. We have now confirmed the legitimacy of transactions that we previously investigated as potential deception, which has saved us a significant amount of time and resources” (Interview, 2025).

By learning from historical data and identifying patterns that traditional methods may have neglected, AI systems substantially enhance the accuracy of fraud detection. In contrast to the dynamic and evolving nature of fraudulent activity, traditional systems rely on rule-based thresholds that can be static and simplistic. AI is capable of adapting to these changes by learning from each new dataset, while fraudsters are constantly employing new strategies to circumvent conventional detection methods. This ability to enhance its detection capabilities in real-time is essential for reducing the number of false positives. Traditional models operate on rigid, predefined principles, while machine learning models adapt to the data they process. A respondent from Kwame Nkrumah University of Science and Technology, the Director of Internal Audit, stated,

> "The AI system's primary benefit is its ability to adjust to new data. The system improves its ability to distinguish between legitimate and fraudulent transactions as fraudsters implement novel strategies, thereby decreasing the number of false positives” (Interview, 2025).

The system's capacity to develop and refine its comprehension of what comprises normal behaviour guarantees that it continues to accurately identify suspicious transactions without inadvertently marking legitimate ones. Alonge et al. (2024) also underscored the fact that machine learning models provide adaptability and continuous enhancements, which enhance the efficiency of fraud detection and reduce the number of false positives. The capacity to analyse multiple data elements simultaneously is another substantial advantage of AI-powered systems in reducing false positives. To detect fraud, conventional systems often rely on a limited set of variables, including transaction size, frequency, and account location.

Nevertheless, these factors may not always offer a comprehensive understanding of the legitimacy of a transaction. Fraudulent activities may be inconspicuous and involve more complex patterns that are challenging to detect using basic parameters. AI systems are capable of integrating and analysing a broader array of variables, including the geographical location of the transaction, user behaviour, and the time of day. AI is more capable of distinguishing between legitimate suspicious activities and typical behavioural fluctuations by taking into account a broader range of contextual information. The Deputy Director of Internal Audit at the University of Ghana observed,

> "The system is not solely examining one variable; it also takes into account the broader context of the transaction, resulting in a lower number of legitimate transactions being flagged as fraud" (Interview, 2025).

This comprehensive approach significantly enhances the efficacy of AI in identifying fraud while preventing unnecessary disruption to legitimate transactions. The precision of AI is enhanced by its capacity to consider multiple data points, which reduces the likelihood of false positives and guarantees that only suspicious transactions are identified, according to a study conducted by Hassan et al. (2025). False positives have a substantial effect on an organisation's operations, potentially undermining relationships with consumers or partners, causing delays, and squandering resources. The identification of legitimate transactions as fraudulent frequently results in superfluous delays, additional scrutiny, and, on occasion, customer dissatisfaction. These disruptions not only tax the institution's internal resources but also have the potential to damage its reputation. Nevertheless, the capacity to minimise false positive results in operations that are more efficient and seamless when implemented with AI. AI guarantees that internal auditors and compliance teams concentrate on genuine threats by autonomously identifying and eliminating legitimate transactions from the fraud detection process. This targeted approach enables auditors to prioritise suspicious activities, thereby enhancing the efficacy and rapidity of fraud detection efforts. The Deputy Director of Internal Audit at the University of Education, Winneba, stated,

> "We are no longer wasting resources investigating false alarms, which has enabled us to be more proactive in identifying actual fraud cases" (Interview, 2025).

AI's capacity to reduce false positives is beneficial not only for the optimisation of internal processes but also for the preservation of customer trust and the safeguarding of the organisation's reputation. This is especially crucial in higher education institutions, where the trust of students, staff, and donors is essential due to the complexity of financial transactions

and the sensitive nature of the information involved. A more data-driven approach to decision-making is also facilitated by the integration of AI in fraud detection. Auditors determine which flagged transactions to investigate, and conventional fraud detection systems frequently depend on manual intervention. This subjective decision-making process may incorporate human biases or errors, resulting in inconsistent outcomes. In contrast, AI provides a data-driven, objective process that guarantees the consistency of fraud detection. Machine learning algorithms employ large datasets to establish patterns and relationships, thereby reducing the likelihood of human bias influencing the detection process. The AI system is not affected by fatigue or bias, according to the Director of Internal Audit at the University of Cape Coast. It bases its decisions solely on the data, leading to a more precise detection of deception with a reduced number of false positives. This objectivity not only enhances the credibility of the process but also improves the accuracy of fraud detection, as data backs every decision made by the AI system and is readily traced. AI's data-driven approach has been demonstrated in prior research, including that conducted by Jori (2023), to improve the consistency and reliability of fraud detection by reducing subjective biases in decision-making.

Additionally, the optimisation of resource allocation is facilitated by the reduction of false positives. In conventional systems, the substantial time and resources allocated to investigating false positives could be better allocated to more critical duties. AI enables internal audit teams to concentrate on genuine hazards, thereby enhancing their efficiency and alleviating operational stress. AI frees up valuable time for auditors to engage in more strategic activities, such as analysing complex fraud patterns, enhancing internal controls, and advising on risk mitigation strategies, by outsourcing a significant portion of the fraud detection process. According to the Deputy Director of Internal Audit at Ghana Communication Technology University,

> "We can more effectively allocate our resources by reducing the number of false positives. We prioritise the identification of genuine fraud risks and the enhancement of our overall risk management strategies, rather than the pursuit of false alarms" (Interview, 2025).

The internal audit process is improved, and auditors proactively address fraud risks by reducing inefficiencies and streamlining operations. The hypothesis that AI's capacity to automate fraud detection and minimise false positives results in a more efficient internal audit process and more effective utilisation of resources is also substantiated.

6.6.1.4 Early Fraud Detection and Loss Minimisation

The incorporation of AI into fraud detection has considerably enhanced the capacity of organisations to identify fraudulent activities in their initial phases, a critical step in mitigating potential financial losses. In the past, fraud detection systems were reactive, meaning that fraud often went undetected until it had already caused substantial damage. Once fraudulent activities were identified, the damage had already been done, necessitating the implementation of corrective measures at a much later stage, frequently after substantial financial losses had been sustained. Nevertheless, the ability to identify fraud at an early stage is essential for mitigating these hazards. Transactions are perpetually monitored, and any suspicious activity is flagged in real-time with AI-powered systems. This early detection enables organisations to take immediate action, potentially preventing the fraud from escalating into a more severe issue. The Director of Internal Audit at the University of Ghana observed,

> "AI has enabled us to detect fraudulent activities nearly immediately, enabling us to take action before substantial losses occur" (Interview, 2025).

AI's capacity for early fraud detection is derived from its capacity to analyse large datasets in real-time, thereby identifying patterns that human auditors or traditional rule-based systems may overlook. In AI systems, machine learning algorithms are trained on extensive historical data to identify subtle anomalies and peculiar behaviours that may suggest fraudulent activities. AI is capable of processing transactions around the clock without experiencing fatigue, in contrast to human auditors who are restricted by the intricacy of analysing large volumes of transactions and the time constraints. AI's continuous monitoring capabilities ensure that fraud is promptly identified, thereby enabling the appropriate stakeholders to be promptly informed. The Deputy Director of Internal Audit at the University of Education stated that;

> "The speed with which AI alerts us to potentially fraudulent activity is unparalleled. It is significantly quicker than our previous manual processes, enabling us to mitigate potential hazards before they escalate. The immediacy of this action is essential in reducing the financial harm caused by fraud, as it reduces the amount of time that fraudsters have to execute their schemes" (Interview, 2025).

Damerji and Salimi (2021) conducted additional research that supports the notion that AI's real-time monitoring enhances early detection and mitigates the impact of fraud. Their research revealed that AI systems detect fraudulent activities earlier than conventional methods by continuously analysing transaction patterns and identifying anomalies as they occur. To prevent fraud from becoming a substantial financial burden, the proactive nature of AI-powered systems is essential, as opposed to the reactive nature of human-based detection systems. AI

assists in mitigating the financial and reputational consequences of fraud by decreasing the time between its detection and the occurrence of fraudulent activity. Furthermore, the capacity to identify fraud at an early stage enables organisations to implement preventative measures that further mitigate the likelihood of future fraud. The utilisation of AI facilitates a more responsive and agile internal control system, which is essential for preventing financial losses resulting from fraud (Hoai et al., 2022). The potential reputational damage caused by fraud is mitigated by AI's rapid response to fraud detection, which also reduces the financial impact of fraud. The preservation of the trust of stakeholders, including students, faculty, and the general public, is of the utmost importance to numerous organisations, particularly those in the public sector or higher education. If not identified promptly, fraud results in legal repercussions, public relations crises, and a loss of confidence, all of which have a substantial impact on an organisation's reputation. The Director of Internal Audit at Kwame Nkrumah University of Science and Technology stated,

> "In the past, fraud detection would frequently occur at a late stage, resulting in substantial damage to the university's reputation. We now prevent fraud before it damages our reputation or affects our stakeholders, thanks to AI" (Interview, 2025).

AI mitigates the risk of these external consequences by detecting fraudulent activities at an early stage, thereby enabling the organisation to preserve its reputation and the confidence of its stakeholders. Additionally, AI's capacity to identify fraud at an early stage contributes to the prevention of substantial financial losses. The amount of money lost is frequently limited to a tiny fraction of what would have been lost if the deception had continued unabated once it was identified and halted early. For instance, AI may detect a small, unauthorised transaction in real-time, thereby initiating an immediate investigation before the fraudster's ability to implement larger and more detrimental transactions. This capability is especially critical for organisations with intricate financial systems, as fraud rapidly escalates if left undiscovered. According to the Deputy Director of Internal Audit at the University of Cape Coast,

> "AI has prevented several large fraud schemes at our institution by catching the fraud early. The potential for a significant financial crisis was mitigated by a minor matter that was promptly resolved. In this manner, AI not only assists in the early detection of fraud but also prevents it from escalating into a more significant and detrimental issue" (Interview, 2025).

In addition, AI's contribution to the early detection of deception includes providing more precise and timely notifications. Manual intervention was frequently necessary to identify suspicious activities in conventional fraud detection systems, and this approach was not always

practical. The fraudulent activity may have already escalated by the time an alert was generated and reviewed. However, AI generates alerts and notifies pertinent stakeholders immediately upon detecting suspicious activity, thereby ensuring that corrective measures are implemented promptly. This expeditious alerting system is crucial for preventing further damage. Molefi et al. (2024) assert that AI-based fraud detection systems are superior in their ability to generate precise alerts in real-time with minimal human intervention. This results in quicker response times and a reduced likelihood of fraud causing substantial damage.

AI's capacity for continuous learning is one of its most significant advantages in detecting deception early. AI systems become more adept at recognising fraudulent patterns and behaviours as they are exposed to a greater volume of data. This learning process not only enables AI systems to more precisely detect fraud but also to enhance the detection pace over time. The AI system refines its algorithms to more effectively identify similar activities in the future by learning from each new fraud attempt. AI is a dynamic and evolving instrument for fraud detection, which is particularly valuable in an ever-changing fraud landscape, due to its adaptability and continuous learning process. The capacity of AI to evaluate risk factors in real-time further enhances its role in detecting early fraud. AI systems employ sophisticated analytics to assess a diverse array of variables that may suggest fraudulent activity, including transaction velocity, user behaviour, geographic location, and transaction history. AI systems can more accurately anticipate the likelihood of fraud and detect it at an early stage by analysing these variables, even before it is apparent to human auditors. This predictive capability is essential for reducing financial losses, as it enables organisations to intervene and prevent the progression of fraud.

6.6.1.5 Comprehensive and Adaptive Fraud Prevention

The landscape of fraud detection and prevention has been transformed by the integration of AI into internal control systems, rendering it one of the most effective instruments for combating financial fraud. AI's dynamic capacity to adapt to new deception strategies and evolve continuously is one of its most notable advantages, distinguishing it from conventional systems. In general, conventional fraud detection systems are static and reliant on predefined rules or patterns that may not capture emergent fraud schemes. Nevertheless, fraudsters are increasingly inventive, frequently modifying their strategies to circumvent conventional detection mechanisms. AI-based systems, equipped with machine learning algorithms, can learn from extensive datasets, adapt to new fraud strategies, and refine their detection models

in real-time. By continuously assimilating transaction data and identifying subtle anomalies that may suggest fraudulent behaviour, these algorithms enhance their performance. For example, the Director of Internal Audit at Kwame Nkrumah University of Science and Technology stated,

> "AI provides us with a system that is perpetually learning. AI enables us to remain current with the ever-evolving world of deception, rather than merely reacting to it after it has occurred" (Interview, 2025).

This ability to adapt to new fraud techniques guarantees that AI systems remain ahead of fraudsters, thereby preventing them from exploiting vulnerabilities in the detection system. Previous research has demonstrated that AI can be employed more effectively to detect fraud by identifying emergent patterns that traditional systems may overlook (Molefi et al., 2024). The efficacy of fraud detection systems is significantly enhanced by AI's capacity to learn and adjust to new data. AI can learn autonomously from past data, thereby continually enhancing the detection process, in contrast to traditional methods that often require manual intervention or a rigorous set of rules. This dynamic learning process is essential because fraudulent activities are frequently multifaceted and intricate, involving strategies that may deviate from established patterns. For instance, fraudsters may employ technical vulnerabilities, manipulate financial data, or create false identities to circumvent conventional fraud detection systems. Nevertheless, AI does not rely on rigorous rules; instead, it analyses immense quantities of transaction data and identifies behaviours that deviate from established norms, even when human auditors did not anticipate these anomalies. The Deputy Director of Internal Audit at the University of Energy and Natural Resources has stated that

> "AI enables us to identify patterns that would have been impossible to identify manually. AI that can learn and evolve in tandem with the sophistication of fraud techniques is becoming increasingly necessary" (Interview, 2025).

This adaptability enables AI to more effectively manage sophisticated fraud schemes that are frequently overlooked by traditional detection systems, thereby enhancing the overall efficacy of fraud prevention strategies. Indrayani et al. (2024) conducted prior research that demonstrated that AI-based fraud detection systems outperform rule-based systems by a significant margin, as they are capable of adapting to new fraud patterns. The adaptability of AI systems is significantly influenced by their ability to anticipate emerging fraud schemes. Fraudsters are perpetually devising new strategies to exploit vulnerabilities, frequently employing unconventional methods to circumvent conventional detection systems. AI's ability

to identify and react to these novel strategies in real-time is one of its most significant advantages. AI is capable of autonomously adjusting its fraud detection models in response to the emergence of new fraudulent patterns, unlike conventional systems that require manual updates and rule modifications. This guarantees that organisations remain vigilant in their efforts to combat fraud. For instance, AI systems can identify peculiar patterns in transaction data when fraudsters employ sophisticated techniques such as data obfuscation or account usurpation, even if the method is unprecedented. According to the Director of Internal Audit at the University of Ghana,

> "Fraudulent schemes are becoming increasingly difficult to identify with the human eye alone. However, AI can identify patterns and behaviours that we would overlook, regardless of the level of ingenuity employed by the fraudsters" (Interview, 2025).

This continuous learning capability enables AI to be proactive rather than reactive, thereby enabling more effective, prompt, and preventative fraud detection that can prevent substantial financial harm before it occurs. Previous research, including the work of Hu et al. (2020), has demonstrated that AI's capacity to adapt and learn from new patterns incessantly is essential for the real-time detection of fraud and the prevention of substantial financial losses. AI's proactive capabilities are not limited to detecting fraud after it has occurred; they also include the proactive prevention of fraud from happening in the first place. Conventional fraud detection systems typically employ a reactive model, which involves identifying fraud through audits and investigations after the fact. Nevertheless, AI brings about a substantial change by facilitating the continuous monitoring of transactions and the immediate identification of suspicious activities. This proactive surveillance enables the early detection of fraud, which is essential for reducing its impact. The prevention of substantial financial losses and reputational harm is contingent upon the early identification of fraudulent activities. The earlier the fraud is identified, the more promptly corrective measures can be implemented, thereby reducing the impact of the fraudulent activity. The Deputy Director of Internal Audit at the University of Cape Coast underscored,

> "With AI, we can detect suspicious activities immediately, enabling us to intervene before any substantial harm is inflicted" (Interview, 2025).

For example, AI can instantly identify patterns, such as anomalous transaction frequencies or aberrant transaction quantities, and mark them for further review. Organisations can safeguard themselves from long-term financial and reputational harm and mitigate the potential consequences of fraud by identifying these activities on time. Qadir et al. (2022) discovered

that early fraud detection systems, which AI fuels, substantially mitigate the financial harm caused by fraud by identifying threats before their escalation. This finding lends credence to the claim. Another substantial advantage in preventing fraud is AI's ability to anticipate fraudulent activities. This predictive capacity is founded on AI's capacity to analyse historical data and identify patterns that can predict future fraud risks. AI systems identify the most prevalent characteristics and behaviours that precede fraudulent activities by analysing prior fraud cases. AI can anticipate the location and timing of fraud by identifying these indicators, thereby enabling organisations to implement preventive measures before any fraudulent activity occurs. The Deputy Director of Internal Audit at the University of Education stated,

> "AI is not solely concerned with the detection of fraud; it also involves its prediction. We can prevent it from occurring in the first place by recognising hazardous patterns at an early stage" (Interview, 2025).

AI assists organisations in reducing the risk of fraud by adjusting their internal controls, tightening their monitoring processes, and concentrating their resources on high-risk areas through the application of these predictive capabilities. This proactive risk management strategy ensures that organisations are better equipped to address fraud and respond promptly before substantial harm is inflicted. Baidoo-Anu et al. (2024) conducted prior research that demonstrated the value of AI's predictive analytics in fraud prevention, particularly in identifying early warning signs that may otherwise remain undetected by conventional systems. Artificial intelligence's efficacy in preventing deception is further enhanced by its adaptability to various organisational contexts. Each organisation operates within a distinctive environment, characterised by unique operational structures, risk profiles, and processes. AI systems can be tailored to accommodate the unique requirements and hazards of each organisation, guaranteeing that fraud detection is both pertinent and efficient. AI is an invaluable tool for organisations across various sectors, including finance, education, healthcare, and government, due to its high degree of customisation.

The Director of Internal Audit at Ghana Communication Technology University observed that AI's adaptability to the distinctive risks and structures of each organisation is one of its strengths. It does not serve as a universal solution. AI can customise fraud detection parameters to the unique risks that an organisation encounters, regardless of whether those risks are associated with high-value transactions, employee behaviour, or system vulnerabilities. This customisation ensures that AI is not merely a generic fraud detection tool, but a highly effective system specifically designed to address the unique challenges each organisation encounters. AI

guarantees that fraud prevention remains adequate, pertinent, and resilient in the presence of evolving fraud strategies by consistently learning and adapting to these unique challenges. Anriva and Hamidah (2024) demonstrated that AI customisation can enhance fraud detection in intricate organisational environments, thereby enhancing internal control mechanisms.

6.6.1.6 Risk Assessment and Prioritisation of Audit Efforts

The landscape of fraud detection and audit efforts is being revolutionised by AI-powered risk assessment tools, which enable organisations to allocate resources and streamline their processes. A uniform approach is typically employed in traditional methods of fraud detection and risk assessment, where all transactions or activities are treated identically, regardless of the risk level. This method may result in inefficiencies, as resources are dispersed across multiple areas that may not be at high risk of fraud. In contrast, AI employs data-driven methodologies to analyse substantial quantities of transaction data, identifying specific high-risk areas that necessitate more detailed examination. AI optimises the audit process by directing audit resources to departments, processes, or transactions that are more likely to be fraudulent. For instance, the Director of Internal Audit at the University of Energy and Natural Resources emphasised,

> "AI's capacity to concentrate our efforts on high-risk areas enables us to allocate our audit resources more efficiently, rather than distributing them too thinly across areas that are less susceptible to fraud" (Interview, 2025).

AI achieves this by employing sophisticated machine learning algorithms that assess historical data, trends, and patterns, thereby anticipating the most probable locations for fraud to occur. Research has demonstrated that audit efficiency can be substantially enhanced by AI-driven risk assessments, which concentrate on regions with the highest fraud risk (Anriva & Hamidah, 2024). One of the primary advantages of AI-driven risk assessment is its capacity to accurately and precisely identify high-risk areas. Manual risk assessments or rule-based systems are frequently employed in conventional methods, which are restricted by predetermined parameters. These systems may be unable to detect new forms of fraudulent activity or emergent hazards. Conversely, AI can analyse extensive datasets and identify subtle anomalies that human auditors or conventional systems may overlook. By learning from new data and adapting to changing fraud patterns, machine learning algorithms can perpetually refine their models. AI can produce a more precise risk assessment by examining a diverse array of factors, including transaction frequency, size, timing, and the profiles of the individuals involved in the transaction. The Deputy Director of Internal Audit at the University of Education stated,

> "New fraud schemes frequently took us aback due to the inability of traditional systems to adapt on time" (Interview, 2025).

AI enables us to promptly identify red signals, thereby prioritising the transactions with the highest risk for further investigation. This capability enables auditors to focus their efforts on transactions or areas that pose the most significant risk, rather than wasting time on areas with negligible fraud potential. The literature on AI in fraud detection, including the work of Baidoo-Anu et al. (2024), demonstrates that AI-driven risk assessment tools outperform traditional methods by providing a more dynamic and targeted approach to fraud detection. The integration of AI into the risk assessment process also enables auditors to anticipate potential fraud risks before their occurrence, which is a substantial enhancement over conventional methods. Retrospective analysis is a common component of conventional auditing procedures, in which auditors examine past transactions and activities to identify potentially fraudulent activity. Although this method can be effective in certain circumstances, it is frequently too late to prevent fraud from occurring. Nevertheless, AI enables auditors to detect high-risk activities and fraudulent behaviour before their escalation by facilitating real-time surveillance and predictive analytics. AI tools can utilise historical data to create predictive models that evaluate the probability of fraud in real time, thereby automatically alerting to potentially dubious transactions for further examination. The Director of Internal Audit at Kwame Nkrumah University of Science and Technology stated,

> "With AI, we can take action before fraud occurs. The capacity to predict potential fraud risk is a game-changing factor in the way we prioritise our audit activities" (Interview, 2025).

This predictive capability enables auditors to concentrate on high-risk transactions and areas where fraud is most likely to occur, thereby enhancing the overall efficiency and effectiveness of fraud detection. By allowing organisations to act proactively rather than reactively, AI-based predictive analytics provide substantial advantages over traditional methods, as per research conducted by Tambe et al. (2019). Additionally, AI-driven risk assessment tools provide an effective method for managing large and intricate datasets. Manually filtering through the vast quantities of data that contemporary organisations generate daily is a daunting endeavour. It is frequently challenging for auditors to effectively evaluate risks across the entire organisation because traditional audit methods are often unable to manage such large volumes of data. Conversely, AI is capable of processing and analysing data at a significantly quicker pace and with greater efficiency than human auditors. AI tools swiftly assess financial records, employee

behaviour, and transaction data, thereby identifying patterns and inconsistencies that may suggest potential fraud. This enables auditors to promptly and precisely identify areas of concern. The Deputy Director of Internal Audit at the University of Cape Coast stated,

"The sheer volume of data we need to process can be daunting, but AI's capacity to manage large datasets and identify the riskiest areas is invaluable." It frees up time and resources that would otherwise be allocated to less critical duties. In large organisations with an overwhelming volume of transactions, AI's capacity to analyse big data in real-time has demonstrated substantial enhancements in fraud detection and risk assessment, as demonstrated by research conducted by Hajar et al. (2023). AI-powered risk assessment tools also render the fraud detection process more objective. Despite their expertise, human auditors may occasionally be influenced by biases or may neglect specific risk factors due to the complexity of fraud detection. AI systems, on the other hand, are intended to assess data using predetermined algorithms and objective criteria, thereby preventing subjective judgments from influencing risk assessments. This objectivity is essential for guaranteeing consistency and equity in the audit process, particularly when identifying areas that may necessitate a more thorough examination. The Director of Internal Audit at Ghana Communication Technology University underscored that "AI eliminates much of the subjectivity involved in manual audits" (Interview, 2025). The assessment procedure is more objective and consistent because it is solely based on data. This heightened objectivity enables organisations to avoid potential hazards that may result from human error or bias, ensuring that audit resources are allocated to areas based solely on their risk profile, rather than personal opinion.

The notion that AI provides a more consistent and unbiased approach to risk assessment, thereby augmenting the overall effectiveness of fraud detection, is supported by the literature on the subject, including studies by Molefi et al. (2024). AI is instrumental in optimising resource allocation for fraud detection and prevention, in addition to prioritising high-risk areas. Auditors are frequently compelled to allocate their resources among a multitude of transactions, departments, and business divisions, despite the inherent risk, which is a common issue in traditional audit processes. This results in neglected opportunities for early detection of fraud and inefficiencies. Nevertheless, AI offers a more precise approach, enabling auditors to allocate resources to the areas where fraud is most likely to occur. Auditors concentrate resources on the areas with the highest risk exposure by identifying the departments or

transactions that require immediate attention, utilising AI-driven insights. According to the Deputy Director of Internal Audit at the University of Ghana,

> "AI helps us streamline our audit process by identifying exactly where to focus. We can concentrate our attention and resources on the most critical areas rather than auditing everything (Interview, 2025).

The outcome is a more efficient audit process that guarantees the allocation of resources to high-priority areas, thereby maximising the return on investment in fraud prevention efforts. Prior research, such as that conducted by Qadir et al. (2022), has demonstrated that AI-driven fraud detection tools substantially enhance resource allocation, allowing auditors to focus on the highest-risk areas.

6.6.1.7 Timeliness of Response to Fraud Incidents

Timeliness of response is an essential component of fraud prevention and management. The more promptly an organisation can identify and respond to fraudulent activities, the more effectively it can mitigate the potential financial and reputational harm. Manual evaluations are frequently employed in conventional fraud detection systems, during which human auditors investigate suspicious activities for protracted periods. The potential impact of fraud can be exacerbated by the significant delays in responding to fraud incidents, although this procedure is effective in certain circumstances. Conversely, AI-powered systems enable near-instantaneous detection of fraudulent activity, thereby enhancing the speed and timeliness of responses. AI systems employ real-time data analysis and machine learning algorithms to identify anomalies and suspicious behaviour promptly. This proactive approach enables the system to notify pertinent personnel and take immediate action to prevent additional harm. In the past, the latency between detecting fraud and taking action was quite considerable, as the Director of Internal Audit at the University of Energy and Natural Resources noted. However, with AI, we can respond almost immediately. This has significantly enhanced our capacity to mitigate the effects of fraud. AI's rapid response enables organisations to promptly address fraud incidents, whether those involve suspending accounts, blocking transactions, or notifying the relevant authorities. This capacity to act promptly is essential for reducing the financial repercussions and scope of fraud.

Not only have AI-powered systems become more effective at detecting fraud more rapidly, but they have also successfully automated immediate responses to mitigate further damage. Traditional systems often require a human to manually intervene and initiate necessary actions,

such as suspending accounts or halting transactions. This manual process introduces delays, and fraud may persist unabated while human auditors conduct investigations. In contrast, AI can identify fraud in real-time, enabling the initiation of automated alerts and actions. For instance, an AI system may automatically prevent a suspicious transaction or suspend a compromised account within milliseconds of detecting deception. This immediate response can prevent the fraud from escalating and prevent substantial financial losses. The University of Education's Deputy Director of Internal Audit, Winneba, stated,

> "AI has been a game-changer for us. We are no longer required to wait for hours or even days to investigate a potential fraud case. AI now enables us to promptly detect and prevent fraud, thereby reducing any additional consequences" (interview, 2025).

These assertions are corroborated by the literature, as research conducted by Baidoo-Anu et al. (2023) suggests that the automated response capabilities of AI improve the efficacy of fraud detection, particularly in real-time environments. Additionally, the integration of AI into internal controls enhances the consistency of fraud response times. The detection, evaluation, and response to fraud incidents are frequently contingent upon human auditors in conventional fraud detection methods. Nevertheless, the auditor's expertise, caseload, and availability can result in inconsistent response times, as human responses can vary. AI systems, in contrast, operate according to predetermined algorithms that guarantee a consistent and uniform approach to fraud detection and response. These systems are immune to fatigue and distractions, guaranteeing that each detected incident is addressed with the same level of urgency and precision. The Director of Internal Audit at the University of Ghana observed

> "The consistency that AI provides is one of the most significant benefits" (Interview, 2025)

The urgency of each fraud incident is consistent, a factor that was not always present in manual processes. AI guarantees that organisations can respond to fraud incidents more predictably and dependably by eliminating human variability. This notion is further supported by the research conducted by Anriva and Hamidah (2024), which emphasises that AI can offer organisations a more consistent and reliable response to deception, thereby eliminating discrepancies that result from human error or oversight. AI's real-time capabilities not only expedite the detection and response to fraud but also decrease the time spent on false positives. A significant number of false positives are frequently generated by conventional fraud detection systems, which identify transactions or activities as fraudulent when they are not. The investigation of legitimate fraud cases can be delayed, and human auditors can be overwhelmed

by these false alarms. By continually refining their detection models and learning from past data, AI systems can substantially reduce the number of false positives. This implies that AI can more precisely differentiate between benign activity and genuine deception, thereby enabling auditors to concentrate on the most critical cases. The Deputy Director of Internal Audit at the University of Cape Coast stated,

> "We spent a significant amount of time investigating false positives before the implementation of AI, which impeded our capacity to detect genuine fraud. By utilising AI, we have significantly diminished the frequency of these occurrences, thereby enabling us to respond more promptly to genuine fraud cases" (Interview, 2025).

This decrease in false positives is crucial, as it not only improves the overall effectiveness of fraud detection systems but also saves time. AI's capacity to reduce false positives enhances response times and guarantees that resources are allocated more effectively (Anriva & Hamidah, 2024). In addition to immediate internal controls, AI's capacity to facilitate rapid and automatic responses to fraud incidents also extends to external notifications and legal actions. AI can initiate follow-up actions by sending an alert to relevant internal departments or external stakeholders, such as legal teams or financial institutions, once misconduct is detected. For instance, an AI system can promptly notify the fraud team, suspend the account, and, in certain instances, notify law enforcement agencies if it detects fraudulent transactions within a bank's system. This ensures that legal and regulatory actions are taken on time. The integration of AI into the broader fraud management ecosystem ensures that fraud incidents are promptly and comprehensively addressed. The director of Internal Audit at Kwame Nkrumah University of Science and Technology stated that.

> "AI's capacity to notify not only our internal team but also external authorities or regulatory bodies has been invaluable. Our fraud response times have been significantly impacted by the rapidity with which we can act, both internally and externally" (Interview, 2025).

The integration of AI with other systems, such as external fraud detection and reporting mechanisms, enhances the timeliness and comprehensiveness of fraud responses, allowing for the more coordinated and effective management of fraud (Ahmad Jaber & Mohammed Shah, 2024). AI also enhances the timeliness of fraud response by perpetually monitoring systems and providing ongoing vigilance. Fraud detection is a continuous endeavour, as fraudsters frequently modify and develop their strategies to circumvent conventional detection methods. Even when organisations are not actively auditing their systems, AI's continuous monitoring capabilities ensure that fraud risks are evaluated in real-time. This perpetual surveillance

enables AI systems to identify fraud at any hour, regardless of whether it is day or night, without requiring human intervention. Rather than anticipating a scheduled audit or manual review, this proactive strategy guarantees that fraud is identified immediately upon its occurrence. The Deputy Director of Internal Audit at the University of Cape Coast emphasised the importance of AI's capacity to monitor systems around the clock. It is impossible to guarantee that human auditors are accessible at all hours, as fraud can occur at any moment. AI guarantees that we never overlook anything. The continuous, round-the-clock surveillance capabilities of AI considerably enhance fraud detection and response, ensuring that fraud incidents are detected and addressed as soon as they arise (Baidoo-Anu et al., 2024).

6.6.1.8 Reduced Time and Resources for Fraud Investigations

Organisations have significantly reduced the time and resources required to identify and resolve fraudulent activities by integrating AI into their fraud detection systems, which has revolutionised the way they investigate fraud. Traditional fraud detection methods frequently necessitate substantial human resources and time due to their extensive manual processes. The process of conducting fraud investigations typically commences with the examination of extensive volumes of transactions and records. This process is time-consuming and laborious, necessitating auditors to filter through vast quantities of data to identify any irregularities or suspicious activities. Auditors must allocate additional time to investigate the specifics, analyse patterns, and conduct follow-up enquiries after fraud is identified. This protracted process not only consumes the organisation's human resources but also incurs substantial expenses. The initial stages of fraud investigation have been automated through the use of AI in fraud detection, streamlining the process by providing auditors with focused insights and substantially reducing the time and manual effort required. The speed and accuracy with which AI-powered systems identify suspicious transactions or behaviours are superior to those that humans accomplish, as they rapidly analyse large datasets. This change enables auditors to focus on cases of the highest priority, thereby reducing the overall workload. The University of Ghana's Director of Internal Audit stated,

> "The implementation of AI has significantly expedited our fraud investigation processes. We are no longer required to review each transaction manually. Artificial intelligence has enabled us to rapidly identify the most pertinent cases, thereby saving us a significant amount of time and resources" (Interview, 2025).

This is corroborated by research, as evidenced by the findings of Jackson et al. (2023), which show that AI's capacity to process and analyse large datasets is significantly greater than that

of humans. Consequently, fraud detection is more efficient and effective. In today's world, where fraud schemes are becoming increasingly complex and sophisticated, AI's efficiency stems from its ability to process and analyse vast quantities of data rapidly. Auditors frequently had to spend hours, days, or even weeks examining data to identify fraud using conventional methods. Conversely, AI systems are engineered to rapidly process large quantities of data and detect any anomalies or patterns that may indicate any fraudulent activity. The capacity of machine learning algorithms to identify even the most subtle irregularities is enhanced by their continuous learning from historical data and the evolving nature of fraud tactics. The Deputy Director of Internal Audit at the University of Education, Winneba, underscored the following:

> "Our investigations would require weeks to conclude before AI, as we were required to review each record manually" (Interview, 2025).

AI enables us to concentrate on genuine instances of deception, thereby conserving both time and resources. This capacity to rapidly process large datasets enables organisations to identify fraud at an earlier stage of the process, thereby preventing additional damage and reducing the financial loss associated with fraudulent activities. The overall time spent on investigations is reduced by the pace at which AI processes data and detects fraud (Tambe et al., 2019). This enables auditors to accelerate remediation efforts. AI's capacity to automate the routine activities that have historically consumed the most time during fraud investigations is one of its core advantages in fraud detection. For instance, AI systems automatically identify transactions that deviate from typical behaviour patterns, such as an unexpected transfer between accounts or a substantial withdrawal. Upon the identification of dubious activities, AI produces a report for auditors that emphasises key areas of concern and provides pertinent transaction details. This enables auditors to concentrate on conducting a more thorough investigation of the flagged activities. This alleviates the need for auditors to painstakingly examine each transaction to identify potential issues, thereby enabling them to concentrate on more complex cases that require human judgment. The initial sifting procedure is handled by AI, as noted by the Director of Internal Audit at the University of Cape Coast.

> "It alerts us to suspicious transactions, generates reports, and subsequently allows us to concentrate on the primary issue, whether it is a genuine instance of deception or a miscommunication" (Interview, 2025).

This has resulted in a 50% reduction in the time we allocate to investigations. Akinadewo et al. (2024) conducted research that substantiates this perspective, demonstrating that AI systems significantly reduce the time spent on routine investigative tasks through automation. This, in

turn, allows auditors to allocate their time and resources more effectively. Organisations also experience substantial cost reductions as a result of the decreased time and resources allocated to fraud investigations. Fraud detection and investigation are resource-intensive processes, particularly in large organisations that require the regular examination of enormous quantities of financial transactions. In addition to the time and significant human resources required for traditional fraud detection methods, auditors must be trained, assigned tasks, and perpetually engaged in fraud prevention efforts. AI reduces the necessity for extensive human intervention by automating a significant portion of the initial investigative work and detection, resulting in a decrease in the personnel costs associated with fraud detection efforts. The Deputy Director of Internal Audit at Kwame Nkrumah University of Science and Technology stated,

> "The human resources required for fraud investigations have significantly decreased as a result of the implementation of AI. The majority of the heavy labour is performed by AI, rather than a team of auditors who work for hours to detect misconduct. This has enabled us to allocate our resources" (Interview, 2025) more efficiently.

Research, including that conducted by Bhattacharya and Galbraith (2021), suggests that AI can help reduce operational costs by automating time-consuming tasks. This enables organisations to achieve greater cost efficiency in their fraud detection and prevention strategies. Additionally, AI's effectiveness is not limited to the initial phase of fraud detection; it also facilitates the subsequent investigation process. Upon identifying fraud, the subsequent critical phase involves a comprehensive examination of the case, identifying patterns, and determining the extent of the fraudulent activity. Auditors benefit from AI's insights into the data, which provide them with a deeper understanding of the fraudulent activity and propose potential areas for further investigation. This analytical support enables auditors to concentrate on critical issues and make more informed decisions, rather than squandering time on irrelevant or insignificant details. The Director of Internal Audit at the Ghana Communication Technology University stated:

> "AI not only enables us to detect fraud more quickly but also to analyse the patterns more effectively. The investigation timeline is substantially reduced as a result of our ability to make informed decisions promptly. The time and resources necessary to resolve fraud cases are further reduced by the capacity to make more rapid decisions based on AI-generated insights" (Interview, 2025).

The efficacy of fraud investigations is also enhanced by AI's capacity to learn and adapt over time. Traditional fraud detection methods rely on predefined rules and protocols, which may not always be effective in detecting new or emerging fraud schemes. Nevertheless, AI systems

perpetually learn from new data, thereby enhancing their detection capabilities and adapting to the development of fraud tactics. Auditors more effectively detect fraud when fraudsters alter their methods due to the dynamic nature of AI. As the Deputy Director of Internal Audit at the University of Energy and Natural Resources noted:

> "The ability of AI to adapt to evolving fraud tactics is essential to us. It ensures that we not only identify current fraud but also predict future fraud schemes. Our investigations have become more efficient as a result of this adaptability" (Interview, 2025).

This adaptability enables AI systems to identify fraud more accurately, necessitating less manual intervention and thereby reducing the time spent on each investigation. The continuous learning capabilities of AI, as demonstrated by a study conducted by Wright et al. (2020), result in enhanced detection accuracy over time. This directly contributes to reducing investigation time and enhancing the resolution of fraud cases.

6.7 Discussion of Findings

The findings suggest that respondents view artificial intelligence as highly effective in detecting fraudulent activities and enhancing internal controls within public universities in Ghana. This implies that stakeholders, including internal auditors, finance officers, and administrative chiefs, recognise the transformative impact of AI on institutional financial governance. The perception is indicative of the confidence in AI's ability to address the deficiencies of conventional audit methods, particularly in identifying sophisticated and discreet fraud schemes (Arthur, 2022). The capacity of AI to analyse enormous volumes of financial data in real-time, identify anomalies, and recognise emergent fraud patterns is its greatest strength. These capabilities facilitate a critical transition from reactive to proactive fraud detection (Thethi, 2024). These results substantiate the notion that AI is no longer a luxury but rather a necessity for institutions that aspire to enhance transparency and mitigate financial leakages. The impact of AI on audit performance has been similarly emphasised in previous studies. For instance, Amonkwandoh (2021) underscored that AI enables auditors to make more informed decisions by offering precise and timely data analytics. Similarly, Amoako et al. (2023) contended that automated systems are more consistent and scalable than manual auditing, which is prone to fatigue and oversight. This robust positive perception suggests that employees are prepared to implement AI-based tools to enhance operational integrity and internal financial controls.

The results align with the Technology Acceptance Model, which emphasises that perceived utility and perceived simplicity of use are the primary determinants of user acceptance of technology (Tetteh et al., 202). In this context, the prevalent conviction that AI is effective demonstrates that users find these systems advantageous in overcoming practical auditing challenges. When consumers perceive that a system enhances their job performance, they are more inclined to adopt its implementation (Almaqtari et al., 2024). Artificial intelligence tools are perceived as capable of improving fraud detection, reducing human error, and improving report accuracy. Furthermore, AI's capacity to operate with minimal human oversight may be perceived as user-friendly, particularly when it seamlessly integrates with existing digital accounting systems. This is consistent with the findings of Owusu-Afriyie et al. (2024), who observed that adoption rates are substantially higher when users perceive AI tools as both manageable and beneficial. Therefore, the implementation of TAM in this investigation explains why public university personnel are likely to endorse and implement AI-driven fraud detection systems. They believe that the technology enhances the reliability of institutional control mechanisms and enhances their efficacy.

This argument is additionally substantiated by prior empirical studies that demonstrate the superiority of AI over conventional audit methods. For instance, Zhou (2021) found that AI-based audit systems are capable of detecting fraud more quickly and accurately due to their ability to learn from historical data and adapt to new fraud-related techniques. Their research demonstrated that AI algorithms outperform static rule-based systems by perpetually refining detection models, thereby decreasing the probability of false alarms and ignored red flags. Similarly, Doe-Dartey and Valand (2024) underscored that AI systems mitigate the incidence of false positives by emphasising contextual relationships within datasets, thereby eradicating a significant portion of the conjecture that is inherent in manual assessments. The sentiments of the respondents in the current study are echoed by these findings, which depict AI as a tool that reduces the time required for fraud detection, increases transparency, and enhances credibility. AI is a preferable solution in complex institutional settings due to its capacity to operate 24/7, identify inconsistencies, and mark suspicious transactions as they occur. The increased use of AI in financial institutions worldwide, including universities, is a result of its efficacy in fraud prevention, as suggested by Zhou (2021). In these institutions, accountability is essential for maintaining public trust and donor confidence.

Another critical area in which AI has garnered stakeholder approbation is its early detection and predictive capabilities. The respondents acknowledged that AI identifies irregularities at the earliest stages, enabling institutions to intervene before fraud escalates into significant financial or reputational losses. This is consistent with the findings of Zemankova (2019), who observed that AI-powered systems proactively monitor trends and identify anomalous behaviour patterns, flagging them in real time. Such technology provides a distinct advantage over conventional auditing, which typically detects fraud only after it has already occurred. In public universities, the capacity of AI to intervene early is particularly valuable, as delayed detection can lead to the misallocation of resources, reputational harm, or even legal sanctions. Zawacki-Richter et al. (2019) also discuss how this proactive aspect of AI assures a transition from periodic internal audits to continuous monitoring, thereby cultivating a culture of constant oversight. The perceived utility of AI systems is further enhanced by these features, which align them more closely with the fundamental constructs of TAM. The effectiveness of AI in the presence of evolving threats is guaranteed by its ability to learn from every aberration and adapt its algorithms (Yasmin & Haniffa, 2017). In an environment where fraud schemes are becoming increasingly sophisticated and technologically driven, this dynamic capacity provides reassurance to university stakeholders.

Finally, the institutional framework's embrace of AI is further validated by its perceived contribution to enhancing the overall structure and adaptability of internal controls. Respondents agreed that AI not only aids in fraud detection but also fortifies the entire control environment by incorporating data-driven, self-correcting mechanisms. This view is consistent with the findings of Wassie and Lakatos (2024), who emphasised that internal control systems fortified by technology are more robust and responsive. AI systems are capable of continuously monitoring transactions, detecting violations of control rules, and providing immediate notifications for corrective action, which significantly reduces the need for periodic human audits. This improves both institutional trust in the technology and perceived efficacy from a TAM perspective. Moreover, AI facilitates regulatory conformance by monitoring user activity, maintaining audit trails, and ensuring policy adherence capabilities that are consistent with the transparency and accountability requirements of public universities. Institutions that integrate intelligent systems into their governance structures report a decrease in fraud incidents and an increase in stakeholder confidence (Yasmin & Haniffa, 2017).

6.8 Contribution of the Findings

6.8.1 Theoretical Contribution

The results of this study make a substantial theoretical contribution by expanding the application of the Technology Acceptance Model in the context of fraud detection and internal control systems in public universities. This study illustrates the relevance of TAM in elucidating attitudes towards more specialised and complex technologies, such as artificial intelligence, in the field of public financial management. However, it has traditionally been employed to comprehend user acceptance of general information systems and workplace technologies. The findings indicate that users in Ghanaian public universities regard AI systems as both convenient and, implicitly, manageable in their capacity to facilitate the early identification of financial irregularities, improve audit accuracy, and enhance fraud detection. Daviss' original proposition that perceived utility is a fundamental determinant of technology adoption is substantiated by these insights (Yasmin & Haniffa, 2017). Additionally, the research broadens the theoretical scope of TAM by illustrating that users are inclined to embrace AI tools when they are perceived as directly addressing institutional challenges, such as fraud and weak internal controls, even in resource-constrained, public-sector environments, where digital transformation frequently encounters resistance.

This theoretical extension is further supported by the respondents' shared conviction that AI is a dependable and proactive instrument for enhancing governance structures. Their embrace of AI is consistent with the TAM 3 model, which was developed by Venkatesh and Bala in 2008 and recognises the influence of task relevance and output quality on perceived utility (Wassie & Lakatos, 2024). The research supports this argument by demonstrating that users tend to attribute a high value to their application when AI systems are designed to meet context-specific requirements, such as minimising false audit signals, undertaking continuous monitoring, and detecting fraud in real-time. This not only affirms but also enhances the predictive capabilities of TAM in specialised institutional environments. Additionally, the results enhance the existing body of literature by emphasising the extent to which institutional priorities, including transparency, compliance, and stakeholder accountability, influence perceptions of AI's utility elements that transcend individual efficiency and extend TAM to more comprehensive organisational goals (Vu, 2016).

This study also contributes to bridging the divide between technology adoption theory and public sector auditing practices, a connection that is currently underexplored in the existing

literature. Although TAM has been frequently implemented in private-sector settings or in conjunction with consumer technologies, its significance in public institutions is gathering more attention. This study confirms that traditionally rigid and bureaucratic systems can exhibit agility and openness to innovation when equipped with the appropriate technological tools. The research paves the way for future studies to investigate how emerging technologies alter institutional accountability frameworks by integrating TAM into the fraud detection functions of public universities. As public universities in developing countries adopt digital governance tools at an increasing rate, it is imperative to comprehend the theoretical foundations of their adoption to ensure sustainable implementation. Consequently, this investigation not only bolsters the explanatory validity of TAM but also provides opportunities for theoretical refinement. It implies that contextual variables, including regulatory pressure, financial integrity demands, and stakeholder scrutiny, may improve the traditional TAM constructs in public-sector environments.

6.8.2 Policy and Practical Implications

The study's findings reveal several critical policy and practical implications essential for the successful integration of artificial intelligence into fraud detection and internal control systems in public universities in Ghana. These implications pertain to regulatory alignment, stakeholder engagement, institutional capacity, and governance. The substantial opportunity for educational policymakers, financial administrators, and government oversight bodies to incorporate AI technologies as a central component of institutional reform strategies designed to reduce financial irregularities is indicated by the strong perception of AI's effectiveness in detecting fraudulent activities. One of the most significant policy implications is the imperative necessity for the Ministry of Education and other relevant authorities, such as the Ghana Tertiary Education Commission (GTEC), to establish a national policy framework that regulates the adoption and governance of AI in public universities. To guarantee data privacy, algorithmic transparency, and accountability, such a framework should establish standards and protocols for the ethical use of AI in auditing and internal controls. The public education sector's fragmented adoption and misuse of AI may result from the absence of national-level policies. Consequently, to optimise the benefits of AI and mitigate its hazards, the government must establish exhaustive guidelines that are consistent with international best practices in digital governance and fraud detection.

From a practical perspective, the findings suggest that internal stakeholders, including finance officers, auditors, and administrative staff, have already recognised the value of AI in enhancing internal control systems and fraud detection. This presents a favourable opportunity for university management and governing councils to allocate resources to AI infrastructure and capacity-building initiatives. The integration of advanced AI audit tools into existing financial management systems, the training of personnel in AI literacy, and the procurement of these tools are all practical steps that may be taken. To create AI models that are tailored to the distinctive transactional environments of educational institutions, universities should also engage in collaboration with technology providers and experts. This ensures that the algorithms employed are contextually sensitive and effective in identifying financial anomalies characteristic of university operations. Additionally, the findings suggest a more extensive transformation in the staff's perspective regarding the adoption of technology for governance purposes. To capitalise on this change, university administrators should establish consistent training and awareness programs to foster responsible use of AI tools and instil user confidence. These programs should not only concentrate on the technical aspects of AI but also address ethical considerations, such as data integrity, bias, and impartiality. The Technology Acceptance Model (TAM) emphasises that continuous user education improves both perceived utility and simplicity of use, thereby facilitating a more seamless adoption. The integration of AI into audit practices must be regarded as more than a mere technological advancement; it is a component of a more comprehensive institutional culture shift that prioritises transparency, accountability, and data-driven decision-making.

Funding and resource allocation are additional critical implications. Especially for public universities already operating under budgetary constraints, implementing AI systems is a capital-intensive endeavour. Given this, the government and university councils must prioritise AI investment as part of broader financial reforms. One feasible approach is to allocate a portion of internally generated funds (IGFs) or special education levies to digital transformation initiatives. Furthermore, partnerships with private technology companies, international donor agencies, and development partners are investigated to obtain funding and technical expertise for the implementation of AI. These collaborations not only ensure that AI tools are developed and maintained to the highest standards of operational reliability and cybersecurity, but they also provide financial benefits. The study also emphasises the necessity of ongoing surveillance and evaluation of AI systems to guarantee that they are producing the desired results. Institutions should establish internal AI audit committees or task forces to

regularly evaluate the performance of AI systems in areas such as fraud detection and control enhancement. This will ensure that AI tools remain precise and effective, aligning with the evolving nature of financial risks. The implementation of real-time reporting interfaces and feedback channels also enables senior management to promptly respond to fraud alerts generated by AI systems, thereby enhancing responsiveness and mitigating financial losses.

In terms of broader governance reforms, the results suggest that institutional accountability frameworks should be reevaluated to incorporate AI-generated data into decision-making processes. For example, at the university level, budgeting, procurement, and human resource management decisions should be informed by AI-generated audit insights. Universities enhance the credibility of their internal control systems and regain public trust in their financial management processes by implementing data-driven governance. Additionally, the integration of AI into performance measurement tools enhances professional accountability by providing evidence-based evaluations of financial officers. Finally, the study emphasises the necessity of legal and regulatory reforms that acknowledge AI-based fraud detection as a component of formal public financial management tools. It may be necessary to review and revise the current audit regulations and university statutes to accommodate the use of AI in internal controls. This encompasses the redefinition of the scope of internal audit functions, the establishment of standards for AI-based evidence in disciplinary proceedings, and the establishment of redress mechanisms for errors or disputes arising from AI outputs. The institutional legitimacy and widespread adoption of AI across the tertiary education sector will be facilitated by the legal recognition of AI in public audits.

6.9 Chapter Summary

The findings indicate that respondents believe that artificial intelligence 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 chiefs. This is notably evident in its ability to process immense quantities of data in real time, identify evolving fraud patterns, and detect anomalies. This is indicative of a profound trust in the capacity of AI to overcome the constraints of conventional auditing techniques and transform fraud detection from a reactive to a proactive process. According to respondents, AI improves accuracy, reduces human error, and facilitates timely decision-making in audit practices. The adoption of AI tools is further facilitated by the perception that they are user-friendly and readily integrated into

existing systems. Furthermore, stakeholders acknowledge AI's capacity to provide predictive insights and early detection, which enables institutions to prevent fraud before it escalates, thereby minimising financial and reputational losses. The technology's continuous monitoring capabilities facilitate speedier response times and constant supervision, thereby significantly enhancing institutional control mechanisms. Respondents also stated that AI enhances the overall internal control environment by incorporating data-driven, self-correcting processes, assuring adherence to financial regulations, and preserving transparent audit trails. This proactive approach not only fosters a culture of accountability and transparency but also reduces dependence on intermittent human audits.

CHAPTER SEVEN
THE CHALLENGES PERCEIVED BY INTERNAL AUDITORS IN USING AI IN THE INTERNAL AUDIT FUNCTION IN PUBLIC UNIVERSITIES IN GHANA

7.1 Introduction

This chapter presents the results and discussion on the challenges perceived by internal auditors in using AI in the internal audit function in public universities in Ghana. The data is analysed using both quantitative and qualitative approaches. The chapter is organised into four sections: the first section focuses on the quantitative analysis of the data, while the second section delves into the qualitative aspect. The third section integrates and discusses the results from both the quantitative and qualitative analyses. Finally, the chapter provides a detailed discussion of the study's contributions, highlighting the theoretical, policy, and practical implications of the findings.

7.2 Reliability Analysis (Cronbach's Alpha & Composite Reliability)

This construct achieved a Composite Reliability of 0.90 and a Cronbach's Alpha of 0.87, beginning with Human Capital & Skill Deficiency. These values indicate that the items that assess this construct exhibit a high degree of internal consistency. In general, a Cronbach's Alpha value of 0.70 or higher is deemed acceptable, and anything above 0.80 is considered to be excellent (Berdiyeva et al., 2021). Consequently, the 0.87 score suggests that the survey items utilised to assess Human Capital & Skill Deficiency, including a dearth of qualified personnel, insufficient training programs, and limited expertise in AI tools, were closely related and consistently measured the construct. Similarly, the Composite Reliability value of 0.90 corroborates this outcome, indicating that the construct is robust and the indicators collectively offer a dependable estimate of the underlying dimension. This implies that respondents consistently perceived human capital constraints as a primary impediment to AI implementation. This finding is consistent with prior research conducted by Akinadewo et al. (2024), which identified talent deficits as a critical constraint on the adoption of AI in African institutions.

The Cronbach's Alpha value of 0.84 and Composite Reliability of 0.88 also suggest high reliability in the context of Data and Algorithm Limitations. These results indicate that the items classified under this factor, including bias, algorithmic transparency, data quality, and data availability, are internally consistent and cohesively represent the same fundamental concept. The shared perception among respondents that data-related challenges continue to

pose a significant obstacle to the effective implementation of AI-powered internal controls is indicated by the intensity of these values. This is consistent with the literature, as noted by Ataribanam (2024), who emphasised that the deployment of AI solutions is considerably impeded by limited access to transparent and pertinent data. The findings suggest that the construct is both contextually meaningful and statistically reliable in its ability to capture participants' apprehensions about algorithmic constraints.

Table 7. 1: Reliability Analysis (Cronbach's Alpha & Composite Reliability)

Factor	Cronbach's Alpha (α)	Composite Reliability
Human Capital & Skill Deficiency	0.87	0.90
Data and Algorithm Limitations	0.84	0.88
Technological Infrastructure Constraints	0.81	0.86
Organisational and Cultural Resistance	0.78	0.84
Financial and Investment Barriers	0.75	0.81

Source: Field Data (2025)

The Cronbach's Alpha of 0.81 and Composite Reliability of 0.86 indicate that this construct also satisfies acceptable reliability thresholds for Technological Infrastructure Constraints. These values indicate that the measurement items, which may encompass inadequate hardware resources, inadequate internet connectivity, and inadequate integration with existing systems, coherently assessed the technological obstacles that respondents perceived. This result suggests a reliable scale for comprehending the impact of infrastructure-related issues on the deployment of AI in internal auditing. The relatively high reliability values indicate that respondents consistently agreed that infrastructural preparedness has a significant influence on the efficacy and feasibility of AI solutions. This is consistent with the results of Hazaea et al. (2021), which underscored the critical role of technological preparedness in the successful integration of AI into organisations.

The Cronbach's Alpha and Composite Reliability of Organisational and Cultural Resistance were 0.78 and 0.84, respectively. These values are still within the acceptable range, albeit slightly lower than those of the previously discussed factors. These findings suggest that respondents consistently perceived the measurement items associated with this construct, including reluctance to change, lack of management support, and staff resistance, with

moderate to high reliability. However, the values continue to confirm that the construct was accurately measured, despite being marginally lower than others. This is consistent with previous research, including that of Akinadewo et al. (2024), which contended that cultural resistance and organisational inertia are among the most persistent non-technical hindrances to AI implementation. The findings emphasise the significance of organisational culture transformation and change management in the AI adoption process.

7.3 Convergent Validity – Average Variance Extracted (AVE)

The convergent validity test results, as determined by the Average Variance Extracted (AVE), indicate that all constructs employed in the study satisfy the recommended threshold of 0.50. AVE evaluates the degree to which a variable /item explains the variance of its observed indicators. The construct's convergent validity is confirmed by an AVE value of 0.50 or higher, indicating that it explains more than half of the variance in its indicators. The factor representing Human Capital & Skill Deficiency in this study achieved the highest AVE of 0.65. This implies that the items employed to evaluate this construct are highly correlated and accurately reflect the fundamental dimension of knowledge and skill disparities in AI implementation. The high AVE also suggests that respondents were consistent in identifying a lack of expertise as a primary barrier, which is consistent with the findings of prior studies, such as those conducted by Ceki and Moloi (2024). These studies emphasise the technical know-how gap in digital transformation efforts across developing economies. The internal consistency and construct accuracy were further validated by the AVE of 0.61, which closely followed Data and Algorithm Limitations. Respondents' comprehension of the indicators that assessed algorithmic transparency and data-related challenges was supported by this outcome. Audit professionals emphasise any concerns in this area because AI systems depend significantly on clear, accurate, and well-structured data for optimal performance. These findings are consistent with past research conducted by Akinadewo et al. (2024), which underscored the importance of algorithm bias and data integrity as primary concerns in AI deployments. The construct's robust AVE indicates that respondents consistently recognised these constraints as practical obstacles to implementing AI for internal audit and fraud detection.

Table 7. 2: Convergent Validity – Average Variance Extracted (AVE)

Factor	Average Variance Extracted	Threshold
Human Capital & Skill Deficiency	0.65	≥ 0.50
Data and Algorithm Limitations	0.61	≥ 0.50
Technological Infrastructure Constraints	0.58	≥ 0.50
Organisational and Cultural Resistance	0.56	≥ 0.50
Financial and Investment Barriers	0.53	≥ 0.50

Source: Field Data (2025)

The construct for Technological Infrastructure Constraints also exceeded the recommended threshold, with an AVE of 0.58. This implies that the enquiries regarding institutional preparedness in terms of hardware, software, and connectivity were coherent and accurately represented the situation on the ground. Legacy systems, outdated hardware, and inadequate internet infrastructure in many public universities in Ghana hinder the incorporation of AI tools into audit processes. The AVE value suggests that the respondents shared a common understanding of these obstacles and provided responses that were consistent with one another. This supports the findings of Agba et al. (2023), who identified infrastructural limitations as a significant impediment to AI adoption, particularly in public sector institutions where modernisation efforts are frequently unfunded and sluggish. The AVE for Organisational and Cultural Resistance is 0.56, which remains within the acceptable range. This implies that the construct is a reliable representation of the internal resistance dynamics that influence the adoption of AI. Although the AVE is marginally lower than the previous constructs, it suggests that respondents agree on the existence of cultural and behavioural barriers. These may encompass institutional inertia towards change, a lack of confidence in new technologies, and resistance from employees who dread redundancy. This interpretation is consistent with the findings of Akinadewo et al. (2024), who observed that the adoption of AI and other digital technologies is significantly influenced by organisational culture. The survey items' effective capturing of these nuances is validated by the acceptable AVE value, despite the modest variation in opinions among respondents regarding the degree or source of resistance.

Finally, the items that assessed Financial and Investment Barriers had an AVE of 0.53, which was the lowest among the five constructs. However, it still exceeded the minimum threshold.

This implies that the indicators still effectively captured the substance of financial constraints as a barrier to AI implementation, despite the slightly broader variation in responses. The initial capital expenditure for AI tools, as well as the recurring expenses associated with training, system enhancements, and maintenance, are all part of these constraints. The findings suggest that the participants shared a common understanding of the budgetary challenges faced by audit departments in public universities. This is consistent with the findings of Fotoh and Lorentzon (2023), who observed that limited financial capacity continues to be one of the most significant obstacles to AI investment, particularly in resource-constrained environments. The AVE value confirms that the construct is sufficiently valid to be included in further analysis and reinforces the broader narrative that AI implementation is not solely a technical challenge but also a financial one.

7.4 Descriptive Statistics on the Challenges Perceived By Internal Auditors in Using AI in the Internal Audit Function in Public Universities in Ghana

The application of Artificial Intelligence (AI) to the internal audit functions of public universities in Ghana offers a transformative opportunity to improve efficiency and accuracy. Nevertheless, descriptive statistics indicate that internal auditors perceive numerous obstacles that impede the effective implementation of AI. With a mean score of 4.22 and a standard deviation of 0.88, the audit staff's limited understanding of the effectiveness of AI tools is a significant concern. The lack of comprehensive training programs and exposure to AI technologies exacerbates this knowledge deficit. The transition to AI is both technically and culturally challenging because the traditional internal audit environment has long been reliant on manual approaches and standardised routines. Staff frequently lack fundamental literacy in AI-driven platforms, machine learning, or data analytics, which are essential for successful implementation (Akinadewo et al., 2024). The country is currently experiencing a shortage of technical expertise in AI, as highlighted by the Institute of ICT Professionals in Ghana. This is because no AI courses are currently offered in colleges and universities. The necessity of targeted training initiatives to provide audit personnel with the requisite skills is emphasised by this educational deficiency. Fostering confidence in the use of AI tools and guaranteeing their effective utilisation in audit processes necessitates bridging this knowledge divide.

The highest mean score of 4.54 with a standard deviation of 0.78 is closely associated with the concern that the absence of internal audit personnel with sufficient expertise in AI technologies presents a substantial obstacle to practical implementation. This is indicative of a shared

understanding regarding the urgent paucity of qualified personnel. In contrast to conventional auditing skills, which prioritise regulatory conformance, internal control assessments, and accounting standards, the implementation of AI necessitates proficiency in digital systems, algorithmic reasoning, and data science (Almagrashi et al., 2023). The global demand for specialised AI talent has increased, but the supply of experienced professionals is not keeping up, which is impeding the ability to effectively utilise AI technologies (Akinadewo et al., 2024). Furthermore, budgetary constraints and limited career development opportunities in the public sector may hinder public universities' ability to recruit and retain staff with AI expertise. The challenge extends beyond recruitment to retention and development, as even existing tech-savvy auditors may find little incentive to remain if organisational structures do not support ongoing innovation. Consequently, it is essential to establish a strong talent pipeline by collaborating with academic institutions, government support, and professional development initiatives to address this disparity and cultivate a well-trained AI-driven audit workforce.

The integration of AI into existing audit systems necessitates the extensive training and re-skilling of audit personnel, with a mean of 4.11 and a standard deviation of 0.91. This implies that, despite the widespread consensus regarding the importance of training, there is disagreement regarding the precise amount of training that is necessary. The successful integration of AI tools necessitates a fundamental transformation in the way audit work is conceptualised, planned, and executed, in addition to acquiring new software knowledge. Consequently, re-skilling initiatives must incorporate a strategic comprehension of the role of AI applications in enhancing audit objectives, in addition to a technical understanding of them. Re-skilling is a dynamic process that must be sustained over time and aligned with the evolving technological capabilities (Hassan et al., 2025). Additionally, the learning curve associated with AI is particularly challenging for seasoned auditors who are accustomed to conventional methodologies. As a result, training programs must be carefully designed to accommodate a diverse range of professional backgrounds and learning styles. Audit personnel may encounter perplexity, frustration, and diminished job performance in the absence of such support structures. Ultimately, a seamless transition into AI-enhanced auditing practices is facilitated by a strong institutional commitment to continuous learning and professional development, which empowers auditors to adapt effectively to the new environment.

Table 7. 3 Descriptive Statistics on the challenges perceived by internal auditors in using AI in the internal audit function in public universities in Ghana

Statement	Mean	SD
There is a lack of understanding among audit staff about how to utilise AI tools effectively.	4.22	0.88
The lack of internal audit staff with sufficient expertise in AI technologies poses a significant barrier to practical implementation.	4.54	0.78
Integrating AI into existing audit systems requires extensive training and re-skilling of audit personnel.	4.11	0.91
Inadequate availability of high-quality data for AI analysis undermines the accuracy and reliability of audit outcomes.	4.32	0.86
The reliance on AI technology may lead to over-reliance on automated processes and reduced human oversight.	3.89	0.92
AI implementation in audit functions may face resistance from traditionalists within the organisation.	3.78	0.85
Insufficient training and educational programs tailored to internal audit professionals on AI technologies increase skill deficiencies.	4.23	0.82
The current IT infrastructure is inadequate to support the implementation of AI for internal audits.	4.04	0.92
The complexity of AI tools makes them difficult to integrate with the specific needs of internal audit functions.	4.15	0.87
The lack of readily available AI solutions specifically designed for internal auditing in the public sector creates implementation challenges.	4.26	0.90
The ethical considerations surrounding the use of AI in audits, such as potential bias in algorithms, pose a significant challenge.	3.96	0.83
There is a lack of qualified personnel within Ghanaian public universities to maintain and manage AI systems for internal audit purposes.	4.18	0.84
Limited collaboration between internal audit departments and IT departments hinders the alignment of AI initiatives with organisational goals and objectives.	4.10	0.89
The high initial investment required for acquiring and implementing AI technologies deters public universities from embracing AI-driven audit approaches.	4.31	0.86

Inadequate support from top management in driving AI adoption and fostering a culture of innovation within internal audit departments leads to implementation challenges.	4.42	0.79

Source: Field Data (2025)

The accuracy and reliability of audit outcomes are compromised by the insufficient availability of high-quality data for AI analysis, as evidenced by a mean score of 4.32 and a standard deviation of 0.86. For optimal performance, AI systems significantly depend on clear, accurate, and well-structured data. In the context of public universities, data quality issues persist due to the fragmentation of data sources across departments and the lack of standardisation. The predictive potential of AI algorithms is not the only aspect diminished by poor data quality; it also leads to erroneous conclusions that may compromise the integrity of audit findings (Damerji & Salimi, 2021). For example, AI model training and validation are significantly disrupted by inconsistent naming conventions, absent values, and obsolete records. Furthermore, numerous AI systems necessitate real-time data transmission, which may not be feasible for existing university infrastructures. The development of rigorous data governance policies, the establishment of centralised data repositories, and the use of data cleansing tools are all necessary to address this challenge. It is imperative to allocate resources to these sectors to ensure that AI tools operate on reliable datasets and provide valuable insights. Without high-quality data, even the most advanced AI systems are unable to fulfil their potential to enhance internal assessments. Ultimately, this is so.

Another issue is that the overreliance on automated processes and reduced human oversight may result from the reliance on AI technology, with a mean of 3.89 and a standard deviation of 0.92. This is indicative of concerns regarding the reconciliation of automation and human judgment. Although AI has the potential to improve efficiency, it is crucial to maintain sufficient human oversight to interpret AI findings and make informed decisions, thereby ensuring that the quality of investigations is not compromised when automation is implemented. Contextualising AI outputs, identifying anomalies that algorithms may overlook, and providing strategic recommendations are all critical responsibilities of audit professionals (Bonsu et al., 2022). The value of professional judgment is diminished if the over-reliance on AI systems is not addressed, particularly in areas that necessitate nuanced ethical considerations or qualitative assessments. In high-stakes environments such as public universities, where financial mismanagement or compliance failings have significant

consequences, this risk is particularly pronounced. Consequently, a hybrid approach that integrates human insight with machine efficacy is the most suitable. This risk is mitigated, and trust in automated auditing processes is improved by implementing governance protocols, such as regular manual evaluations of AI-generated reports and the integration of explainability features into AI systems.

The organisation's traditionalists may resist the implementation of AI in audit functions, as evidenced by a mean score of 3.78 and a standard deviation of 0.85. Fear of employment redundancy, reluctance to deviate from traditional practices, or scepticism about new technology are frequently the sources of organisational and cultural resistance. Resistance to technological change in professional services is often deeply entrenched in concerns about the loss of professional identity and control (Hoai et al., 2022). Internal auditors who have dedicated years to the development of conventional techniques may perceive a transition to data-driven models as a threat, as they lack a comprehensive understanding of or confidence in them. Additionally, resistance is exacerbated when change is implemented without sufficient communication or involvement from the stakeholders who are impacted.

Skill deficiencies within Ghana's public institutions are substantially exacerbated by inadequate training and educational programs specifically designed for internal audit professionals on AI technologies. The respondents' firm consensus regarding the necessity of specialised AI training is evidenced by the mean score of 4.23 and a standard deviation of 0.82. Although numerous public universities offer general education in accounting or Information and Communication Technology, these programs often overlook the evolving role of AI in the internal audit process. Auditors must possess a comprehensive comprehension of the applications of AI technologies, such as data analysis, anomaly detection, and predictive modelling, due to their intricate nature. These subjects are not adequately addressed in conventional auditing education. Due to the increasing complexity of financial systems, regulatory requirements, and operational frameworks, auditors must consistently enhance their skills to remain effective in their positions. Regrettably, there is a scarcity of training programs that specifically address the integration of AI tools into auditing practices, which reduces access to this type of training. Additionally, the challenge is further exacerbated by the scarcity of AI curricula and local training providers that are specifically designed for public sector auditing. The quality and efficacy of audits are ultimately impacted by auditors' inability to effectively utilise AI tools due to this disparity in knowledge and skills. Universities should

focus on developing AI-focused training programs tailored to the specific needs of internal auditors in the public sector to address this disparity.

The adoption of AI technologies in Ghana's public universities is significantly impeded by the inadequacy of IT infrastructure to support AI in internal audits. Respondents expressed substantial apprehensions regarding outmoded systems, inadequate storage capacity, inadequate cybersecurity protocols, and unreliable internet connectivity, all of which impede the successful deployment of AI tools, with a mean score of 4.04 and a standard deviation of 0.92. A robust IT infrastructure, including cloud-based platforms, high-performance computing, and seamless data integration across departments, is crucial for effectively leveraging AI technologies. Nevertheless, numerous public universities in Ghana are faced with outdated information technology systems that are not equipped to meet the sophisticated technological requirements of the current era. Additionally, the integration of AI tools is further complicated by the decentralised nature of operations in numerous institutions. It is frequently challenging to implement AI solutions that require cross-functional integration, as various departments often operate in isolation with incompatible software and isolated data systems. The potential impact of AI applications on internal audits is significantly reduced if they are not equipped with the requisite enhancements and investment in modern IT infrastructure, which results in technical malfunctions. This matter necessitates a significant investment in IT modernisation and strategic planning to guarantee that public universities have the necessary resources to support AI-driven audit solutions. To enhance the efficiency and accuracy of internal audits and facilitate the effective use of AI tools, it is imperative to invest in integrated, scalable, and secure IT systems.

Another substantial challenge is the complexity of AI tools, as evidenced by the difficulty of integrating these tools with the specific requirements of internal audit functions. The mean score is 4.15, with a standard deviation of 0.87. Rather than being specifically designed for the unique compliance, risk management, and procedural requirements of auditing, many off-the-shelf AI solutions are intended for broader data analytics tasks, particularly in public sector environments. The highly specialised nature of internal audits in public universities often results in generic AI systems failing to address specific audit requirements, such as detecting financial anomalies, assessing internal controls, or ensuring regulatory compliance. The lack of customisation options in most AI tools often causes internal auditors to struggle to adapt them to their operations, as they are not designed with auditing procedures in mind. This leads

to a discrepancy between the technology and the daily needs of auditors, resulting in inefficiencies or the failure of AI to provide valuable insights. Additionally, the customisation of AI tools necessitates a close partnership between IT professionals and audit personnel, a collaboration that is frequently absent in public sector institutions. To overcome these obstacles, universities should focus on developing AI tools tailored explicitly for internal auditing. This should be done with the assistance of audit professionals to guarantee that the systems are following auditing standards and provide genuine value to the internal audit function.

As evidenced by a mean score of 4.26 and a standard deviation of 0.90, the lack of AI solutions designed explicitly for internal auditing in the public sector presents substantial implementation challenges. Public universities in Ghana frequently operate in resource-constrained environments, in contrast to private sector organisations that have access to a diverse array of enterprise-level AI solutions. Numerous AI vendors prioritise private enterprises due to their higher profitability and fewer regulatory obstacles, which leaves the public sector with restricted options. Consequently, the majority of AI tools that are accessible to public universities are either intended for commercial auditing purposes or are too general, rendering them unsuitable for the specific requirements of public sector auditing. Public universities require AI solutions that effectively manage the unique complexities of public sector governance, including transparency, accountability, and compliance with stringent regulatory frameworks. The potential benefits of AI adoption are considerably diminished by the necessity for public universities to rely on generic systems or manually intervene to adapt existing tools, due to the lack of specialised AI tools. To overcome this obstacle, public universities should collaborate with AI vendors, software developers, and policymakers to jointly develop solutions that cater to the unique needs of the public audit sector. Public universities guarantee the creation of AI tools that are specifically designed to enhance the efficacy and effectiveness of internal audits by encouraging collaboration.

A critical challenge is the ethical considerations that surround the use of AI in investigations, particularly the potential for bias in algorithms. The respondents expressed apprehension regarding the possibility of AI systems producing biased results due to defects in the algorithm design or training data, as evidenced by a mean score of 3.96 and a standard deviation of 0.83. The quality of AI systems is contingent upon the quality of the data used to train them. If the data is inaccurate or insufficient, the algorithmic decisions that result perpetuate preexisting

biases, distort audit findings or unjustly target specific departments or transactions. In the context of internal audits, where fairness, transparency, and accountability are paramount, the repercussions of biased AI outcomes are severe, resulting in operational inefficiencies, regulatory scrutiny, or reputational harm. Furthermore, auditors encounter challenges in comprehending the methodology by which AI systems arrive at their conclusions due to the opacity of numerous AI systems, which is frequently referred to as the "black box" problem. This lack of transparency erodes trust in the technology and impedes auditors from elucidating or justifying AI-driven decisions to stakeholders. Ethical auditing necessitates AI systems that are not only accurate and reliable but also explainable and transparent.

7.5 One-Sample T-Test for the Challenges Perceived by Internal Auditors in Using AI in the Internal Audit Function in Public Universities in Ghana

The one-sample t-test results highlight the numerous obstacles that internal auditors in public universities in Ghana face when implementing AI in the internal audit function. With a t-statistic of 4.512 and a p-value of 0.000, the audit staff's limited understanding of the effectiveness of AI tools is one of the most significant obstacles to their use. This suggests that there is a significant disparity in the level of knowledge and cognisance regarding AI technologies, which is a significant impediment to their widespread adoption. Auditors are incapable of completely capitalising on the potential advantages of AI unless they possess a comprehensive comprehension of its capabilities and the ability to incorporate it into auditing processes. This lack of familiarity with AI tools results in inefficiencies and a failure to capitalise on the technological advantages that AI provides, including improved data analysis, risk assessment, and pattern recognition in financial auditing (Hoai et al., 2022). This challenge is particularly severe for public universities, where audit personnel may lack sufficient exposure to these emerging technologies. To resolve this matter, it is necessary to develop customised training programs and seminars that concentrate on the practical applications of AI in the context of internal auditing. Public universities unleash the transformative potential of AI in increasing audit accuracy and efficiency by enhancing the knowledge and familiarity of their audit personnel with AI.

The successful implementation of AI in auditing is significantly impeded by the scarcity of internal audit personnel with adequate expertise in AI technologies, which is another critical challenge. This issue suggests that the absence of qualified personnel may lead to the ineffective utilisation of AI tools, despite their availability (t-statistic of 3.874, p-value of

0.001). The rapid advancement of AI technologies necessitates specialised skills in data analysis, machine learning, and AI system integration, which are not commonly found among traditional internal auditors. It may be challenging for public universities in Ghana to recruit professionals with the necessary technical expertise to operate these sophisticated tools. This issue is not exclusive to Ghana; it is a global phenomenon, as the rapid expansion of AI technologies has outpaced the availability of qualified professionals to oversee and implement these tools across various industries (Akinadewo et al., 2024). Public universities are required to allocate resources towards the development of AI proficiency among their audit staff using ongoing education, seminars, and the prospective recruitment of AI specialists to address this challenge. The knowledge divide is bridged by establishing partnerships with technology providers or academic institutions, which would enable internal auditors to work more effectively with AI systems.

Table 7. 4 One-Sample T-Test for the Challenges Perceived by Internal Auditors in Using AI in the Internal Audit Function in Public Universities in Ghana

Statement	t-statistic	p-value
There is a lack of understanding among audit staff about how to utilise AI tools effectively.	4.512	0.000
The lack of internal audit staff with sufficient expertise in AI technologies poses a significant barrier to practical implementation.	3.874	0.001
Integrating AI into existing audit systems requires extensive training and re-skilling of audit personnel.	2.987	0.005
Inadequate availability of high-quality data for AI analysis undermines the accuracy and reliability of audit outcomes.	2.654	0.010
The reliance on AI technology may lead to over-reliance on automated processes and reduced human oversight.	2.345	0.020
AI implementation in audit functions may face resistance from traditionalists within the organisation.	2.789	0.007
Insufficient training and educational programs tailored to internal audit professionals on AI technologies increase skill deficiencies.	3.112	0.003
The current IT infrastructure is inadequate to support the implementation of AI for internal audits.	2.543	0.014

The complexity of AI tools makes them difficult to integrate with the specific needs of internal audit functions.	3.654	0.001
The lack of readily available AI solutions specifically designed for internal auditing in the public sector creates implementation challenges.	3.987	0.000
The ethical considerations surrounding the use of AI in audits, such as potential bias in algorithms, pose a significant challenge.	3.431	0.001
There is a lack of qualified personnel within Ghanaian public universities to maintain and manage AI systems for internal audit purposes.	3.876	0.001
Limited collaboration between internal audit departments and IT departments hinders the alignment of AI initiatives with organisational goals and objectives.	4.215	0.000
The high initial investment required for acquiring and implementing AI technologies deters public universities from embracing AI-driven audit approaches.	4.543	0.000
Inadequate support from top management in driving AI adoption and fostering a culture of innovation within internal audit departments leads to implementation challenges.	3.765	0.000

Source: Field Data (2025)

Another substantial obstacle for public universities is integrating AI into their existing audit systems. The t-statistic of 2.987 and the p-value of 0.005 suggest that audit personnel require extensive training and retraining. The integration of AI is a complex process that necessitates a fundamental change in how audits are conducted. Traditional auditing methods are primarily dependent on human judgment and manual processes, whereas AI-driven audits incorporate automation, data analytics, and predictive modelling, which necessitate a distinct skill set. For AI to be effectively incorporated into the audit function, audit staff must be trained in the ability to interact with AI systems, interpret their outputs, and ensure that the AI's decisions are consistent with the internal audit process's objectives (Abrokwah-Larbi & Awuku-Larbi, 2024). For institutions with restricted budgets, such as public universities, the re-skilling process is frequently resource-intensive and time-consuming. Universities may also encounter opposition from auditors who are habituated to conventional auditing techniques and are hesitant to implement new technologies. Consequently, it is imperative to offer comprehensive training programs and ongoing professional development to facilitate the transition to AI-

driven audits and guarantee that audit personnel effectively utilise these technologies to enhance the accuracy and efficiency of auditing.

Another challenge is the availability of high-quality data for AI analysis, as evidenced by a p-value of 0.010 and a t-statistic of 2.654. To generate precise predictions and analyses, artificial intelligence tools necessitate extensive datasets. Nevertheless, the data accessible for internal audits in numerous public universities may not meet the requisite standards for the efficient operation of AI systems. Poor AI performance is often a consequence of inaccurate, incomplete, or unstructured data, which in turn contributes to unreliable audit outcomes. For instance, AI systems may fail to identify potential hazards or produce misleading insights if the data on which they are trained is not comprehensive or current (Akinadewo et al., 2024). Public universities in Ghana may lack the necessary infrastructure or systems to capture and store high-quality data, and the existing data may not be in a format compatible with AI tools. Furthermore, the acquisition and utilisation of data for AI applications may be further complicated by legal regulations and data privacy concerns. To resolve this issue, public universities must allocate resources to data management practices, which encompass enhancing data acquisition procedures, ensuring data quality, and standardising formats across various departments. Additionally, universities may require the assistance of external collaborators, such as technology firms or consultants, to establish sophisticated data analytics platforms that facilitate the use of AI tools.

Another obstacle is the potential for overreliance on automated processes, which could diminish the need for human supervision in the audit process. The concern that AI technologies may replace critical human judgment and decision-making in investigations is underscored by a t-statistic of 2.345 and a p-value of 0.020. Although AI has the potential to automate numerous aspects of auditing, including data analysis and risk assessment, the intricate nature of auditing still necessitates human judgment to interpret findings and make final decisions (Indrayani et al., 2024). Internal auditors may be concerned that an overreliance on AI tools could lead to a decrease in the number of manual checks and subjective evaluations, which are essential for guaranteeing the accuracy and comprehensiveness of audit conclusions. This apprehension is legitimate, as AI systems are not immune to errors and may occasionally disregard critical details. Universities must emphasise that AI should be viewed as an instrument to support, rather than supplant, human auditors to confront this challenge. To guarantee that the ethical and professional standards of the audit function are maintained,

human oversight must continue to be an essential element of the auditing process. It is imperative to provide audit staff with the necessary training to integrate their professional judgment with AI systems, thereby mitigating this risk.

The adoption of AI is also significantly impeded by resistance from traditionalists within the organisation, as evidenced by a p-value of 0.007 and a t-statistic of 2.789. Qadir et al. (2022) have observed that employees frequently resist organisational change due to their familiarity with established practices and their apprehension of the potential disruptions that new technologies may cause. Auditors who have been employing conventional audit methodologies for an extended period may be apprehensive about adopting AI in the context of public universities, as they fear that it will affect their job security, duties, or responsibilities. This resistance takes on a variety of forms, ranging from complete rejection of AI tools to passive reluctance in their use. Leadership is essential for cultivating a culture of innovation and change to overcome this resistance. To persuade traditionalists to adopt AI systems, public universities must convey the advantages of AI adoption, including enhanced efficiency, accuracy, and the capacity to identify hazards more effectively. Additionally, involving employees in the implementation process and providing them with ongoing support and training helps mitigate resistance and facilitate a more seamless transition.

A t-statistic of 3.112 and a p-value of 0.003 suggest that insufficient training and educational programs tailored to internal audit professionals on AI technologies are another significant challenge. AI is an effective instrument; however, it is only effective when audit personnel possess the necessary knowledge to utilise it effectively. It is possible that public universities in Ghana do not offer training programs that are specifically designed to address the application of AI technologies in the audit process. Consequently, internal auditors may experience a sense of inadequacy in their ability to operate AI systems, which may limit their ability to enhance the quality of their audits. Auditors may be compelled to learn through trial and error, which is inefficient and often results in frustration, due to the lack of formal education on AI. Universities are considering integrating AI education into their academic programs for aspiring auditors, in addition to training existing staff, to ensure that future professionals are adequately prepared for the technological requirements of the field. Internal auditors can stay informed about emerging trends and tools in AI-based auditing by establishing partnerships with industry experts and AI vendors, which helps them develop relevant and current training programs.

A significant obstacle to AI implementation is the current IT infrastructure's inadequacy, as evidenced by a p-value of 0.014 and a t-statistic of 2.543. Many public universities in Ghana may lack the necessary hardware, software, or network infrastructure to implement AI systems effectively. To operate effectively, AI tools necessitate secure data storage systems, rapid internet connections, and potent computing resources. The high costs of upgrading their IT infrastructure to meet these requirements may be unaffordable for public universities, which frequently operate with restricted budgets. Furthermore, the integration of AI technologies may be further complicated because current IT systems often lack compatibility with each other. To resolve this matter, universities must prioritise the upgrade of their IT infrastructure and consider securing external funding or forming partnerships with technology companies. Investing in cloud-based AI solutions also provides a more cost-effective alternative, enabling universities to utilise sophisticated technologies without the necessity of substantial initial investments in physical infrastructure.

The complexity of AI tools also presents a substantial challenge, as evidenced by a p-value of 0.001 and a t-statistic of 3.654. Complex algorithms are utilised in the development of numerous AI tools, which may not be readily compatible with the unique requirements of internal audit functions in public universities. To operate efficiently within the distinctive regulatory and operational frameworks of the higher education sector, these tools may necessitate substantial customisation. Additionally, auditors may find the interface of these AI tools to be forbidding and challenging to navigate without adequate training. Universities collaborate with AI vendors to create solutions that are more user-friendly and specifically designed for the public sector to overcome this challenge. Auditors must be able to easily comprehend and interpret the results of AI tools, which must be designed to seamlessly integrate with the existing audit systems and provide intuitive interfaces. The probability of successful implementation and adoption is increased by simplifying these tools and ensuring that they are adaptable to the local context.

Another significant implementation challenge is the lack of AI solutions designed explicitly for internal auditing in the public sector, as indicated by a p-value of 0.000 and a t-statistic of 3.987. Although AI tools have been developed for various business applications, there is a deficiency in solutions specifically tailored to the needs of public sector investigations. In a non-profit, government-funded environment, where financial management, accountability, and transparency are paramount, public universities necessitate instruments that effectively address

the distinctive challenges of auditing. Since there are no specialised AI tools available for these purposes, public universities are compelled to adapt commercial solutions that may not fully meet their needs. This challenge emphasises the necessity of greater innovation in the development of AI systems that are specifically designed for public sector auditing. Public universities assist in the development of solutions that more effectively meet their specific auditing needs by collaborating with AI developers. This ensures that AI is effectively employed to improve the audit function.

The potential for algorithmic bias is a significant concern in the context of ethical considerations in AI investigations. The ethical challenges associated with AI technologies are a significant concern for internal auditors, as evidenced by the t-statistic of 3.431 and a p-value of 0.001. AI systems may occasionally generate biased results due to the data they were previously trained on, which can lead to inaccurate or unjust audit outcomes. This issue is especially concerning in audits, where impartiality and fairness are critical. Public universities must guarantee that the AI tools they implement are transparent, comprehensible, and devoid of biases that undermine the integrity of the audit process. It is imperative to establish ethical standards for the implementation of AI, and personnel responsible for audits must be instructed on the potential hazards associated with bias in AI systems. Additionally, conducting routine audits of AI tools to assess their ethical compliance helps mitigate this risk. Another significant challenge is the scarcity of qualified personnel to maintain and manage AI systems, as evidenced by a t-statistic of 3.876 and a p-value of 0.001. Specialised knowledge is necessary for the ongoing maintenance, troubleshooting, and updating of AI systems, in addition to their implementation. The deployment of these systems may result in a shortage of personnel with the necessary skills to oversee them at public universities in Ghana. Investing in the development of a new workforce with expertise in AI maintenance and administration resolves this issue. Universities also establish partnerships with external vendors or consultants to provide technical support, thereby guaranteeing the efficient and effective operation of AI systems.

7.6 Qualitative Analysis

This section focuses on the qualitative aspect of the study. The analysis employed a thematic approach, following Braun and Clarke's (2006) six-phase framework, which provides a structured and rigorous approach to identifying patterns within the challenges perceived by internal auditors in using AI in the internal audit function of public universities in Ghana. The

six phases include familiarisation with the data, generating initial codes, searching for themes, reviewing themes, defining and naming themes, and producing the final report. The process begins with data familiarisation, where interview transcripts are carefully read and re-read to gain an in-depth understanding of participants' responses.

7.6.1 The Challenges Perceived By Internal Auditors in Using AI in the Internal Audit Function in Public Universities in Ghana

Artificial intelligence has emerged as a transformative technology in various sectors, including auditing, in recent years. AI has the potential to considerably enhance the efficacy, accuracy, and capacity to analyse large datasets of internal auditing, particularly in public universities. Nevertheless, the incorporation of AI into the internal audit function presents several obstacles, particularly in the context of public universities in Ghana. These obstacles, as perceived by internal auditors, are the result of a combination of human, organisational, and technological factors that impede the effective integration of AI into audit processes. This study examines the challenges faced by internal auditors in Ghanaian public universities as they strive to incorporate AI into their daily auditing procedures. Seven prevalent themes have emerged from a series of interviews with internal auditors, illuminating the specific obstacles that restrict the potential of AI. Insufficient infrastructure, resistance to change, concerns regarding the ethical implications of AI, and a lack of technical expertise and comprehension of AI are among the challenges. Below is a detailed discussion of the themes.

7.6.1.1 Lack of Understanding of AI

The practical implementation and use of AI tools in auditing practices are significantly impeded by the limited understanding of AI among internal auditors in Ghanaian public universities. A substantial knowledge deficit has been identified that hinders the successful deployment of AI technologies, primarily due to the complexity of these technologies and the limited exposure of auditors to AI-specific training. Many auditors in Ghanaian universities are unfamiliar with AI tools and frequently struggle to understand how they can be effectively incorporated into their internal auditing processes to improve efficiency and effectiveness. This knowledge deficit is primarily caused by the absence of formal training programs that are specifically designed for AI in auditing. Auditors must consistently update their skills and knowledge to maintain their competence in the face of the rapid evolution of AI. Auditors may be hesitant to implement these tools if they do not comprehend the practical applications and capabilities of AI in auditing, as they are concerned that they may disrupt traditional audit practices or fail to

deliver tangible benefits. This lack of comprehension is further exacerbated by the fact that AI in auditing remains a relatively novel concept in many institutions. A study conducted by Qadir et al. (2022) emphasises that a lack of comprehension of the technology significantly hinders the auditing industry's implementation of AI. Consequently, role-specific training programs are necessary to help professionals effectively integrate AI. According to a respondent from the University of Energy and Natural Resources,

> "The majority of us are still struggling to comprehend the concept of AI, let alone how it can improve audit services" (Interview, 2025).

Although AI is frequently discussed, its implementation in our daily auditing tasks remains unclear. This observation is indicative of the perplexity and uncertainty that numerous internal auditors in Ghanaian universities encounter concerning the practical application of AI. Auditors find it challenging to envision how these tools can enhance their daily audit tasks due to the perception of AI as a complex and distant technology, which exacerbates the issue. Auditors may acknowledge the potential of AI; however, they frequently lack the knowledge necessary to leverage it to achieve substantial enhancements in audit quality. Akinadewo et al. (2024) suggest that professionals in a variety of industries, such as auditing, encounter difficulties in comprehending AI applications due to their lack of familiarity with the potential for AI to be customised to their operational requirements. This is consistent with the aforementioned. The incapacity further exacerbates the knowledge deficit to correlate the theoretical potential of AI with practical audit duties, which in turn contributes to auditors' reluctance to adopt AI. Another respondent from the University of Ghana observed,

> "The knowledge gap is quite extensive. We possess the theory; however, applying it to auditing is a completely distinct experience. We require additional concrete information regarding the practical application of AI" (Interview, 2025).

The problem at hand pertains to the disparity between theoretical comprehension and practical application. Internal auditors may be introduced to AI concepts and technologies in an abstract sense; however, they frequently lack the specialised knowledge necessary to employ these technologies within the context of internal auditing. This theoretical knowledge divide hinders auditors' confidence in employing AI tools, as they lack a comprehensive understanding of how these tools operate within their specific auditing workflows. Anriva and Hamidah (2024) found that auditors often face challenges in translating theoretical AI knowledge into practical applications due to the lack of targeted training programs in their investigation of AI adoption in auditing. This study serves to emphasise further the necessity of specialised education and

training that extends beyond the general introduction to AI and addresses the practical obstacles encountered by internal auditors in effectively utilising these technologies. The complexity of AI tools further complicates the challenge of comprehending AI in auditing. Numerous AI technologies, particularly in the context of internal auditing, are designed to manage substantial quantities of data and implement complex algorithms that can be challenging to comprehend and interpret. Auditors who lack the technical expertise to navigate these tools effectively may be overwhelmed by their advanced nature. According to a respondent from the University of Cape Coast,

> "AI tools are so sophisticated that at times, it appears that we are at the mercy of the machine. It is essential to comprehend the operation of these tools and the factors that contribute to the decision-making process of AI systems; however, we often feel overwhelmed. Internal auditors may not completely trust or comprehend AI, as this statement underscores the perception of it as an enigmatic technology" (Interview, 2025).

Hajar et al. (2023)'s prior research on AI adoption in organisations demonstrated that professionals in various disciplines encounter difficulties with the intricacy of AI systems, particularly when these systems are intended to function in a "black box" manner. This is consistent with the aforementioned. The difficulty of incorporating AI into auditing practices is further exacerbated by the lack of transparency in AI systems, which raises concerns about their reliability and accuracy. Furthermore, auditors' reluctance to adopt AI is significantly influenced by their concern that AI may undermine conventional auditing methodologies. The potential of AI to replace or overshadow these human elements has generated resistance, as many internal auditors have been trained to rely on human judgment and intuition when conducting audits. According to a respondent from the University of Education, Winneba,

> "AI appears to be a double-edged sword. On the one hand, it guarantees efficiency and speed; however, it appears to have the potential to supplant the personal touch and judgment that auditors bring to the table" (Interview, 2025).

The tension between the potential benefits of AI and the apprehensions about the loss of the expertise and judgment that auditors contribute to the auditing process is reflected in this dual perspective. Auditors are concerned that their professional judgement and nuanced understanding of audit processes may be marginalised, despite the potential benefits of AI tools in certain areas, such as automating repetitive tasks and boosting data analysis. Jackson et al. (2023) conducted research that highlights comparable concerns across various industries, where employees are apprehensive that AI will replace human expertise, leading to resistance

to its implementation. Auditors' hesitation to incorporate AI into their operations is further exacerbated by the potential for AI to eclipse human input in auditing. The knowledge deficit is further exacerbated by the uncertainty surrounding the integration of AI into extant audit practices. Many internal auditors are uncertain about how to integrate AI technologies into their traditional auditing practices without causing disruptions as these technologies continue to evolve. According to a respondent from Kwame Nkrumah University of Science and Technology,

> "The question remains: how do we integrate AI into the audit process without disrupting the workflow or compromising the outcomes, despite our awareness of AI's immense potential?" (Interview, 2025).

This concern is indicative of the challenge internal auditors encounter when they endeavour to reconcile the necessity of adhering to established auditing procedures with the introduction of AI. The introduction of AI is a source of concern for numerous auditors, as they worry that it may significantly alter their auditing processes or be incompatible with existing systems, potentially leading to inefficiencies. This ambiguity regarding integration is additionally corroborated by a study conducted by Eltahir and Babiker (2024), which determined that integration challenges were one of the primary impediments to the adoption of AI in auditing. The research posits that it is necessary to adjust AI tools to current procedures, a process that is intricate and necessitates a profound comprehension of audit practices and technical expertise. Additionally, the absence of specialised AI training programs that are specifically designed for internal auditors is a contributing factor to the lack of comprehension. The specific challenges of utilising AI in auditing are not addressed by the general IT courses or self-directed learning that many auditors are required to rely on. A University of Cape Coast respondent stated,

> "The majority of the training that is available is generalised and does not pertain to the application of AI in auditing. There is a substantial distinction between learning AI in a general sense and learning how to apply it in an audit environment" (Interview, 2025).

This statement highlights the discrepancy between general AI training and the specific skills that internal auditors must possess to integrate AI into their audits effectively. This is consistent with the findings of Akinadewo et al. (2024), who emphasise that general AI training frequently fails to address the unique requirements of auditors, underscoring the necessity of role-specific, targeted education. The technical skills required to utilise AI tools in their daily work

effectively are not typically acquired by auditors due to a lack of specialised training, which contributes to their reluctance to adopt these technologies.

7.6.1.2 Shortage of Skilled Personnel

Ghanaian public universities have identified the scarcity of competent personnel with the requisite expertise in both AI technologies and auditing as a critical challenge. The reason for this scarcity is that internal auditing necessitates a high level of specialised knowledge, and the integration of AI into auditing processes introduces an additional layer of complexity that necessitates an even more specialised skill set. It is frequently challenging for universities to identify personnel capable of effectively administering AI-driven audit systems, as the demand for auditors proficient in both traditional auditing practices and AI technologies often exceeds the available talent pool. Many professionals lack the expertise to comprehend and implement these systems appropriately in the context of internal auditing, as AI tools in auditing are relatively new. The disparity between the technical requirements of AI solutions and the current capabilities of auditors is further exacerbated by the rapid evolution of AI technology. A respondent from the University of Energy and Natural Resources observed,

> "There are a limited number of individuals who possess the expertise to integrate auditing and AI. We are experiencing difficulty in locating qualified personnel who serve as a bridge between these two domains" (Interview, 2025).

This statement highlights the challenge that numerous public universities in Ghana face in finding qualified internal auditors who are proficient in AI tools and technologies. The local labour market is still underdeveloped, and the specialised skill set required for these positions is rare, as is the combination of auditing knowledge and AI expertise. Following this, a study conducted by Berdiyeva et al. (2021) on the integration of AI into auditing underscores the global scarcity of professionals who are both proficient in auditing and capable of operating sophisticated AI tools. The rapid advancement of AI technologies has outpaced the availability of trained personnel, resulting in a substantial gap that hinders the integration of these tools into auditing practices. The necessity for specialised skills is further complicated by the integration of AI into internal auditing, as AI tools are engineered to execute intricate tasks such as data analysis, anomaly detection, and predictive modelling. Auditors must possess the capacity to accurately interpret the results and apply them to real-world auditing situations, in addition to comprehending the technology that underpins these tools. Auditors may fail to effectively interpret the AI-generated results if they lack the requisite skills, leading to

misinterpretations or errors during the auditing process. This concern was conveyed by a respondent from the University of Education, Winneba, who stated,

> "Even if we have AI tools available, they are of little value without the right people who can interpret the results. It is more difficult to locate personnel who possess the necessary qualifications" (Interview, 2025).

This quote highlights the importance of employing skilled personnel who both manage the AI systems and understand the process of converting their outputs into actionable insights that align with the standards and objectives of auditing. Additionally, the scarcity of qualified personnel necessitates a comprehensive understanding of integrating AI tools into the current audit process, along with technical expertise in AI. The integration of AI into auditing processes requires a nuanced understanding of both the audit methodology and the technology, as the profession heavily relies on human judgment and experience. Consequently, the obstacle is not only identifying personnel proficient in AI technologies but also identifying individuals who effectively bridge the divide between conventional auditing practices and emerging AI systems. The scarcity of such competent personnel restricts the potential for AI to improve audit efficiency and efficacy. Berdiyeva et al. (2021) found that numerous auditors face challenges when integrating AI tools into their operations due to their inadequate proficiency in effectively utilising these technologies. The research highlights the need for professionals to possess both domain-specific knowledge and technological proficiency to navigate the intricacies of AI systems in auditing effectively. Unfortunately, this combination is currently in limited supply.

The scarcity of competent personnel also influences the reliance on external consultants or third-party vendors to bridge the breach. In recognition of the need for AI expertise, public universities in Ghana often engage external consultants to assist with the deployment of AI systems. These external experts may possess the requisite technical expertise; however, they frequently fail to comprehend the unique requirements and dynamics of the university's internal audit process. Inefficiencies or improper implementation of AI tools may result from this disparity between the consultants' expertise and the unique requirements of the university's auditing operations. According to a respondent from Kwame Nkrumah University of Science and Technology.

> "We are compelled to employ external consultants to oversee AI; however, their solutions occasionally fail to align with our procedures. The instruments may function,

> but they are not customised to meet the unique requirements of our institution" (Interview, 2025).

This issue underscores the challenge of identifying competent personnel within the organisation who effectively manage and adapt AI tools to the unique context of internal auditing in Ghanaian public universities. Furthermore, the scarcity of competent personnel is not restricted to the technical aspects of AI; it also encompasses the interpersonal skills required to oversee AI-driven audits. For example, auditors must be capable of effectively communicating the insights obtained from AI tools to non-technical stakeholders in a manner that is both comprehensible and understandable. The benefits of AI tools may be underutilised or misconstrued by key decision-makers within the university without these communication skills. A respondent from the University of Cape Coast stated:

> "It is not merely a matter of comprehending the technology; it is also a matter of effectively communicating the results to others in a manner that is comprehensible" (Interview, 2025).

This necessitates a combination of technical expertise and interpersonal abilities, which are exceedingly challenging to accumulate in a single individual. Auditors' need to effectively convert AI outputs into actionable strategies underscores the importance of strong communication and problem-solving skills, in addition to their technical proficiency. The scarcity of competent personnel is further exacerbated by the fact that AI in auditing is still in the early phases of development in numerous regions, including Ghana. Although AI has made substantial progress in other industries, its implementation in internal auditing is still in its infancy. Numerous AI tools currently available are under continuous development and require ongoing updates and modifications. The challenge of incorporating AI into auditing practices is further exacerbated by the scarcity of competent personnel who are well-informed about the latest AI advancements.

The view that the evolving nature of AI technologies poses a significant challenge for organisations is supported by a study conducted by Bonsu et al. (2022) on the adoption of AI in auditing. The study notes that the skills necessary to work with these tools are constantly changing. The continuous updating of professional skills to remain current with the most recent advancements in AI is a daunting task for many auditors in Ghanaian public universities, who may already be overburdened by their current responsibilities, due to the rapid pace of development. Furthermore, the scarcity of competent personnel is further exacerbated by the limited professional development opportunities in AI and auditing. Internal auditors frequently

rely on general professional development programs or on-the-job learning; however, these programs often do not cater to the specific requirements of AI technologies. Auditors are not acquiring the requisite skills to work effectively with AI systems due to the absence of specialised, AI-focused training programs. The practical implementation of AI tools in auditing practices at public universities in Ghana is further impeded by the absence of professional development opportunities. A respondent from the University of Ghana observed:

> "There are a limited number of professional development opportunities that are specifically designed to address AI in auditing" (Interview, 2025).

The majority of training is either obsolete or too general. This underscores the necessity of training programs specifically designed to address the intersection of AI and auditing, providing auditors with the necessary skills to manage AI tools and technologies effectively.

7.6.1.3 Inadequate IT Infrastructure

A sophisticated and robust IT infrastructure is necessary to accommodate the computational requirements of these technologies for integrating AI tools into internal auditing processes. Nevertheless, numerous public universities in Ghana are facing substantial challenges with their IT infrastructure. This encompasses outdated hardware, inadequate software, limited storage capacity, insufficient cybersecurity protocols, and unreliable internet connectivity. To operate at their best, AI systems necessitate significant computational capacity, cloud-based platforms, and storage capabilities to manage the substantial volumes of data associated with auditing tasks. Regrettably, the adoption and effective utilisation of AI in auditing are exceedingly challenging because these resources are frequently unavailable at numerous public universities. According to a respondent from the University of Education, Winneba:

> "Our IT infrastructure is simply not capable of supporting AI systems. The system's outage is frequent, and the hardware is outdated, which hinders the effective use of AI tools in auditing" (Interview, 2025).

This observation highlights a significant impediment to the adoption of AI: the need for substantial investment in modernising and enhancing IT infrastructure. In fields such as auditing, AI applications require high-performance computational capabilities that can process vast quantities of data in real-time. However, outmoded systems are unable to meet these demands. The potential for AI tools to enhance auditing processes is limited by the lack of sufficient IT infrastructure, leading to inefficiencies and delays. The limited storage capacity further exacerbates the issue of inadequate IT infrastructure. Particularly when conducting

intricate analyses and processing historical records, AI-driven audit tools necessitate substantial data storage. Data may be lost or inadequately managed without sufficient storage capacity, resulting in disruptions to the auditing process. The challenge of integrating AI tools is further exacerbated by the limited storage available in public universities, as AI applications rely on large datasets to train algorithms and generate reliable results. A respondent from the University of Ghana stated:

> "Our storage capabilities are restricted, which presents a challenge when managing the large datasets required for AI-based audits. The data required for the efficient operation of these systems cannot be effectively stored and processed in the absence of sufficient capacity" (Interview, 2025).

Another significant obstacle to incorporating AI in internal auditing is the inadequate implementation of cybersecurity protocols. Stringent cybersecurity measures are necessary to ensure data privacy and protect against cyber threats, as AI tools often handle sensitive financial and institutional data. Nevertheless, the security risks associated with the adoption of AI are not adequately addressed by the existing cybersecurity infrastructure in many public universities. If the appropriate security protocols are not in place, AI tools, particularly those that utilise cloud-based platforms, are susceptible to data breaches, phishing attempts, and other security threats. To incorporate AI into auditing processes, universities are concerned about the risks of data breaches, unauthorised access, and system vulnerabilities—a respondent from the University of Cape Coast:

> "We are hesitant to implement AI due to the cybersecurity risks. We have previously encountered data intrusions, and we are concerned that the integration of AI may expose us to additional vulnerabilities" (Interview, 2025).

This apprehension is legitimate, as cybersecurity vulnerabilities have the potential to significantly undermine the credibility of internal auditing processes, compromise audit integrity, and expose the institution to legal and financial risks. To safeguard both the data being analysed and the systems that operate the AI tools, universities must prioritise the enhancement of cybersecurity protocols as AI applications are integrated into auditing. The incorporation of AI into auditing is further complicated by the decentralised character of university operations, in addition to the technical challenges of outmoded infrastructure and feeble cybersecurity. Each department within the university may operate with its own administrative structures, software, and data systems, which are frequently incompatible with one another. The absence of system integration presents a challenge in implementing a cohesive AI solution that can connect and analyse data across departments. The fragmentation

of data systems in universities presents a substantial challenge, as AI tools necessitate seamless data flow and integration across systems. AI tools may be rendered ineffective for internal assessments if they cannot access the necessary data to perform their functions properly without proper integration. According to a respondent from Kwame Nkrumah University of Science and Technology, data is frequently siloed due to the existence of distinct systems within various departments. The absence of integration between departments renders it challenging to implement AI for auditing purposes, as AI tools require unified systems to function effectively. This fragmentation results in inefficiencies in data management and presents challenges to the development of a unified auditing approach. The incorporation of AI into auditing is designed to simplify data analysis; however, the potential of AI is diminished if the data cannot be accessed in a coherent and centralised manner.

The effective utilisation of AI tools is also significantly impeded by unreliable internet connectivity. Stable and rapid internet connections are essential for the optimal operation of numerous AI applications, particularly those that utilise cloud-based platforms. Nevertheless, the use of AI-driven systems can be impeded by frequent service interruptions in numerous Ghanaian public universities, which are characterised by unreliable internet access. Data processing can be delayed, AI-driven analysis can be disrupted, and slow or inconsistent internet speeds can limit the ability to effectively disseminate findings to stakeholders. For example, AI tools that necessitate real-time data transmission or cloud computing may experience substantial delays or become entirely ineffective in the absence of reliable internet access. According to a respondent from the Ghana Communication Technology University:

> "Our internet connectivity is unstable, which presents a significant obstacle when we attempt to implement AI systems that depend on cloud platforms" (Interview, 2025).

The purpose of utilising AI in auditing is often defeated by the system's inability to process data in real-time. This highlights the importance of reliable internet connectivity for the effective implementation of AI. The effectiveness of integrating AI tools into auditing processes is compromised by their inability to operate at their maximum potential without it. Overcoming these IT infrastructure challenges is further complicated by the decentralised character of university operations. The software and data systems of each department are typically operated independently, and they may not be compatible with those of other departments or with AI tools. For instance, one department may utilise antiquated software for financial record-keeping, while another department may depend on contemporary systems.

This dearth of standardisation complicates the integration of AI applications that necessitate consistent and compatible data sources across departments. As a result, auditors may encounter difficulties in obtaining comprehensive and precise data, leading to inefficiencies in the auditing process.

7.6.1.4 Ethical Concerns

Institutions must confront the complex and substantial challenge of ethical concerns associated with the use of AI in internal auditing to ensure that AI-driven audits are accountable, fair, and reliable. The potential for bias in AI algorithms is one of the most significant ethical concerns. If these datasets contain biases, the AI may perpetuate or even amplify them, as AI systems are trained on large datasets that reflect prior behaviours and decisions. In the context of internal auditing, this results in audit conclusions that are inaccurate or unjust, as the AI may be influenced by historical patterns that do not necessarily reflect current circumstances or the organisation's performance. A respondent from the University of Cape Coast stated:

> "We are extremely concerned about the risk of bias. If the AI system is trained on biased data, it may result in audit findings that unjustly target specific departments or individuals or that completely overlook critical issues" (Interview, 2025).

This underscores a significant obstacle to the successful implementation of AI in auditing: guaranteeing that the data utilised to train AI systems is free of biases that result in erroneous or unjust conclusions. Due to AI's reliance on historical data, audit results may contain past biases, such as those associated with gender, ethnicity, or departmental practices. These biases have the potential to erode the credibility of the audit process and result in unjust outcomes for stakeholders. The "black box" nature of AI further complicates this issue, as the decision-making processes that underlie the AI's conclusions are not always transparent. AI systems, particularly those that are built on deep learning models, frequently operate in a manner that is not readily comprehensible to humans. In the context of auditing, where decisions and conclusions must be explicitly justified and conveyed to stakeholders, this lack of interpretability is problematic. Auditors may encounter challenges in explaining the rationale behind an AI system's particular conclusion, which may raise accountability questions. If a stakeholder challenges an AI-driven audit result, auditors may struggle to defend the findings, as they may not have a comprehensive understanding of the AI's methodology. A respondent from the University of Ghana stated:

> "Explaining AI-driven audit results to our stakeholders is one of the most significant challenges we encounter" (Interview, 2025).

The AI's decision-making process is not always transparent, making it challenging to provide a valid explanation if the results are contested. This underscores the ethical dilemma regarding the transparency of AI systems in auditing. The results of internal audits must be trusted by stakeholders, such as university administrators, government regulators, and external auditors. The legitimacy of audit findings is diminished, and trust in the audit process is eroded if the process by which AI arrives at its conclusions is opaque. Additionally, AI systems may neglect or disregard critical contextual factors that human auditors evaluate. Internal auditing frequently entails the evaluation of intricate, subjective matters, including organisational culture, individual behaviours, and intricate financial practices. While AI systems may be incapable of interpreting these factors, human auditors do so through their professional judgment and expertise. AI systems are designed to analyse structured data and adhere to predetermined algorithms; however, they may not be adequately equipped to evaluate the intangible aspects of an institution, such as internal dynamics or the motivations of individuals. Consequently, AI may overlook critical insights or fail to offer a comprehensive understanding of the institution's operations. A respondent from the University of Energy and Natural Resources stated:

> "AI can assist in the processing of large datasets; however, it fails to consider the intricacies of human behaviour or organisational culture" (Interview, 2025).

In certain instances, these factors are crucial for the development of precise audit conclusions, and AI may overlook them. This issue is significant because internal auditing necessitates a comprehension of the human and organisational contexts in which the data is situated, in addition to data analysis. The potential consequences of AI's inability to fully comprehend these factors include incomplete audit findings or the omission of critical insights, which can result in flawed conclusions. Accountability is also a substantial ethical dilemma. If an AI-driven audit result is discovered to be inaccurate or biased, it is challenging to ascertain who should be held accountable. In traditional auditing processes, human auditors are held accountable for their decisions and actions. Nevertheless, the allocation of blame for auditing errors becomes more ambiguous when artificial intelligence is implemented. Is the responsibility borne by the developer who developed the AI system, the institution that adopted it, or the auditors who depended on it? This absence of clarification leads to ethical dilemmas, particularly when an AI-driven audit result has substantial financial or reputational repercussions for the institution. A respondent raised concerns regarding accountability from the University of Education, Winneba:

> "It is challenging to determine the individual responsible in the event of an AI-driven audit malfunction. Is it the software, the IT department, or our role as auditors?" (Interview, 2025).

It is challenging to completely integrate AI into auditing due to the absence of accountability. The diffusion of responsibility that is associated with the adoption of AI is a critical ethical challenge that this comment underscores. The human auditors who conduct the procedure are responsible for the veracity of the audit in traditional auditing. Nevertheless, the responsibility becomes more ambiguous with the implementation of AI, which complicates the assignment of culpability or the resolution of potential errors in the audit process. The ethical risks associated with the increasing automation of auditing functions further exacerbate the potential for AI to undermine impartiality and transparency in auditing. The potential for AI systems to replace human auditors in specific roles exists as they become more adept at conducting intricate tasks. Although this may result in increased efficiency, it also raises ethical concerns regarding the displacement of workers, particularly in the context of public universities, where auditors may be perceived as critical actors in ensuring accountability. The ethical foundations of the auditing process may be compromised by the danger of biased algorithms and the loss of human judgment in auditing. Suppose AI is allowed to take over key decision-making functions without proper oversight. In such cases, the audit process will no longer reflect the ethical standards of fairness, transparency, and accountability that are crucial to maintaining trust in public institutions.

7.6.1.5 Data Quality and Availability Issues

The internal auditing processes of public universities in Ghana face significant challenges when implementing AI, particularly in terms of data integrity and availability. Large quantities of precise, clear, and well-organised data are necessary for the integration of AI systems into auditing workflows. This data is essential for the optimal operation of AI tools; however, numerous public universities in Ghana encounter challenges in satisfying these data requirements. In practice, the data available for audit purposes is frequently fragmentary, outdated, or inadequately structured, which complicates the task of generating accurate results for AI systems. A respondent at the University of Cape Coast observed:

> "We frequently encounter obstacles when attempting to access comprehensive datasets. The data is frequently outmoded, stored in a variety of formats, and dispersed across multiple departments. This data must be in a format that is usable for AI to function effectively, and we are currently lacking in this regard" (Interview, 2025).

This statement emphasises a significant impediment to the application of AI in auditing: data is frequently insufficiently maintained and dispersed, which restricts its potential for AI-driven analysis. The integration and analysis of data using AI tools are further complicated by the fact that it is typically stored in various formats across different departments. This fragmentation hinders the ability of AI systems to access the necessary data, resulting in inefficient processes and potential gaps in audit findings. A respondent from the University of Education, Winneba, stated:

> "It is not always easy to standardise or centralise data, as each department manages it in its own way" (Interview, 2025).

This disorganisation impacts the efficacy of any AI system that attempts to analyse the data. Because AI systems are unable to process and analyse data that is not in a consistent and compatible format, it is challenging to fully utilise AI tools due to the absence of standardised data management practices. Additionally, the issue is further exacerbated by the fact that many of the data sources auditors have access to are either obsolete or insufficient. AI systems are restricted in their capacity to produce precise results because they are trained on historical data that may not accurately reflect current operational conditions. In the context of internal auditing, where accurate and timely data are crucial for detecting anomalies, ensuring compliance, and providing actionable insights, this is particularly concerning. A respondent from the University of Ghana stated:

> "The data we employ in auditing is frequently several years old, which makes it challenging to make decisions based on it. Artificial intelligence necessitates current data to function efficiently; however, this is frequently unavailable in our context" (Interview, 2025).

Furthermore, the absence of a centralised or standardised data management approach results in data quality concerns. Inconsistent data entry practices, inaccurate records, and absent data compromise the reliability of audit results generated by AI tools. To generate valuable insights, AI systems necessitate high-quality data. However, inadequate data quality results in flawed conclusions, which compromise the integrity of the entire auditing process. This problem is further exacerbated by a general dearth of cognisance of the most effective data management practices within public universities. A respondent from Kwame Nkrumah University of Science and Technology stated:

> "AI cannot provide the necessary results in the absence of appropriate data management policies. For AI to be effective, our data must be consistently updated, accurate, and consistent" (Interview, 2025).

The decentralised character of public universities further complicates the data management challenge. In numerous institutions, each department may have its data storage systems, frequently employing distinct software tools and platforms to manage and analyse data. This leads to a situation in which data is compartmentalised within departments, which hinders seamless integration and access throughout the university. A respondent from the University of Energy and Natural Resources stated:

> "Each department has its method of data management, and there is no central system to unify everything. AI is incapable of functioning effectively in such an environment due to its requirement to access data from numerous sources in a seamless manner" (Interview, 2025).

In addition to the decentralised nature of data storage, the data challenges that universities in Ghana encounter are also exacerbated by the absence of standardised data governance frameworks. Universities encounter difficulties in guaranteeing that the data utilised in audits is both accurate and current due to the absence of defined guidelines and structures for data management. Ensuring compliance with relevant regulations and standards, monitoring data quality, and maintaining data integrity can be challenging without a cohesive data governance strategy in place. This presents a substantial obstacle to the successful incorporation of AI tools into the internal audit function, as AI systems are heavily reliant on data that satisfies specific quality criteria. This issue was emphasised by a respondent from Ghana Communication Technology University, who stated:

> "The absence of standardised data governance is one of the most difficult aspects of utilising AI in auditing. We cannot guarantee the reliability of the data we employ for AI analysis in the absence of a framework that establishes the appropriate methods for data management, maintenance, and access" (Interview, 2025).

The broader literature on data governance echoes this concern, emphasising the necessity of establishing explicit data management policies and protocols to guarantee data quality and accessibility. AI tools are unlikely to function effectively without such frameworks, as they cannot rely on inconsistent or insufficient data. The issue of inadequate data quality and availability is not exclusive to Ghana's public universities; it is a prevalent obstacle encountered by numerous organisations that are contemplating the implementation of AI-driven solutions. Molefi et al. (2024) have reported that the availability of high-quality data is one of the primary

obstacles to the adoption of AI in organisations worldwide. This is especially true in industries where data is dispersed across multiple departments or stored in incompatible formats, which complicates its effective utilisation. The report also emphasises that the absence of standardised data management practices is a substantial impediment to the effective deployment of AI technologies, as AI tools necessitate consistent, dependable data to produce precise and meaningful insights.

7.6.1.6 Resistance to Change

One of the most significant obstacles to the successful implementation of AI in internal audit functions, particularly in public universities in Ghana, is resistance to change. This challenge is particularly acute for auditors who have been in the field for an extended period and are profoundly rooted in conventional audit methods and procedures. Many auditors are hesitant to adopt new technologies such as AI, as they have spent years or even decades working with conventional auditing techniques. This reluctance is frequently motivated by concerns regarding job displacement, obsolescence, and a perceived loss of control over the auditing process. Although AI tools have the potential to improve efficiency and productivity, they are perceived as a threat to the established practices that auditors have grown accustomed to. When discussing the reluctance of staff to implement AI tools, a respondent from the University of Cape Coast stated:

> "There is much resistance, particularly from older auditors who have been doing this job the same way for many years. They perceive AI as a threat as if their positions will be supplanted, although AI is intended to enhance their performance" (Interview, 2025).

This quote highlights the widespread concern about job loss that may accompany technological advancements. It is a challenge that numerous organisations encounter when introducing disruptive technologies, and the auditing profession is no exception. The potential for AI systems to automate specific audit tasks is increasing as they become more sophisticated. However, if not adequately incorporated into the workflow, this leads to the displacement of human auditors. Additionally, there is a prevailing concern about the potential loss of control over the auditing process. Auditors are acclimated to exercising complete control over the auditing process, relying on their expertise and experience to make decisions. However, the decision-making process becomes increasingly automated with the use of AI tools, and some auditors may perceive that their input is forfeited in the process. A respondent from the University of Education, Winneba, stated:

> "Some of our auditors are concerned that they will lose the control they are accustomed to if we allow AI to take over certain aspects of the auditing process" (Interview, 2025).

They believe that it is a black box, and they will be unable to elucidate the audit process. This statement addresses the broader concern regarding the transparency and clarity of AI decisions. Auditors may face difficulty in trusting AI-driven audit outcomes if they are unable to fully understand or explain the process by which those results were obtained, as they are frequently obligated to justify their decisions to management and other stakeholders. Auditors, who have been instructed to rely on their judgement and expertise, may experience significant anxiety due to the opacity of AI systems, which is frequently referred to as the "black box" problem. Another factor that contributes to resistance is the scepticism that particular auditors have regarding the reliability and accuracy of AI tools. Although AI has made substantial progress in various sectors, some auditors may have reservations about its ability to provide precise and dependable audit results, particularly in complex or subjective situations where human judgment is crucial.

> "We have observed AI fail in certain areas, as one respondent from the University of Ghana observed. It has the potential to make errors or misinterpret data. We are not yet entirely confident in AI, as it is not always evident how it reaches its conclusions" (Interview, 2025).

This scepticism stems from the inherent limitations of AI systems, which are prone to errors, particularly when working with incomplete or low-quality data. Additionally, the accuracy of AI results may be compromised in situations where audit scenarios are unique or unprecedented, since AI tools rely on historical data. Furthermore, resistance to change may be exacerbated by the absence of leadership support for AI adoption. It is challenging to cultivate enthusiasm for AI among employees when key stakeholders, particularly those in positions of authority, fail to actively promote the technology and its advantages. A respondent from Kwame Nkrumah University of Science and Technology stated:

> "Leadership appears to lack a comprehensive understanding of the potential of AI in the audit process" (Interview, 2025).

The staff is not informed of its potential, which results in a lack of concerted effort. The absence of communication and support from leadership results in auditors being uncertain about the value and relevance of AI tools, which contributes to their reluctance to adopt new technologies. Another aspect of this resistance is the broader cultural context of public universities in Ghana, where tradition and established practices frequently exert a significant

influence. Many organisations, particularly those with a lengthy history, have a strong association with the "way things have always been done." This adherence to tradition impedes the adoption of new technologies, such as AI. A respondent from the University of Energy and Natural Resources stated:

> "A slow pace of change characterises our institution. For decades, we have conducted assessments in a specific manner, and numerous individuals are not yet prepared to adopt AI. Convincing them that AI can serve as an ally rather than a substitute is a challenging task" (Interview, 2025).

A sluggish tempo of change often characterises public institutions, as the inertia of longstanding practices frequently impedes the introduction of new ideas, particularly those that challenge the status quo. These concerns regarding job displacement, loss of control, and the trustworthiness of AI are further exacerbated by a general lack of comprehension regarding the capabilities and functionality of AI. This lack of familiarity can contribute to dread and resistance, as many auditors may have limited knowledge of AI technology. The respondent from the University of Cape Coast observed:

> "We do not have sufficient AI training. It is difficult to place our trust in it because we cannot understand its operation. People are more inclined to resist change when they lack adequate training" (Interview, 2025).

Auditors may fail to recognise the potential of AI to strengthen their work by improving their capacity to analyse data and identify issues more effectively without appropriate education and training. Resistance is exacerbated by the absence of explicit communication and training regarding the role of AI in auditing, resulting in ambiguity about the technology's impact on the job and the broader audit process. Additionally, resistance to change is not solely a function of individual attitudes towards technology. Additionally, organisational culture has an impact on it. Public universities, like many other public institutions, often possess hierarchical structures and a strong sense of tradition, which can present obstacles to the implementation of new technologies.

7.7 Discussion of Findings

The results indicate that internal auditors in Ghanaian public universities face a multifaceted array of obstacles when endeavouring to incorporate Artificial Intelligence into their auditing processes. The substantial disparity in skills and knowledge among audit personnel was a dominant issue that emerged. A significant number of auditors are not conversant with AI technologies and their applications to auditing tasks, which is a more profound institutional

issue rooted in the historical reliance on manual auditing methods. This skills deficit is not solely technical; it also encompasses cultural and educational aspects. Structured AI training and programs for the professional development of auditors have not yet been implemented by universities in Ghana, resulting in a situation where audit personnel are ill-prepared for the digital transformation (Fotoh & Lorentzon, 2023). This underscores the urgent need for training programs, particularly those designed for the internal audit sector, that aim to bridge the knowledge gap and equip auditors with the AI literacy necessary for contemporary auditing. The significance of auditors' continuous professional development and upskilling in adapting to new technologies has been underscored in prior research, including that conducted by Teeter (2016). Additionally, Damerji and Salimi (2021) have contended that organisations implementing AI must prioritise training to ensure that employees seamlessly integrate new systems into existing operations without encountering operational inefficiencies or resistance. These results suggest that resolving this divide is imperative to achieving successful AI integration.

This challenge is further exacerbated by the absence of AI expertise in the public sector, which has emerged as the most significant impediment to successful AI implementation. Internal auditors unanimously concurred that the scarcity of AI-competent professionals is a basic impediment, as the specialised knowledge necessary for AI auditing, including programming, systems integration, and algorithmic analysis, is significantly different from traditional auditing skills (Pham et al., 2023). This scarcity is particularly severe in Ghana's public universities, where a lack of career development opportunities and limited financial incentives impedes the attraction and retention of AI talent. The public sector's limited career development opportunities and low remuneration render AI expertise an even scarcer commodity, thereby impeding the universities' capacity to establish robust AI capabilities. These findings are corroborated by prior research, including that conducted by Mensah et al. (2024), which emphasises that the successful implementation of AI in auditing is contingent upon the availability of competent professionals who are capable of adjusting technology to the distinctive requirements of the field. The scarcity of AI specialists in the public sector is a critical barrier, as the successful implementation of AI tools requires a dedicated workforce that seamlessly incorporates new technologies, as emphasised by a study by Ahmad Jaber and Mohammed Shah (2024). As a result, Ghanaian public universities must establish strategies to attract and retain AI talent, such as providing competitive remuneration and promoting career advancement opportunities.

The study also identified the substantial training and re-skilling requirements for auditors as they transition to AI-driven auditing processes, which was another significant challenge. Auditors must undergo a fundamental reorientation of their auditing approach, not only in terms of the technical aspects of AI tools but also in how they conceptualise and execute their tasks. The integration of AI into auditing is not merely a matter of implementing new software; it necessitates a shift in perspective, as auditors must understand how AI aligns with audit objectives, risk management, and decision-making processes. This transition presents a significant challenge for auditors, particularly those with extensive experience in conventional methodologies. The incorporation of AI in auditing necessitates a substantial cognitive shift, as it requires transitioning from manual checks to data-driven decision-making processes, as emphasised by research conducted by Qadir et al. (2022). Long-serving auditors may encounter challenges in adopting new technologies, rendering the necessity of retraining all the more pressing. Muhammad and Ismail (2022) reported that the tempo of technological change in auditing is rapid, and failure to maintain pace with this change leads to operational inefficiencies and increased resistance among staff. Consequently, it is essential to develop training programs that effectively cater to auditors of varying skill levels, thereby promoting inclusivity and fostering long-term learning and development. Universities mitigate resistance to change and cultivate a workforce that is capable of adapting to technological advancements by encouraging ongoing professional development.

The effective use of AI in auditing was also significantly impeded by data-related challenges. Many public universities in Ghana are confronted with the challenges of fragmented data and the absence of centralised databases. However, AI systems are heavily reliant on high-quality, structured, and standardised data (Thottoli & Ahmed, 2022). The effectiveness of AI systems is compromised by the absence of a coherent data infrastructure, as these systems depend on consistent, pure data to generate dependable results. The accuracy of AI-driven audits is significantly compromised by data inconsistency, missing entries, and unstructured formats, which result from this fragmentation. Coker et al. (2023) and Hussein (2016) have consistently underscored the importance of data quality in the context of AI's effectiveness in auditing. Unreliable audit results and the potential compromise of the audit process are the consequences of poor data quality, which undermines the effectiveness of AI tools. In the context of Ghanaian public universities, this issue is particularly relevant, as various departments frequently maintain isolated data in the absence of a central repository or a harmonised data governance framework. Therefore, it is imperative to establish a data governance framework that

guarantees data integrity, standardisation, and integration. According to Odonkor et al. (2024), the potential of AI in auditing is not realised if data governance is inadequate, as AI tools do not function optimally. Consequently, it is imperative to establish a standardised and integrated data infrastructure across departments for AI to realise its capabilities in the auditing process fully.

The adoption of AI in auditing is also significantly impeded by institutional and organisational dynamics. The investigation determined that the absence of support from senior management was a substantial concern, indicating a more general organisational reluctance to embrace digital transformation and innovation. It is challenging to establish a culture of innovation and digital transformation within audit departments without strong leadership that advocates for the integration of AI. The critical role of senior management in promoting technological change within organisations has been previously emphasised in previous studies. Damerji and Salimi (2021), for example, underscore the importance of organisational support in shaping employees' perceptions of technology adoption in their Unified Theory of Acceptance and Use of Technology. In the context of AI in auditing, leadership is crucial not only for providing strategic direction and resources but also for cultivating an environment that promotes learning and experimentation (Fotoh & Lorentzon, 2023). Furthermore, auditors who are acclimated to legacy systems exhibit resistance, which exacerbates the problem. A study conducted by Pham et al. (2023) demonstrated that the overall adoption of new technologies is hindered when leadership fails to actively promote and support AI initiatives, resulting in increased scepticism and resistance among staff. To surmount this obstacle, university leaders must advocate for the integration of AI into auditing practices, demonstrating a strong commitment to AI adoption. Leadership must also address concerns regarding job displacement and guarantee that auditors receive support during the transition process, offering continuous encouragement and reassurance.

The study also identified additional barriers, including the complexity of AI tools and the lack of collaboration between internal audit and IT departments. The seamless integration of AI with existing IT systems and the ongoing support of the IT department are essential components of AI implementation. Nevertheless, the effectiveness of AI integration is diminished by the isolated operations of the audit and IT departments in numerous public universities. This discovery is consistent with prior research, including Hoai et al. (2022), which underscored the significance of collaboration between audit and IT teams in promoting

the successful implementation of AI. For AI tools to function efficiently, they necessitate specialised technical support. However, the implementation process becomes fragmented if departments fail to collaborate closely, resulting in delays and inefficiencies. Furthermore, the efficacy of AI systems is impeded by their complexity, as numerous off-the-shelf solutions are inadequate for the unique requirements of public sector investigations (Mensah et al., 2024). The importance of AI tools being user-friendly and adaptable has been underscored by research conducted by Muhammad and Ismail (2022) to guarantee effective integration. Auditors may encounter challenges in effectively utilising AI, which undermines its potential benefits, in the absence of appropriate IT support and customised solutions. Consequently, it is imperative to establish a robust working relationship between the audit and IT departments and ensure that AI tools are customised to the unique requirements of the public sector to overcome these obstacles.

7.8 Contribution of the Findings

7.8.1 Theoretical Contribution

The results of this study make a substantial contribution to the theoretical understanding of incorporating AI into the auditing procedures of public universities in Ghana. The identification of the skills disparity among auditors, which has been largely neglected in the extant literature, is one of the central contributions. Although prior research has recognised the significance of training in the context of technological adoption (Odonkor et al., 2024), this study further emphasises the unique obstacles encountered by auditors in public universities. Institutional practices and inadequate training programs have impeded the development of essential AI competencies. The research emphasises that auditors in public universities in Ghana are not equipped with the necessary technical knowledge to integrate AI technologies effectively and lack exposure to these technologies. Not only does this disparity pose a substantial obstacle to the adoption of AI, but it also raises concerns regarding the quality of the professional development programs offered by these institutions. The public sector, particularly in developing countries such as Ghana, has received less attention in the prior literature on the digital transformation of auditing, which has frequently concentrated on large corporations and the private sector (Alfartoosi et al., 2021; Hussein, 2016). This research contributes to the broader discourse by highlighting the distinct challenges faced by public sector auditors and underscoring the need for context-specific, AI-related professional development programs tailored to the public sector.

The study not only emphasises the skills divide but also demonstrates that the public sector's scarcity of AI experts presents a significant obstacle to integrating AI into auditing processes. Although the technical aspects of AI systems have been the primary focus of much of the extant research on AI adoption in auditing (Pham et al., 2023), this study emphasises the significance of human capital in the successful implementation of these technologies. The findings suggest that the slow adoption of AI in auditing is primarily due to the scarcity of qualified professionals with AI expertise in Ghanaian public universities. The limited financial incentives and absence of career progression in public institutions exacerbate this issue, making it challenging to attract and retain competent professionals with the technical expertise required to integrate AI into auditing practices. The necessity of AI specialists within auditing teams to manage the intricacy of AI tools has been emphasised in previous research (Coker et al., 2023; Abrokwah-Larbi & Awuku-Larbi, 2024). This research substantiates this assertion by illustrating that AI integration is not solely dependent on the acquisition of software or systems, but also on the availability of a sufficiently skilled workforce. Theoretical contributions of this study, therefore, emphasise the importance of human capital in the digital transformation of auditing practices, indicating that a concerted effort is necessary to attract, retain, and cultivate AI talent within the public sector to achieve Successful AI implementation.

This study also makes a theoretical contribution by investigating the institutional dynamics that influence the adoption of AI technologies in auditing. The results suggest that the success of AI integration is significantly influenced by organisational culture and leadership support. Although previous research has emphasised the importance of leadership in the adoption of technology (Alfartoosi et al., 2021; Hussein, 2016), this study provides a more comprehensive understanding of how a lack of support from top management hinders the adoption of AI in the context of public universities in Ghana. The institutional inertia towards digital transformation is evident in the absence of a clear strategic direction and the reluctance of upper management to invest in AI infrastructure or provide sufficient resources for its integration. This discovery refutes the notion that the adoption of AI is exclusively dependent on technological readiness or technical training. Instead, it implies that the success of AI integration is inextricably linked to the organisational culture and leadership that are in place. Organisational change theory has long postulated that the successful incorporation of technology necessitates dedication to cultivating an innovation-driven culture and strong leadership (Abrokwah-Larbi & Awuku-Larbi, 2024). Through the application of this theory to the context of public universities in

Ghana, this study provides additional evidence that leadership is a crucial factor in the adoption of emerging technologies, such as AI.

Additionally, the study fosters a more comprehensive theoretical understanding of the incorporation of AI in auditing by emphasising the data-related obstacles that auditors encounter in Ghanaian public universities. The significance of data quality and standardisation is frequently underscored in the existing literature on AI in auditing (Alfartoosi et al., 2021). However, this study offers novel insights into how fragmented data and a lack of standardised databases impede the adoption of AI in the public sector. The results indicate that a centralised data infrastructure is lacking in numerous public universities in Ghana, as departments maintain isolated, unstructured, and inconsistent data. This fragmentation complicates the operation of AI systems, as they depend on well-structured, high-quality data to generate dependable outcomes. The research posits that the incorporation of AI in auditing is not solely a technological issue, but also a data governance issue. Theoretical contributions from this study challenge the current perspectives that exclusively concentrate on the technological aspects of AI adoption, suggesting that organisations must also invest in robust data governance structures that ensure data quality, consistency, and integration across different departments. Pham et al. (2023) and other scholars have underscored the direct correlation between data quality and the efficacy of AI. This study substantiates this assertion by demonstrating how inadequate data management practices in public universities impede the implementation of AI in auditing.

The study emphasises the significance of training and re-skilling auditors to enable them to adapt to AI-driven auditing processes, in addition to data-related challenges. Previous research has recognised the significance of upskilling employees to accommodate the requirements of emerging technologies (Amonkwandoh, 2021; Thethi, 2024). However, this investigation provides a more nuanced understanding of the unique challenges auditors face as they transition from conventional auditing methodologies to AI-driven processes. The results suggest that auditors must make a significant change in their approach to work, transitioning from manual procedures to data-driven decision-making supported by AI technologies. This cognitive transition is especially challenging for auditors with extensive experience in conventional methods, as they are required to reorient their understanding of audit objectives, risk management, and decision-making within the context of AI. The research suggests that auditors should be permitted to fully integrate AI technologies by developing effective training programs that address this cognitive shift. This study underscores the significance of

developing training programs that extend beyond technical skills to restructure auditors' mental models and auditing approaches, thereby contributing to the literature on the intersection of technology adoption and cognitive change in the workplace.

Finally, this research makes a substantial contribution by investigating the intricate relationship between the IT and audit departments during the AI adoption process. Although previous research has emphasised the importance of departmental collaboration in the successful implementation of AI (Amoako et al., 2023), this study highlights the challenges that arise when these departments operate independently. The absence of communication and collaboration between the IT and audit teams has impeded the successful integration of AI into auditing processes in Ghanaian public universities. The results indicate that the effective integration of AI tools into auditing practices necessitates not only technological infrastructure but also cross-departmental collaboration. The study contributes to the existing body of literature by illustrating that the successful incorporation of AI in auditing is contingent upon the presence of appropriate organisational processes and relationships, in addition to the availability of suitable technology. This discovery is consistent with organisational behaviour theories, which argue that effective technology adoption necessitates coordination and collaboration among various functional areas of an organisation (Thethi, 2024). The study, therefore, highlights the need for enhanced communication and collaboration between audit and IT departments to overcome the challenges associated with AI integration in the public sector.

7.8.2 Policy and Practical Implications

The results of this study indicate that there are numerous critical policy and practical implications that are used to overcome the obstacles to the adoption of Artificial Intelligence in auditing processes within Ghanaian public universities. First, a critical policy implication is the pressing necessity for educational institutions and the government to create and execute AI-focused training programs specifically designed for internal auditors. The necessity for comprehensive, targeted educational initiatives that provide auditors with the necessary technical competencies to effectively integrate AI tools into their work is underscored by the significant skills deficit identified in the study. These training programs should not only provide an overview of the fundamentals of AI but also emphasise its potential applications in auditing tasks, including data analysis and decision-making. To guarantee sustainability, these programs should be designed to offer continuous professional development opportunities. This

is achieved through partnerships with technology companies, as well as participation in conferences and seminars. These initiatives enable audit professionals to stay informed about the latest developments in artificial intelligence and data analytics, ensuring that their skills remain relevant in a world that is becoming increasingly digital. Furthermore, universities establish certification programs in AI for auditors in partnership with professional organisations, which would guarantee that auditors achieve minimum proficiency levels and establish a standardised framework for competency.

The study also reveals a significant practical implication: the need to enhance recruitment and retention strategies for AI professionals in public universities. The results indicated that the scarcity of AI-experienced professionals is a significant impediment to the adoption of AI in the auditing field. Public universities are unable to recruit and retain competent AI professionals due to limited financial incentives and career progression opportunities. Consequently, their capacity to develop AI-based auditing systems is restricted. To attract AI experts to the public sector, policymakers must prioritise initiatives that establish more appealing career trajectories. This entails providing distinct career advancement pathways, competitive compensation, and establishing professional development programs that enable AI professionals to enhance their skills continually. Furthermore, universities may establish talent pipelines by partnering with technology companies and consulting firms to organise recruitment fairs, mentorship programs, and internships that are focused on AI professionals. Ghanaian public universities can establish a more resilient AI talent pool by improving their recruitment and retention strategies, ensuring they possess the requisite expertise to facilitate the integration of AI into auditing processes.

Another critical factor that must be prioritised in policy efforts is the strong leadership and commitment of senior management. The research indicates that a lack of support from institutional leaders has significantly impeded the implementation of AI in auditing. Leadership is essential for advancing the digital transformation agenda, as their guidance is required to ensure that the incorporation of AI aligns with the overarching institutional strategic objectives. For AI integration to be successful, university leadership must not only endorse AI initiatives but also guarantee that they are adequately resourced and supported during the implementation process. This encompasses the provision of sufficient financing for AI infrastructure, the allocation of essential human resources, and the cultivation of a culture that embraces technological change. As a result, policymakers should focus on motivating university

leadership to implement AI proactively. This involves developing a transparent roadmap for AI integration that is disseminated throughout the organisation. Furthermore, institutional leaders must establish performance metrics that quantify the influence of AI integration on auditing processes, thereby guaranteeing accountability and ongoing improvement. The potential benefits of AI can be undermined by the sluggish and disjointed adoption of the technology in the absence of effective leadership.

The findings also emphasise the necessity of improving data governance frameworks in public universities. The study identified inadequate data quality as one of the primary impediments to the effective use of AI in auditing processes. To operate at their best, artificial intelligence systems necessitate substantial quantities of transparent, standardised, and high-quality data. Nevertheless, the efficacy of AI tools is compromised by the fragmented and isolated nature of data across departments in numerous public universities, as these tools are dependent on integrated and consistent datasets. The policy implication is that universities must prioritise the development of comprehensive data governance structures that ensure data quality, consistency, and accessibility across various departments. The establishment of centralised data management systems facilitates the accumulation of data and guarantees that audit teams have access to standardised, well-organised datasets. Moreover, universities should establish policies that promote the integration of data across functions, including finance, administration, and audit, by encouraging departments to collaborate on data-sharing initiatives. This ensures that AI systems have access to reliable data, thereby enhancing the effectiveness and accuracy of audit processes. AI success is contingent upon the quality of data and its effective incorporation, and institutions that wish to integrate AI into auditing effectively must prioritise the resolution of these challenges.

Lastly, the study emphasises the importance of fostering improved collaboration between IT and audit departments. Practical AI tools require ongoing IT support and seamless integration with existing systems, which was identified as a substantial impediment to AI implementation due to the lack of collaboration between these two divisions. To foster interdepartmental collaboration, it is essential to implement practical measures, such as forming cross-functional teams that unite IT specialists and audit professionals. These teams are responsible for ensuring that AI solutions are compatible with the unique requirements of auditing processes and are tailored to the current technological infrastructure. Additionally, universities should establish formal communication channels between their audit and IT departments to encourage regular

interactions and collaboration on AI-related projects. By collaborating, these departments can ensure that AI tools are seamlessly incorporated into auditing workflows, thereby reducing technical issues and enhancing the efficacy of AI systems. The overall efficacy of AI in enhancing audit outcomes is improved by fostering a culture of collaboration, which ensures that AI tools meet the requirements of auditors.

7.9 Chapter Summary

The findings indicate that several significant obstacles impede the implementation of AI in auditing processes within Ghanaian public universities. Initially, a substantial skills deficit was identified among auditors, as many lacked the requisite technical expertise to effectively integrate AI into their practices. The institution's inadequate professional development programs further exacerbate the critical barrier of a scarcity of competent AI professionals. Furthermore, the findings suggest that the lack of AI experts in the public sector hinders the slow pace of AI adoption in the auditing sector. This issue is further exacerbated by the limited financial incentives and career progression opportunities available in public universities, which make it challenging to attract and retain qualified personnel. Additional significant obstacles have been identified, including inadequate assistance from senior management. The integration of AI technologies is impeded by the lack of a clear strategic direction and leadership commitment to investing in AI infrastructure. The success of AI adoption is significantly influenced by organisational culture and leadership.

The integration process is frequently delayed or inadequately executed in the absence of sufficient support from decision-makers. Additionally, data-related issues emerged as a significant constraint, as fragmented and unstructured data impeded the practical application of AI. This complicates the incorporation of AI systems that depend on consistent, high-quality data, as numerous departments within universities maintain isolated data collections. The study ultimately found that the IT and audit departments frequently operate in silos, resulting in communication barriers and inefficiencies in the adoption of AI. The lack of collaboration between these departments further impedes the successful implementation of AI technologies in auditing. Ultimately, the research underscores the importance of enhanced interdepartmental collaboration, decisive leadership, improved data stewardship, and targeted training to overcome these challenges and facilitate the successful integration of AI into auditing.

CHAPTER EIGHT
CONCLUSION AND RECOMMENDATIONS

8.1 Introduction

This chapter summarises the findings, conclusions, and recommendations derived from the study. The chapter is organised into five (5) main primary sections as detailed below: Section 8.1 summarises the findings of the study, while Section 8.2 presents the conclusion of the study. Section 8.3 presents the study's recommendations, Section 8.4 discusses its limitations, and Section 8.5 offers suggestions for future research.

8.2 Summary of the Study

The rapid advancement of technology has revolutionised conventional auditing procedures, with artificial intelligence serving as a key factor in the transformation of internal audit functions. The function of internal auditors is more critical than ever in Ghanaian public universities, where financial accountability and transparency are being increasingly scrutinised. Nevertheless, a significant number of institutions continue to rely on antiquated and manual auditing procedures, which hinder their ability to identify fraud in real-time and reduce efficiency. AI presents an opportunity to overcome these challenges by enhancing the depth, speed, and accuracy of audit operations.

This study examines the impact of AI on internal audit functions in public universities in Ghana, with a focus on the perceptions of internal auditors, the limitations of current practices, and the potential for AI integration in the future. The methodology employs a mixed-methods approach, integrating both quantitative and qualitative strategies to investigate the influence of artificial intelligence on internal audit functions in public universities in Ghana. The study is grounded in the positivist paradigm, which emphasises the collection of objective data and the application of statistical analysis. The data were exclusively collected from internal auditors, thereby guaranteeing that the insights were focused on audit-specific experiences and perceptions. Questionnaires were distributed to 177 internal auditors for the quantitative phase. Of these, 176 were completed and returned, thereby constituting a valid sample for analysis. Semi-structured interviews were conducted with six internal auditors during the qualitative phase to gain a deeper understanding of the practical challenges and implications of AI adoption. The sampling strategy guaranteed that the participants were from the six selected public universities in Ghana. The reliability and validity of the research instruments were

ensured through the review of supervisors and pretesting. Informed consent, confidentiality, and voluntary participation were rigorously adhered to as ethical considerations.

8.2.1 The Perceptions of the Usage of AI in Internal Audit Functions to Ensure Accountability in Public Universities in Ghana

The results indicate that internal audit professionals in Ghanaian public universities have a strong and positive perception of the integration of Artificial Intelligence (AI) into internal audit functions, particularly in the context of enhancing accountability and transparency. According to a substantial majority of respondents, AI significantly enhances accountability by enhancing the efficacy, accuracy, and real-time capabilities of audit processes. This broad consensus emphasises the increasing acknowledgement of AI's potential to enhance institutional governance and modernise internal audit functions. The results consistently showed that AI's efficacy in critical audit areas, including fraud detection, compliance monitoring, and continuous auditing, was characterised by high mean scores. Respondents emphasised the ability of AI to rapidly identify financial irregularities, automate repetitive tasks, and analyse extensive datasets, thereby allowing auditors to concentrate on the more intricate and strategic aspects of auditing. AI plays a critical role in identifying and resolving discrepancies before they escalate by enhancing the speed and accuracy of these processes, thereby promoting a culture of accountability within public universities.

Additionally, accountability outcomes have been significantly enhanced by institutions that have implemented proactive AI-focused training programs for their auditors. This implies that it is imperative to allocate resources toward the development of internal auditors' capabilities to optimise the utilisation of AI. This training enhances their technical proficiency and confidence in applying AI tools, leading to more incisive audits and more robust financial oversight. Furthermore, the incorporation of AI into audit functions has enabled the production of more comprehensive and precise audit reports, thereby further enhancing transparency and accountability. The findings also emphasise the significance of cross-departmental collaboration in the utilisation of AI tools, which fosters shared responsibility among various stakeholders. This collaborative approach encourages a collective effort to uphold high standards of financial integrity and promotes greater transparency. Nevertheless, the utilisation of generative AI tools, including Gemini and ChatGPT, for audit planning and reporting garnered favourable responses; however, they were slightly less widely adopted. This suggests that, despite their potential, the adoption of these tools is enhanced by additional exposure,

practical application, and targeted training to improve their effectiveness and application in audit processes.

8.2.2 The Perception of the Effectiveness of AI in Detecting Fraudulent Activities and Improving Internal Controls in Public Universities in Ghana

The findings indicate that respondents consider Artificial Intelligence to be highly effective in detecting fraudulent activities and reinforcing internal controls within public universities in Ghana. The transformative impact of AI on financial governance is acknowledged by stakeholders, including internal auditors, finance officers, and administrative executives. This recognition is particularly evident in AI's ability to process large volumes of data in real-time, identify anomalies that may otherwise go undetected, and detect emerging patterns of fraud. The results indicate a significant degree of confidence in AI's capacity to surpass the constraints of conventional auditing techniques, thereby transitioning fraud detection from a reactive to a proactive approach. Respondents underscored that AI substantially improves accuracy, reduces human error, and expedites decision-making processes in audit practices. By automating routine tasks and providing detailed analyses of financial data, AI tools enable auditors to focus on more complex issues, thereby preventing the neglect of critical fraud-related signals. Furthermore, respondents emphasised that AI's seamless integration into existing systems and simplicity of use further facilitate its adoption within institutions. The user-friendly nature of AI tools promotes their widespread adoption and ensures that they can be easily customised to meet the unique requirements of different departments within universities.

Additionally, AI's predictive capabilities emerged as a significant advantage. The technology enables the early detection of potentially fraudulent activities, which helps institutions prevent fraud before it escalates, thereby reducing both financial and reputational risks, as noted by stakeholders. Institutional controls are further improved by the continuous monitoring capabilities of AI, which ensure consistent supervision and quicker response times. This continuous oversight enhances internal control mechanisms and fosters a more efficient and vigilant approach to financial integrity management. Respondents also emphasised the role of AI in enhancing the overall internal control environment by incorporating data-driven, self-correcting processes. These procedures guarantee compliance with financial regulations and preserve transparent audit trails. This proactive approach not only cultivates a culture of accountability and transparency but also diminishes the dependence on sporadic human audits,

thereby facilitating a more effective and consistent financial supervision system in public universities.

8.2.3 The Challenges Perceived By Internal Auditors in Using AI in the Internal Audit Function in Public Universities in Ghana

The findings indicate that the integration of Artificial Intelligence into auditing processes at public universities in Ghana is confronted with numerous substantial obstacles. Respondents have identified a significant skills disparity among internal auditors as a primary obstacle to effective internal auditing. A significant number of them lack the necessary technical expertise to integrate AI into their audit practices effectively. The limited availability of professional development programs, which are essential for providing auditors with the requisite knowledge and skills to utilise AI tools, further exacerbates this skills deficiency. Additionally, universities are unable to completely capitalise on the advantages of AI technologies in auditing due to the sluggish rate of AI adoption, which is exacerbated by the scarcity of qualified AI professionals in the Public Sector. Furthermore, the results indicate that the absence of sufficient financial incentives and career advancement opportunities impedes public universities' efforts to recruit and retain qualified personnel. Building a competent workforce capable of promoting AI adoption in auditing functions is challenging due to the lack of competitive compensation and career advancement opportunities.

The absence of adequate support from senior management is another substantial impediment. The successful integration of AI technologies is hindered by the lack of a clear strategic direction and insufficient leadership commitment to investing in AI infrastructure. The integration process is either delayed or weakened due to the lack of leadership support, as organisational culture and leadership are essential for the successful implementation of innovative technologies such as AI. Additionally, data-related obstacles were identified as a significant impediment to progress. The effective use of AI is impeded by the fragmented and unstructured data across various university departments, as AI systems depend on consistent, high-quality data. Respondents acknowledged this. The absence of centralised and standardised data across departments further exacerbates this issue. Furthermore, the investigation revealed that the IT and audit departments often operate in isolation, resulting in communication barriers and inefficiencies in the implementation of AI. The implementation process is further complicated by the absence of collaboration between these departments, which impedes the seamless integration of AI into auditing functions.

8.3 Conclusion

The integration of Artificial Intelligence into internal audit functions in public universities in Ghana has the potential to significantly enhance the efficacy of audit processes, fraud detection, and accountability. The study's results indicate that internal audit professionals are increasingly acknowledging the transformative potential of AI in modernising auditing practices. The capacity of AI to identify anomalies, detect emerging fraud patterns, and process vast quantities of data in real-time is considered a significant advancement in maintaining financial integrity. Respondents emphasised that AI not only enhances the precision of audits but also facilitates a proactive approach to fraud detection, which diverges from conventional, reactive methods. This change is significant in preventing financial irregularities from escalating, thereby ensuring the financial and reputational stability of public universities. The utilisation of AI tools in internal audit functions has been demonstrated to improve accountability by automating routine tasks, thereby enabling auditors to focus on more complex, strategic issues. The incorporation of AI has led to more comprehensive audit reports, facilitating transparency and promoting a culture of accountability within universities. Additionally, accountability outcomes have been demonstrated to be further reinforced by the emphasis on AI-focused training programs and cross-departmental collaboration. Nevertheless, the utilisation of more sophisticated generative AI tools, such as Gemini and ChatGPT, is still restricted, indicating that these tools may necessitate further exposure and practical application to be fully realised in auditing functions.

The study also identified several challenges that impede the widespread adoption of AI, despite the positive perceptions surrounding its efficacy in enhancing internal controls and detecting fraudulent activities. The substantial skills divide among internal auditors is one of the primary obstacles, as many lack the technical expertise necessary to utilise AI tools effectively. This problem is further exacerbated by the sluggish pace of AI adoption in the public sector and the absence of professional development programs, which is also hindered by a scarcity of qualified AI professionals. Additionally, the integration process has been hindered by the lack of a clear strategic direction and inadequate support from senior management in implementing AI technologies. The successful implementation of AI is contingent upon the commitment of leadership and the organisational ethos. The effective use of AI is hindered by the fragmented and unstructured data within universities, which has been identified as another significant challenge. The absence of centralised, high-quality data across departments further complicates the integration process. Furthermore, the communication barriers established by the isolated

operations of IT and audit departments impede collaboration and delay the seamless implementation of AI systems. To surmount these obstacles, it is necessary to implement targeted training, enhance interdepartmental collaboration, and increase the level of commitment from university leadership to invest in AI infrastructure and cultivate an environment that fosters its integration.

8.4 Recommendations

Based on the results, several recommendations are proposed. First, auditors should be provided with the technical expertise necessary to effectively utilise AI tools through the development of a comprehensive and structured training program. While emphasising the specific applications of AI in auditing processes, including fraud detection, risk management, and continuous monitoring, the curriculum should also encompass the fundamentals of AI, such as automation, data analytics, and machine learning. To facilitate these training programs, universities should establish partnerships with external organisations, including academic institutions, AI consultants, and technology firms. These partnerships offer auditors the opportunity to experience the practical applications of cutting-edge AI technologies in the field of auditing. Furthermore, the training program should not be a one-time event, but rather a continuous process that includes refresher courses and ongoing professional development opportunities. Auditors must stay informed about the latest trends and advancements in AI technologies to remain competitive in the evolving auditing industry. Furthermore, training should emphasise the development of an innovative perspective in auditors, motivating them to adopt AI as a tool that complements their responsibilities rather than supplants them. In this manner, auditors are better prepared to leverage AI's potential to enhance the overall effectiveness of public universities in promoting accountability and transparency by streamlining audit processes.

The active involvement of senior management in advancing AI initiatives is a critical aspect of AI adoption in public universities. The integration of AI into auditing functions is likely to encounter significant resistance and delays without strong leadership commitment. University leaders must recognise the strategic value of AI in promoting institutional transparency, enhancing audit accuracy, and improving financial oversight. To encourage the adoption of AI, university administrators should establish measurable objectives for AI integration and provide a clear, long-term strategic direction. This encompasses the allocation of budgetary resources to AI infrastructure, which includes AI tools, software, and hardware that facilitate the auditing

process. In addition, senior management should prioritise the establishment of a specialised team responsible for supervising the AI adoption process, which encompasses planning, implementation, and monitoring of AI initiatives. This team should comprise a combination of auditors, IT professionals, and external AI experts who can collaborate to ensure the seamless integration of AI systems into the auditing workflow. Moreover, leadership should advocate for the cultural transformation necessary to adopt AI, ensuring that all personnel understand the significance of technological innovation in achieving institutional objectives. The success of AI integration in auditing functions is contingent upon the support and commitment of senior leadership, which are essential for surmounting the organisational inertia and resistance to change that frequently accompany the implementation of new technology.

When incorporating AI into internal audit functions in public universities, data management is another critical area that necessitates attention. The effectiveness of AI tools is impeded by the fragmentation and inconsistency of data across various departments, which was one of the primary findings of the study. Structured, high-quality data is essential for AI systems to provide precise and actionable insights. To guarantee the success of AI implementation, public universities must allocate resources to the establishment of centralised data repositories that are readily accessible to the IT and audit departments. To guarantee consistency and dependability in data collection, storage, and analysis, these centralised systems should integrate data governance frameworks. Standardised data management processes also facilitate the elimination of silos that currently exist between departments, thereby improving coordination and data sharing. Furthermore, universities should implement adequate data quality controls, including consistent data cleansing procedures, to guarantee that the data being input into AI systems is precise and error-free. It is also crucial for the IT department to ensure that the data is organised in a manner compatible with the requirements of AI systems. Universities can enhance their financial supervision capabilities and facilitate more accurate audit outcomes by promoting collaboration between the IT and audit departments, which ensures that data is appropriately managed and optimised for AI applications.

Fostering interdepartmental collaboration is essential for the successful integration of AI in public universities, as well as effective data management. The research demonstrated that communication barriers and a lack of collaboration between the IT and audit departments impeded the seamless integration of AI into auditing functions. To surmount this obstacle, universities must foster a culture of collaboration among departments, thereby dismantling the

silos that are common in large institutions. This can be accomplished by establishing cross-functional teams, conducting joint seminars, and holding regular meetings to identify the opportunities and challenges associated with AI integration jointly. For example, the IT department can offer technical support and guarantee that AI tools are compatible with existing systems, while the audit department can offer insights into the practical applications of AI in auditing. This collaboration will ensure that AI tools are not only technically feasible but also meet the unique requirements of the audit function. In addition, universities may capitalise on the establishment of interdisciplinary task forces or advisory committees that comprise representatives from various departments to offer strategic direction and supervision regarding the implementation of AI. Ultimately, these task forces can support the development of a more integrated approach to financial supervision and auditing by ensuring that AI implementation is conducted in a manner that benefits all stakeholders and results in the most efficient use of resources.

Pilot programs should be implemented as part of the overarching strategy to increase the adoption of AI in public universities. This will enable auditors to acquire practical experience with advanced AI tools, including Gemini and ChatGPT. The research revealed that, despite receiving positive feedback, these generative AI tools were not as widely adopted as other AI applications. This implies that auditors require additional practical experience to become acquainted with the practical application of these instruments in auditing scenarios. Universities should establish pilot programs that enable auditors to utilise these tools in a controlled environment to complete duties such as audit planning, data analysis, and report generation. The pilot initiatives should be designed to enable auditors to thoroughly investigate the potential of these tools in real-world audit scenarios, with ongoing support and feedback from AI experts and colleagues. By progressively implementing these tools through pilot programs, universities can surmount any apprehensions or resistance to their implementation, as auditors will develop confidence in their efficacy. Furthermore, to progressively incorporate these tools into standard audit practices, auditors should participate in training sessions and seminars to ensure proficiency in their use. Auditors will likely implement these advanced AI tools more frequently as they become more acquainted with them, which will result in more efficient audit processes and superior outcomes in terms of fraud detection, compliance monitoring, and overall accountability.

Finally, to guarantee the long-term success of AI adoption in internal auditing, public universities must establish precise performance indicators to monitor and assess the impact of AI tools. These indicators should be developed to evaluate the efficacy of AI in enhancing transparency, fostering accountability, reducing fraud, and improving auditing efficiency. Universities will be able to identify areas in which AI performance needs development and make the requisite adjustments to their AI strategies through regular assessments. Ensuring that AI adoption directly contributes to the university's overall objectives, these performance metrics should be aligned with the broader objectives of financial governance and accountability. Furthermore, universities should establish a feedback mechanism that enables auditors and other stakeholders to provide feedback on the efficacy of AI tools, thereby enabling continuous optimisation and enhancement. Universities can ensure that the technology is being utilised to its full potential and that the integration process aligns with the institution's evolving requirements by implementing a robust framework for monitoring AI adoption.

8.5 Implication and Contribution of the Study

This section presents the implications and contribution of the study in relation to policy, managerial, theory and knowledge and practices.

8.5.1 Policy Implications of the Study

The findings suggest a need for government and higher education regulators to come up with a national policy framework to guide the integration of Artificial Intelligence in internal audit systems in public universities. Currently, the adoption of AI in auditing in the developing economies is fragmented and institution-driven versus policy-coordinated, leading to uneven implementation and risk of governance (Abdullah & Almaqtari, 2024; Wassie & Lakatos, 2024). The Ministry of Education and Ghana Tertiary Education Commission should set up formal AI auditing guidelines on acceptable AI tools, data governance standards and audit automation protocols. Implementation must be accompanied by the development of a national auditing regulatory manual on AI and mandatory compliance audits of institutional readiness for AI integration. Universities should also be made to submit annual reports about the implementation of AI audits to regulatory bodies. Further, regulatory bodies need to implement standardised AI risk assessment frameworks that can help internal auditors assess algorithm transparency, ethical compliance and data accuracy before deploying AI tools. Government funding mechanisms should support pilot projects for AI auditing in universities of choice, to

test the feasibility of implementation before rolling out nationwide. These coordinated regulatory interventions will decrease the inconsistency of institutions, standardise audit and increase accountability monitoring in Ghana's public university sector.

The research also signals the high demand for identifying national capacity building policies with a focus on AI competency development by internal auditors. The change in the role of the auditor as a result of the adoption of AI requires that the auditors have the ability to use data analytics, machine learning literacy and digital governance skills, which many internal auditors lack currently (Bananuka et al., 2018; Akuamoah Asiedu, 2023). To remedy this, it is recommended that policymakers work with professional accounting bodies such as the Institute of Internal Auditors in Ghana and academic institutions to develop certified AI auditing training programmes. So, implementation strategies should involve mandatory continuous professional development modules on AI auditing tools, government-sponsored scholarships for specialised audit data analytics training, and the inclusion of AI governance courses in public sector audit training courses. Universities should set up internal AI audit training units that are in charge of organising practical workshops on predictive analytics, automated risk monitoring, and AI-supported compliance assessment. Furthermore, a performance appraisal system for internal auditors should include AI competency indicators to foster skills development. These structured capacity-building interventions would ensure that auditors have the technical expertise to effectively utilise the AI tools and, at the same time, retain professional judgment and integrity of governance within public universities.

The findings also emphasise the need for institutional policies that address issues associated with technological infrastructure and financial investment barriers limiting the adoption of AI in internal auditing. Many public universities are dealing with budget issues that affect the acquisition of advanced audit technologies, data analytics platforms and AI monitoring systems (Mensah & Nyante, 2023; Noordin et al., 2022). Policymakers should launch specific public sector digital transformation funding schemes dedicated towards the development of audit infrastructure based on AI. Implementation strategies should include designating budget lines as part of the University's financial plans for the acquisition and maintenance of AI audit technology. Government agencies should also encourage common digital audit platforms between universities in the public sector to cut down on the cost of technology acquisition and boost collaborative use of AI. Additionally, universities should set up interdisciplinary audit support units of AI with the participation of IT specialists, data scientists, and audit

professionals to ensure the integration of systems and their maintenance. Public-private partnerships with technology companies can also aid in the development of AI infrastructure by creating subsidised technology transfer programmes and technical support agreements. These infrastructural investment policies would result in the mitigation of technological disparities between universities and the sustainability of AI integration in internal auditing functions.

The study also underlines the need for robust ethical governance and data protection policies to address stakeholder concerns related to algorithmic bias, data privacy, and over-reliance on automated audit decisions. As AI auditing systems utilise significant institutional data repositories, this makes them susceptible to violations of confidentiality and biased decision-making should governance systems be weak (Bughin et al., 2017; Goto, 2022). Policymakers should therefore come up with ethical AI auditing standards in line with national data protection rules and public sector governance frameworks. Implementation strategies should include mandatory ethical AI risk assessments before systems are deployed, institutional AI oversight committees that are responsible for monitoring algorithm fairness and independent AI audit review boards that should evaluate automated audit decisions. Universities must also implement data encryption policies, data storage infrastructure, and controlled data access protocols in order to protect sensitive financial and administrative data. Furthermore, policies should mandate periodic human verification of audit results produced by AI to avoid blind faith in the operations of automated systems. These ethical governance interventions would enhance stakeholder trust, encourage responsible utilisation of AI, as these interventions would ensure that technological innovation improves, rather than undermines accountability systems within Ghana's public universities.

8.5.2 Practical Implication

The findings indicate that internal audit departments in Ghanaian public universities must move from passive awareness of Artificial Intelligence to structured operational integration. Practically, audit units should begin by conducting AI readiness assessments that evaluate current technological infrastructure, staff digital competencies, data quality, and governance frameworks before deploying AI tools (Abdullah & Almaqtari, 2024; Wassie & Lakatos, 2024). Implementation should start with pilot projects in low-risk audit areas such as transaction monitoring or compliance verification rather than full-scale automation. Audit departments should establish AI implementation committees composed of internal auditors, IT

specialists, and data analysts to guide phased integration. Clear operational manuals should be developed outlining when AI tools should be used, how outputs should be validated, and the extent of human oversight required. Additionally, universities should introduce internal performance metrics that measure improvements in audit cycle time, fraud detection accuracy, and report quality after AI adoption. These practical steps ensure that AI integration is gradual, controlled, and performance-driven rather than experimental or unstructured.

The study further suggests that internal auditors must undergo continuous professional development to adapt to AI-enabled audit environments. Traditional auditing competencies alone are no longer sufficient in technology-supported governance systems (Bananuka et al., 2018; Akuamoah Asiedu, 2023). Practically, universities should institutionalise regular AI-focused workshops covering predictive analytics, anomaly detection systems, and robotic process automation. Internal audit units should adopt peer-learning systems where technologically proficient staff mentor others in AI applications. Universities can also integrate short-term certification programmes in audit data analytics in collaboration with professional bodies such as the Institute of Internal Auditors. Implementation should include mandatory AI competency targets within annual appraisal systems to incentivise skill acquisition. Furthermore, audit departments should build internal AI resource repositories that document lessons learned from AI tool usage, system errors, and best practices. By embedding AI learning within routine professional practice, universities ensure that auditors maintain strategic control over AI systems rather than becoming dependent on external consultants or technology vendors.

The findings also have operational implications for data management within public universities. AI systems rely heavily on high-quality, structured, and accessible datasets; however, fragmented record-keeping practices can undermine AI effectiveness (Noordin et al., 2022; Bughin et al., 2017). Practically, universities should prioritise data standardisation initiatives within finance and administrative departments before deploying AI tools. Implementation strategies should include digitising legacy audit records, integrating financial management systems with AI-compatible platforms, and establishing data cleaning protocols to eliminate inconsistencies. Internal audit units should collaborate closely with IT departments to create centralised data warehouses accessible for AI-driven analysis. Universities should also introduce data governance policies defining data ownership, validation procedures, and access controls to prevent misuse. Regular internal data audits should be conducted to assess

data completeness and reliability. Strengthening data infrastructure ensures that AI outputs are accurate and reduces the risk of flawed audit conclusions resulting from incomplete or biased datasets.

Finally, the study highlights the practical need for balanced human–AI collaboration within internal audit functions. While AI enhances speed and analytical capacity, over-reliance on automation may reduce professional scepticism and ethical judgment (Goto, 2022; Almaqtari et al., 2024). Practically, universities should adopt a "human-in-the-loop" audit model where AI-generated findings are reviewed and validated by experienced auditors before final reporting. Implementation should involve establishing review checkpoints requiring manual verification of flagged anomalies and risk alerts. Internal audit charters should be revised to formally incorporate AI-supported auditing procedures while reinforcing the primacy of professional judgment. Additionally, universities should develop ethical AI usage guidelines specifying transparency requirements, algorithm documentation standards, and accountability structures for automated decisions. By institutionalising structured human oversight, public universities can leverage AI efficiencies while preserving audit independence, professional responsibility, and institutional accountability.

8.5.3 Managerial Implication

The findings of this study highlight the need for university management to take strategic leadership in guiding Artificial Intelligence integration within internal audit functions. Senior management plays a critical role in setting institutional priorities, allocating resources, and fostering organisational support for technological transformation. Practically, university management should incorporate AI adoption into institutional strategic plans and governance reform agendas to ensure alignment with accountability and risk management objectives (Mensah & Nyante, 2023; Abdullah & Almaqtari, 2024). Implementation strategies should include establishing institutional AI governance committees chaired by senior management to oversee policy development, budget allocation, and performance monitoring of AI-driven audit systems. Management should also introduce institutional digital transformation roadmaps outlining phased AI adoption milestones and performance indicators. Regular executive review meetings should evaluate audit efficiency improvements and governance outcomes resulting from AI integration. By embedding AI auditing within strategic management frameworks, university leadership can ensure that technological adoption is guided by governance priorities rather than isolated departmental initiatives.

The study further suggests that managerial commitment is essential for building a supportive organisational culture that encourages innovation and reduces resistance to AI adoption. Employees often resist technological change due to fear of job displacement, lack of technical confidence, and uncertainty regarding new operational procedures (Bananuka et al., 2018; Akuamoah Asiedu, 2023). To address this, university management should introduce structured change management programmes that emphasise the complementary role of AI in supporting rather than replacing professional audit expertise. Implementation strategies should include organising staff sensitisation workshops, explaining the benefits and operational impact of AI in auditing. Management should also introduce incentive schemes recognising staff who demonstrate innovation in applying AI tools within audit processes. Additionally, internal communication platforms should be used to share successful AI audit case studies and performance improvements achieved through technology adoption. These managerial interventions can foster employee acceptance, promote institutional learning, and create a culture that supports continuous technological innovation in audit operations.

The findings also demonstrate that managerial oversight is necessary to ensure adequate technological infrastructure and operational support for AI-enabled auditing systems. Many public universities face financial and technological constraints that hinder effective AI implementation (Noordin et al., 2022; Wassie & Lakatos, 2024). University management should therefore prioritise investments in audit technology infrastructure and establish dedicated AI support units within institutional administrative structures. Implementation strategies should include allocating budgetary resources for AI auditing software, secure data storage systems, and predictive analytics platforms. Management should also facilitate collaboration between internal audit departments, IT units, and data analytics teams to ensure seamless system integration and operational support. Universities should further develop procurement policies that prioritise scalable and audit-specific AI technologies capable of adapting to institutional governance requirements. Strengthening managerial investment in infrastructure and technical support systems ensures the sustainability of AI adoption and enhances operational efficiency within internal audit functions.

Finally, the study emphasises the managerial responsibility of establishing ethical governance and risk control mechanisms to regulate AI use in internal auditing. AI technologies introduce governance risks related to algorithm bias, data privacy breaches, and reduced human accountability in automated decision-making processes (Goto, 2022; Bughin et al., 2017).

University management should therefore develop institutional ethical AI policies that define acceptable AI usage standards and accountability frameworks for automated audit decisions. Implementation strategies should include creating internal AI ethics oversight committees responsible for monitoring algorithm transparency and fairness. Management should also enforce mandatory human verification procedures for AI-generated audit findings to maintain professional audit accountability. Furthermore, universities should implement data protection protocols involving encryption systems, access control policies, and periodic cybersecurity risk assessments. By strengthening ethical governance frameworks, university management can ensure responsible AI adoption that enhances audit reliability, protects institutional data integrity, and maintains stakeholder trust in governance systems.

8.5.4 Theoretical Contribution

This study contributes theoretically by extending the understanding of technology adoption within public sector auditing through the integration of Artificial Intelligence into internal audit functions. While existing scholarship frequently applies the Technology Acceptance Model to evaluate behavioural intentions toward emerging technologies, this study advances the theory by demonstrating how auditors' perceptions of usefulness and ease of use are influenced by accountability expectations in public universities. Traditional TAM applications focus largely on private sector or corporate technology adoption; however, this research contextualises technology acceptance within the governance-driven environment of public universities, where institutional accountability and public fund management shape technology adoption decisions. The findings reinforce TAM's predictive relevance while illustrating that organisational accountability pressures act as additional external variables influencing perceived usefulness and behavioural intention. This extension strengthens TAM by demonstrating that regulatory expectations, public financial scrutiny, and institutional governance structures significantly moderate AI acceptance among internal auditors (Davis, 1989; Hazaea et al., 2021). Furthermore, the study shows that technology acceptance in public institutions cannot be explained solely through individual attitudes but must incorporate institutional legitimacy concerns, thereby broadening TAM's theoretical applicability to governance-sensitive sectors. This contribution advances technology adoption literature by linking behavioural technology acceptance with accountability-driven institutional motivations, offering a more comprehensive model for understanding AI adoption in public auditing environments.

The study also advances Diffusion of Innovation theory by illustrating how AI adoption within internal auditing is shaped by organisational readiness, institutional culture, and perceived audit value rather than purely technological characteristics. DOI traditionally emphasises innovation attributes such as relative advantage, compatibility, complexity, trialability, and observability as primary determinants of adoption (Rogers, 2003). However, this study demonstrates that within public universities, adoption decisions are heavily influenced by governance structures, professional audit norms, and bureaucratic administrative systems. The findings suggest that compatibility is not only technological but also institutional, as AI must align with regulatory frameworks and public accountability standards before adoption becomes feasible. Additionally, the research highlights that trialability within public sector institutions often depends on policy authorisation and resource allocation processes rather than individual organisational experimentation. This insight extends DOI by positioning institutional governance mechanisms as critical adoption determinants in public organisations. By revealing how bureaucratic decision-making, organisational hierarchy, and resource constraints influence innovation diffusion, the study strengthens DOI's explanatory power within public sector contexts (Fotoh & Lorentzon, 2023; Damerji & Salimi, 2021). Consequently, the research enriches innovation diffusion literature by demonstrating that technology adoption in public auditing environments requires alignment between innovation characteristics and institutional governance systems.

Another significant theoretical contribution lies in strengthening Agency Theory by demonstrating how AI-enabled auditing enhances monitoring efficiency and reduces information asymmetry between university management and stakeholders. Agency theory traditionally emphasises the principal-agent relationship, where monitoring mechanisms such as internal auditing are used to reduce opportunistic managerial behaviour (Gyamera et al., 2023). This study expands the theory by demonstrating that AI tools transform monitoring mechanisms from periodic evaluations into continuous auditing systems. AI facilitates real-time transaction monitoring, predictive fraud detection, and automated anomaly identification, significantly improving the effectiveness of monitoring mechanisms compared to traditional auditing approaches. This transformation suggests that technological monitoring tools strengthen accountability structures by enhancing transparency and reducing audit delays. Additionally, the study introduces the concept of algorithmic accountability as a new dimension within agency relationships, where AI-generated audit trails improve stakeholder trust and governance transparency. By demonstrating how AI enhances audit objectivity and

monitoring reliability, the research expands Agency Theory to incorporate digital monitoring systems as critical governance mechanisms (Thottoli & Ahmed, 2022; Gyamera et al., 2023). This contribution modernises Agency Theory by acknowledging the role of digital technologies in strengthening principal-agent monitoring structures within public sector institutions.

The study further contributes theoretically by extending the Resource-Based View (RBV) through conceptualising AI as a strategic governance capability rather than solely a technological asset. RBV traditionally focuses on organisational resources that are valuable, rare, inimitable, and non-substitutable as drivers of competitive advantage (Barney, 1991). This research expands RBV by demonstrating that AI adoption in public universities enhances not only operational efficiency but also institutional accountability, governance quality, and public trust. The study shows that AI-driven auditing capabilities function as institutional governance resources that improve regulatory compliance, fraud prevention, and financial transparency. Furthermore, the findings highlight that AI capabilities require complementary organisational resources such as skilled personnel, data governance frameworks, and technological infrastructure to generate strategic value. This supports RBV arguments that organisational capabilities emerge from resource integration rather than isolated technological adoption. By positioning AI as a governance-enhancing capability, the study extends RBV beyond competitive advantage to include institutional legitimacy and accountability performance in public sector organisations (Amoako et al., 2023; Karikari Appiah et al., 2023). This theoretical expansion strengthens RBV by demonstrating that strategic resources in public institutions contribute not only to performance outcomes but also to governance effectiveness and stakeholder confidence.

8.5.5 Knowledge Contribution

This study contributes to knowledge by expanding empirical understanding of Artificial Intelligence adoption within internal audit functions in public sector institutions, particularly within developing country higher education systems. Existing literature on AI in auditing is heavily concentrated in private sector organisations and developed economies, leaving limited contextual evidence from public universities in Sub-Saharan Africa (Bananuka et al., 2018; Akuamoah Asiedu, 2023). By focusing on Ghanaian public universities, this study generates context-specific empirical evidence demonstrating how AI adoption interacts with public accountability structures, governance regulations, and resource constraints. The findings,

therefore, bridge a geographical and institutional knowledge gap by providing insight into how technological innovation operates within publicly funded academic institutions where governance expectations differ from corporate environments. The study also enriches knowledge by demonstrating that AI adoption in internal auditing is influenced not only by technological readiness but also by institutional accountability demands and regulatory oversight structures. This contribution strengthens scholarly understanding of digital governance transformation in public institutions and provides a reference point for future comparative research across developing countries. By documenting institutional readiness, adoption barriers, and stakeholder perceptions, the study offers new empirical knowledge regarding AI implementation challenges within public university governance systems (Abdullah & Almaqtari, 2024; Wassie & Lakatos, 2024).

The study further contributes to knowledge by clarifying the relationship between Artificial Intelligence utilisation and accountability enhancement within internal audit functions. Although existing research widely suggests that AI improves operational efficiency, limited studies provide a detailed analysis of how AI influences accountability systems in public sector auditing environments. This research expands current knowledge by demonstrating that AI supports accountability through continuous transaction monitoring, enhanced fraud detection accuracy, and improved audit reporting timeliness. The findings show that AI tools enable auditors to shift from retrospective financial verification toward proactive governance monitoring, thereby strengthening institutional transparency and risk management. The study also reveals that AI adoption supports internal control improvements by enabling predictive analytics and automated anomaly detection within audit processes. By linking AI utilisation directly to governance accountability outcomes, this study advances scholarly understanding of how technological innovation contributes to institutional transparency and financial oversight effectiveness. This knowledge contribution provides evidence supporting digital transformation initiatives within public auditing systems and strengthens the conceptual linkage between audit technology adoption and governance performance improvement (Thottoli & Ahmed, 2022; Gyamera et al., 2023).

Another important knowledge contribution of this study lies in its exploration of internal auditors' professional perceptions, competencies, and adaptation challenges associated with AI integration. While prior research frequently emphasises technological benefits, this study provides a deeper understanding of how internal auditors interpret AI adoption within their

professional roles and organisational environments. The findings demonstrate that auditors recognise AI as a tool that enhances audit efficiency while simultaneously introducing skill transformation requirements and ethical concerns. The study contributes knowledge by highlighting the importance of professional re-skilling, interdisciplinary collaboration between auditors and IT specialists, and the need for structured training frameworks to support AI adoption. Additionally, the research reveals that resistance to AI adoption is influenced by concerns related to job security, technological complexity, and insufficient institutional support systems. By documenting these professional behavioural dynamics, the study enriches existing literature on digital transformation in auditing by emphasising the human and organisational dimensions of technology adoption. This knowledge contribution provides a more comprehensive understanding of AI adoption beyond technological implementation by incorporating workforce adaptation and professional identity transformation perspectives (Bananuka et al., 2018; Akuamoah Asiedu, 2023).

Finally, this study contributes to knowledge by generating practical and policy-relevant frameworks that support sustainable AI integration in public sector auditing. The research provides evidence-based implementation insights regarding infrastructure investment, ethical governance mechanisms, and institutional capacity-building strategies required for successful AI adoption. The findings demonstrate that AI implementation in public universities requires coordinated regulatory policies, data governance structures, and human oversight mechanisms to maintain audit integrity and public trust. The study therefore expands knowledge by demonstrating that technological innovation alone is insufficient to transform internal auditing unless supported by governance reforms, organisational culture transformation, and strategic leadership commitment. Additionally, the research provides baseline empirical data that future scholars can use to evaluate longitudinal AI adoption outcomes within public auditing systems. By combining empirical findings with governance-oriented implementation recommendations, the study strengthens the practical applicability of academic research and contributes to the growing body of knowledge on digital transformation, public financial accountability, and technology-enabled governance systems (Mensah & Nyante, 2023; Noordin et al., 2022).

8.6 Limitations of the Study

Although this study offers valuable insights into the impact of artificial intelligence on internal audit functions in public universities in Ghana, it is not without its limitations. One of the study's primary constraints is its dependence on self-reported data from internal auditors, which

may be susceptible to biases such as personal opinions or social desirability. Auditors may overestimate their awareness or positive perceptions of AI adoption due to their professional responsibilities or a desire to conform to current auditing trends. The personal biases of the participants may still limit the findings, although the study utilised both quantitative and qualitative methodologies to capture a wide range of perspectives. Additionally, the investigation exclusively concentrates on internal auditors, disregarding stakeholders such as university administrators, IT professionals, or external auditors who offer supplementary insights into the advantages and disadvantages of incorporating AI into auditing functions.

The sample circumscribed purview, which is limited to only six public universities in Ghana, is another limitation. This may restrict the generalisability of the findings to other public universities or institutions in various regions or countries. The sample size of 177 internal auditors in the study is adequate for the analysis; however, it may not sufficiently represent the diversity of experiences and opinions among the entire population of internal auditors in Ghana. Furthermore, the research did not investigate the specific technological infrastructure or resources available within these universities, which may potentially affect the feasibility and efficacy of AI adoption in auditing practices. The findings may not be pertinent to universities with varying organisational structures, financial practices, or levels of technological readiness due to the limited geographic and institutional scope. When interpreting the results and drawing conclusions about the potential for AI integration in public university auditing practices, it is essential to consider these factors.

8.7 Suggestions for Future Research

For future research, it is recommended that the study's scope be expanded to include a more diverse sample of public universities across different regions in Ghana, as well as private institutions, to gain a broader understanding of the challenges and opportunities associated with AI integration in auditing functions. Incorporating a broader range of participants, including finance officers, IT professionals, university administrators, and external auditors, would offer a more detailed understanding of the technological and organisational factors that influence the adoption of AI. This method would help identify cross-departmental barriers or enablers that may not be apparent when the focus is exclusively on internal auditors. Furthermore, future research should further explore the specific technological infrastructure and resources necessary for the successful integration of AI in public universities. It is essential to comprehend the current state of IT systems, data management practices, and cybersecurity

frameworks within these institutions to evaluate the efficacy and sustainability of AI adoption. Additionally, research investigates the influence of organisational culture and leadership on technological advancement. In particular, it would be beneficial to examine the extent to which institutional leadership affect the propensity of staff to implement new technologies and surmount resistance to change.

Investigating the long-term effects of AI on institutional accountability and audit quality is another promising area for future research. Longitudinal studies that monitor the efficacy of AI-driven audits over time would shed light on how the adoption of AI affects audit outcomes, including financial transparency, fraud detection, and overall accountability. These studies also investigate the evolution of AI technologies and the adaptation of universities to these advancements, thereby guaranteeing the continuous enhancement of audit practices. Lastly, research could investigate the ethical implications and potential risks associated with the use of AI in auditing. It would be beneficial to investigate the ethical challenges associated with implementing AI in auditing and to suggest frameworks for mitigating these risks in academic institutions, given concerns regarding data privacy, algorithmic biases, and transparency in decision-making.

REFERENCES

Abdullah, A. A. H., & Almaqtari, F. A. (2024). The impact of artificial intelligence and Industry 4.0 on transforming accounting and auditing practices. *Journal of Open Innovation: Technology, Market, and Complexity*, *10*(1), 100218.

Abrokwah-Larbi, K., & Awuku-Larbi, Y. (2024). The impact of artificial intelligence in marketing on the performance of business organisations: evidence from SMEs in an emerging economy. *Journal of Entrepreneurship in Emerging Economies*, *16*(4), 1090-1117.

Abuazza, W.O., Mihret, D.G., James, K., & Best, P. (2015). The perceived scope of the internal audit function in Libyan public enterprises. *Managerial Auditing Journal*, *30*(6/7), 560-581.

Agba, M. S., Agba, G. E. M., & Obeten, A. W. (2023). Artificial intelligence and public management and governance in developed and developing market economies. *Journal of Public Administration, Policy and Governance Research*, *1*(2), 1–14.

Ahinsah-Wobil, D. I. (2024). The Impact of Public Financial Management Regulations on Project Continuity in Ghana. Available at SSRN 4796109.

Ahmad Jaber, T., & Mohammed Shah, S. (2024). Enterprise risk management literature: emerging themes and future directions. *Journal of Accounting & Organisational Change*, *20*(1), 84–111.

Akinadewo, I. S., Oke, O. E., Akinadewo, J. O., & Dagunduro, M. E. (2024). In what way does artificial intelligence influence audit practice? Empirical evidence from Southwest, Nigeria. *European Journal of Accounting, Auditing and Finance Research*, *12*(1), 35–55.

Akuamoah Asiedu, J. (2023). *Report of the auditor general on the accounts of Ghana: Public boards, corporations and other statutory institutions for the period ended 31 December 2022* (p. 5). Ghana Audit Service.

Al Zobi, M. T. K., & Jarah, B. A. F. (2023). The role of internal auditing in improving the accounting information system in Jordanian banks by using organisational commitment as a mediator. *Risks*, *11*(9), 153.

Alfartoosi, A., Jusoh, M. A., Mohsin, H. J., & Yas, H. (2021). The effect of e-accounting, mediated by an internal control system, on the performance of SMEs in Iraq. *American Journal of Business and Operations Research*, *3*(1), 5–38.

Alina, C. M., Cerasela, S. E., & Gabriela, G. (2018). Internal audit role in artificial intelligence. *Ovidius" University Annals, Economic Sciences Series*, *18*(1), 441–445.

Allami, F. A. J. (2022). The use of an external auditor in data mining as an artificial intelligence technology to examine the internal control systems in an electronic business environment. *Czech Journal of Multidisciplinary Innovations, 9, 1–13.*

Almagrashi, A., Mujalli, A., Khan, T., & Attia, O. (2023). Factors determining internal auditors' behavioural intention to use computer-assisted auditing techniques: an extension of the UTAUT model and an empirical study. *Future Business Journal*, *9*(1), 74.

Almaqtari, F. A., Farhan, N. H., Al-Hattami, H. M., Elsheikh, T., & Al-dalaien, B. O. A. (2024). The impact of artificial intelligence on information audit usage: Evidence from developing countries. *Journal of Open Innovation: Technology, Market, and Complexity*, *10*(2), 100298.

Almgrashi, A., & Mujalli, A. (2024). The Influence of Sustainable Risk Management on the Implementation of Risk-Based Internal Auditing. *Sustainability (2071-1050)*, *16*(19).

Alonge, E. O., Dudu, O. F., & Alao, O. B. (2024). The impact of digital transformation on financial reporting and accountability in emerging markets. *International Journal of Science and Technology Research Archive*, *7*(2), 025-049.

Amoako, G. K., Bawuah, J., Asafo-Adjei, E., & Ayimbire, C. (2023). Internal audit functions and sustainability audits: Insights from manufacturing firms. *Cogent Business & Management*, *10*(1), 2192313.

Amonkwandoh, I. (2021). *Effectiveness of internal audit function within metropolitan, municipal and district assemblies: a Case Study of MMDAS in the Central Region of Ghana* (Doctoral dissertation, University of Cape Coast).

Angmor, P. L., & Diaboh, M. B. (2022). Exploring the Effect of Internal Auditors' Function on Financial Performance of Universal Banks in Ghana. *ADRRI Journal (Multidisciplinary)*, *31*(2 8), April 2022-June, 12-22.

Anin, E. K., Essuman, D., Asare-Baffour, F., Manu, D., & Asamany, P. A. (2024). Enhancing procurement quality performance in a developing country: The roles of procurement audit and top management commitment. *International Journal of Public Administration*, *47*(4), 283–294.

Anriva, D. H., & Hamidah. (2024). Exploring publication trends in accounting information systems and identifying research positions in Indonesia: a bibliometric analysis. *International Journal of Economics and Business Research*, *27*(5), 29–44.

Antwi, I. F., Carvalho, C., & Carmo, C. (2022). Corporate Governance research in Ghana through bibliometric method: Review of existing literature. *Cogent Business & Management*, *9*(1), 2088457.

Arthur, B. E. N. J. A. M. I. N. (2022). *Assessment of operational efficiency of internal audit of University of Education, Winneba* (Doctoral dissertation, University of Education, Winneba).

Ataribanam, S. (2024). Do Internal and External Control Systems Foster Accountability Practices in Public Institutions in Ghana? *African Quarterly Social Science Review*, *1*(4), 149–163.

Baidoo-Anu, D., & Ennu Baidoo, I. (2024). Performance-based accountability: exploring Ghanaian teachers' perception of the influence of large-scale testing on teaching and learning. *Education Inquiry*, *15*(3), 333-350.

Baidoo-Anu, D., Asamoah, D., Amoako, I., & Mahama, I. (2024). Exploring student perspectives on generative artificial intelligence in higher education learning. *Discover Education*, *3*(1), 98.

Bakalikwira, L., Bananuka, J., Kaawaase Kigongo, T., Musimenta, D., & Mukyala, V. (2017). Accountability in the public health care systems: A developing economy perspective. *Cogent Business & Management*, *4*(1), 1334995. doi:10.1080/ 23311975.2017.1334995.

Bananuka, J., Nkundabanyanga, S. K., Nalukenge, I., & Kaawaase, T. (2018). Internal audit function, audit committee effectiveness and accountability in the Ugandan statutory corporations. *Journal of Financial Reporting and Accounting*, *16*(1), 138-157. doi:10.1108/JFRA-07-2016-0062.

Barney, J. (1991). Firm resources and sustained competitive advantage. *Journal of Management*, *17*(1), 99–120.

Bates, T., Cobo, C., Mariño, O., & Wheeler, S. (2020). Can artificial intelligence transform higher education? *International Journal of Educational Technology in Higher Education*, *17*, 1–12. https://doi.org/10.1186/s41239-020-00218-x

Bawole, J. N., & Ibrahim, M. (2017). Value-for-money audit for accountability and performance management in local government in Ghana. *International Journal of Public Administration*, *40*(7), 598–611.

Berdiyeva, O., Islam, M. U., & Saeedi, M. (2021). Artificial intelligence in accounting and finance: Meta-analysis. *International Business Review*, *3*(1), 56-79.

Bingab, B. B. B., Forson, J. A., Abotsi, A. K., & Baah-Ennumh, T. Y. (2018). Strengthening university governance in sub-Saharan Africa: the Ghanaian perspective. *International Journal of Educational Management*, *32*(4), 606–624.

Bonsu, A. B., Appiah, K. O., Gyimah, P., & Owusu-Afriyie, R. (2022). Public sector accountability: Do leadership practices, integrity, and internal control systems matter? *IIM Ranchi Journal of Management Studies*, *2*(1), 4–15.

Braun, V., & Clarke, V. (2006). Using thematic analysis in psychology. *Qualitative Research in Psychology*, *3*(2), 77–101.

Bryman, A. (2017). Quantitative and qualitative research: further reflections on their integration. In *Mixing Methods: Qualitative and Quantitative Research* (pp. 57-78). Routledge.

Budhwar, P., Chowdhury, S., Wood, G., Aguinis, H., Bamber, G. J., Beltran, J. R., ... & Varma, A. (2023). Human resource management in the age of generative artificial intelligence: Perspectives and research directions on ChatGPT. *Human Resource Management Journal*, *33*(3), 606–659.

Bughin, J., Hazan, E., Sree Ramaswamy, P., DC, W., & Chu, M. (2017). Artificial intelligence is the next digital frontier.

Ceki, B., & Moloi, T. (2024). Technology Adoption Factors for Supreme Audit Institutions. *Journal of Accounting Research, Organisation and Economics*, *7*(3), 413–428.

Chalmers, J., & Cowdell, F. (2021). What are quantitative and qualitative research methods? A brief introduction. *Dermatological Nursing*, *20*(2).

Clarke, V., & Braun, V. (2017). Thematic analysis. *The Journal of Positive Psychology*, *12*(3), 297–298.

Coker, J. O., Uzougbo, N. S., Oguejiofor, B. B., & Akagha, O. V. (2023). The role of legal practitioners in mitigating corporate risks in Nigeria: a comprehensive review of existing literature on the strategies and approaches adopted by legal practitioners in Nigeria to mitigate corporate risks. *Finance & Accounting Research Journal*, *5*(10), 309–332.

Cresswell, J. (2013). Qualitative inquiry & research design: Choosing among five approaches.

Creswell, J.D., & Lindsay, E.K. (2014). How does mindfulness training affect health? A mindfulness stress buffering account. *Current Directions in Psychological Science*, *23*(6), 401–407.

Damerji, H., & Salimi, A. (2021). The mediating effect of use perceptions on technology readiness and adoption of artificial intelligence in accounting. *Accounting Education*, *30*(2), 107-130.

Davis, F. D. (1989). Technology acceptance model: TAM. *Al-Suqri, MN, Al-Aufi, AS: Information Seeking Behaviour and Technology Adoption*, *205*(219), 5.

Diansari, R. E., Musah, A. A., & Binti Othman, J. (2023). Factors affecting village fund management accountability in Indonesia: The moderating role of prosocial behaviour. *Cogent Business & Management*, *10*(2), 2219424.

Doe-Dartey, R. K., & Valand, J. B. (2024). The Reconnaissance of Technological Infrastructure in Repositioning International Public Sector Accounting Standards (IPSAS) Adoption in Ghana. *Nanotechnology Perceptions*, *20*(4), 234–253.

Eltahir, M. E., & Babiker, F. M. E. (2024). The influence of artificial intelligence tools on student performance in e-learning environments: A Case study. *Electronic Journal of e-Learning*, *22*(9), 91–110.

Fotoh, L. E., & Lorentzon, J. I. (2023). Audit digitalisation and its consequences on the audit expectation gap: A critical perspective. *Accounting Horizons*, *37*(1), 43-69.

Fugu, M. (2023, August 29). *PAC directs two universities to retrieve GH¢482,855 paid to lecturers*. Graphic Online; Mohammed Fugu. https://www.graphic.com.gh/news/general-news/pac-directs-2-universities-to-retrieve-gh-482-855-paid-to-lecturers.html

Ganapathy, V. (2023). AI in auditing: A comprehensive review of applications, benefits and challenges. *Shodh Sari-An International Multidisciplinary Journal*, *2*(4), 328-343.

Goto, M. (2022). Accepting the future as ever-changing: Professionals' sensemaking about artificial intelligence. *Journal of Professions and Organization*, *9*(1), 77-99

Guba, E. G., & Lincoln, Y. S. (1994). Competing paradigms in qualitative research. *Handbook of Qualitative Research*, *2*(163-194), 105.

Gyamera, E., Abayaawien Atuilik, W., Eklemet, I., Adu-Twumwaah, D., Baba Issah, A., Alexander Tetteh, L., & Gagakuma, L. (2023). Examining the effect of financial accounting services on the financial performance of SMEs: The function of information technology as a moderator. *Cogent Business & Management*, *10*(2), 2207880.

Hair, J.F., Risher, J.J., Sarstedt, M., & Ringle, C.M. (2019). When to use and how to report the results of PLS-SEM. *European Business Review*, *31*(1), 2-24.

Hajar, H., Ibtissam, E., & Souhayl, S. (2023). Unlocking the potential of artificial intelligence in public service: challenges, opportunities, and best practices for developing countries. *Boletin de Literatura Oral-Tradition Oral Literature*, *10*(1), 410–436.

Hassan, S. W. U., Kiran, S., Gul, S., Khatatbeh, I. N., & Zainab, B. (2025). The perception of accountants/auditors on the role of corporate governance and information technology in fraud detection and prevention. *Journal of Financial Reporting and Accounting*, *23*(1), 5–29.

Hazaea, S. A., Zhu, J., Al-Matari, E. M., Senan, N. A. M., Khatib, S. F., & Ullah, S. (2021). Mapping of internal audit research in China: A systematic literature review and future research agenda. *Cogent Business & Management*, *8*(1), 1938351.

Hoai, T. T., Hung, B. Q., & Nguyen, N. P. (2022). The impact of internal control systems on the intensity of innovation and organisational performance of public sector organisations in Vietnam: the moderating role of transformational leadership. *Heliyon*, *8*(2).

Hussein, A. I. (2016). *Assessing the role of the internal audit unit in the corporate governance–A case of Komfo Anokye Teaching Hospital* (Doctoral dissertation).

Indrayani, Sukoharsono, E. G., Djamhuri, A., & Roekhudin. (2024). Mapping research landscape of emerging technology in the accounting field: a bibliometric analysis. *Cogent Business & Management*, *11*(1), 2407044.

Jackson, D., Michelson, G., & Munir, R. (2023). Developing accountants for the future: New technology, skills, and the role of stakeholders. *Accounting Education*, *32*(2), 150–177.

John, P.A. (2023). *Artificial Intelligence Technology Application and Occupational Safety in Downstream Petroleum Industries in Greater Accra* (Doctoral dissertation, University of Cape Coast).

Jori, R. (2023). *An analysis of challenges faced by internal audit departments in the public sector: a case study of eThekwini Metropolitan Municipality* (Doctoral dissertation).

Karikari Appiah, M., Amaning, N., Tettevi, P. K., Frimpong Owusu, D., & Opoku Ware, E. (2023). Internal audit effectiveness as a boon to public procurement performance: a multi-mediation model. *Cogent Economics & Finance*, *11*(1), 2164968.

Karmańska, A. (2022). Artificial Intelligence in audit. *Prace Naukowe Uniwersytetu Ekonomicznego we Wrocławiu*, *66*(4), 87-99.

Kogan, M. M. (2015). Robust estimation and filtering in uncertain linear systems under unknown covariations. *Automation and Remote Control*, *76*, 1751-1764.

Mehrad, A., & Zangeneh, M.H.T. (2019). Comparison between qualitative and quantitative research approaches: Social sciences. *International Journal for Research In Educational Studies, Iran*, *5*(7), 1–7.

Mensah, G. B., & Nyante, F. (2023). The Impact of AI on Justice in Ghana: Challenges and Implications. *Preprint. https://doi. org/10.13140/RG*, *2*(30239.94880).

Mensah, G. B., Mijwil, M. M., & Adamopoulos, I. (2024). Analysing Ghana's Pharmacy Act, 1994 (Act 489), Regarding Quality Control and Negligence Liability Measures for Artificial Intelligence Pharmacy Systems. *Babylonian Journal of Artificial Intelligence*, *2024*, 14-19.

Mohammed, A. F. A., & Rahman, H. M. A. A. (2024). The role of artificial intelligence (AI) in fraud detection in the private sector in Saudi Arabia. *Journal of Arts, Literature, Humanities and Social Sciences*, (100), 472–506.

Molefi, R. R., Ayanwale, M. A., Kurata, L., & Chere-Masopha, J. (2024). Do in-service teachers accept artificial intelligence-driven technology? The mediating role of school support and resources. *Computers and Education Open*, *6*, 100191.

Muhammad, G., & Ismail, T. (2022). Computerised accounting systems and SMEs' performance in developing countries: A mediating role of the internal control system. *GMJACS*, *12*(2), 01-19.

Musah, A., Padi, A., Okyere, B., E. Adenutsi, D., & Ayariga, C. (2022). Does corporate governance moderate the relationship between internal control system effectiveness and SMEs' financial performance in Ghana? *Cogent Business & Management*, *9*(1), 2152159.

Nerantzidis, M., Pazarskis, M., Drogalas, G., & Galanis, S. (2022). Internal auditing in the public sector: a systematic literature review and future research agenda. *Journal of Public Budgeting, Accounting & Financial Management*, *34*(2), 189-209.

Ngai, E. W., Hu, Y., Wong, Y. H., Chen, Y., & Sun, X. (2011). The application of data mining techniques in financial fraud detection: A classification framework and an academic review of the literature. *Decision Support Systems*, *50*(3), 559–569.

Noordin, N. A., Hussainey, K., & Hayek, A. F. (2022). The use of artificial intelligence and audit quality: An analysis from the perspectives of external auditors in the UAE. *Journal of Risk and Financial Management*, *15*(8), 339.

Nowell, L.S., Norris, J.M., White, D.E., & Moules, N.J. (2017). Thematic analysis: Striving to meet the trustworthiness criteria. *International Journal of Qualitative Methods*, *16*(1), 1609406917733847.

Nyarkoh, J. K. (2022). *Audit Quality and Corporate Failure Prediction of Commercial Banks in Ghana* (Doctoral dissertation, University of Cape Coast).

Odonkor, B., Kaggwa, S., Uwaoma, P. U., & Farayola, O. A. (2024). A review of US management accounting evolution: Investigating shifts in tools and methodologies in light of national business dynamics. *World Journal of Advanced Research and Reviews*, *21*(1), 189–204.

Osei, L. K., Cherkasova, Y., & Oware, K. M. (2023). Unlocking the full potential of digital transformation in banking: a bibliometric review and emerging trend. *Future Business Journal*, *9*(1), 30.

Owusu-Afriyie, R., Awunyo-Vitor, D., Gyimah, P., & Appiah, K. O. (2024). Monitoring and audit quality: Does quality standards compliance matter? *Cogent Business & Management*, *11*(1), 2416095.

Pham, Q. T., Tran, T. G. T., Bui, T. T. H., Nguyen, T. P. L., & Bui, A. T. (2023). Impacts of tax enforcement and independent audit on financial reporting quality through the internal control effectiveness: Evidence from Vietnam enterprises. *Cogent Social Sciences*, *9*(1), 2175486.

Pimpong, S. A. M. U. E. L. (2017). *Public financial accountability and independent oversight institutions in Ghana, 1993-2016* (Doctoral dissertation, University of Ghana).

Plant, K., Barac, K., & Sarens, G. (2019). Preparing work-ready graduates–skills development lessons learnt from internal audit practice. *Journal of Accounting Education*, *48*, 33–47.

Qadir, J., Islam, M. Q., & Al-Fuqaha, A. (2022). Toward accountable human-centred AI: rationale and promising directions. *Journal of Information, Communication and Ethics in Society*, *20*(2), 329-342.

Segbenya, M., Bervell, B., Frimpong-Manso, E., Otoo, I. C., Andzie, T. A., & Achina, S. (2023). Artificial intelligence in higher education: Modelling the antecedents of artificial intelligence usage and effects on 21st-century employability skills among postgraduate students in Ghana. *Computers and Education: Artificial Intelligence*, *5*, 100188.

Şen, Y. (2023). *Auditors' Perceptions of Artificial Intelligence: Evidence From Global Audit Companies* (Master's thesis, İzmir Ekonomi Üniversitesi).

Simpson, S.N.Y., Aboagye-Otchere, F., & Lovi, R. (2016). Internal auditing and assurance of corporate social responsibility reports and disclosures: perspectives of some internal auditors in Ghana. *Social Responsibility Journal*, *12*(4), 706–718.

Tambe, P., Cappelli, P., & Yakubovich, V. (2019). Artificial intelligence in human resources management: Challenges and a path forward. *California Management Review*, *61*(4), 15–42.

Tetteh, L. A., Kwarteng, A., Aveh, F. K., Dadzie, S. A., & Asante-Darko, D. (2022). The impact of internal control systems on corporate performance among listed firms in Ghana: The moderating role of information technology. *Journal of African Business*, *23*(1), 104–125.

Tetteh, L.A., Agyenim-Boateng, C., & Simpson, S.N.Y. (2023). Institutional pressures and strategic response to auditing implementation of sustainable development goals: The role of public sector auditors. *Journal of Applied Accounting Research*, *24*(2), 403–423.

Thethi, S. K. (2024). Machine learning models for cost-effective healthcare delivery systems: A global perspective. *Digital Transformation in Healthcare*, *5*, 199.

Thottoli, M. M., & Ahmed, E. R. (2022). Information technology and E-accounting: some determinants among SMEs. *Journal of Money and Business*, *2*(1), 1–15.

Vu, T. H. (2016). Research on factors affecting the quality of Internal Audit in the Corporations of the Vietnam Coal-Mineral Group. Journal of Economics and Development, 228(II), 97–103

Wadesango, N., Nyakumwa, B., & Sitsha, L. (2023). Literature Review of the Influence of Internal Audit Function on Corporate Governance. *Journal of Economic & Social Development (1849-6628)*, *10*(2).

Wassie, F. A., & Lakatos, L. P. (2024). Artificial intelligence and the future of the internal audit function. *Humanities and Social Sciences Communications*, *11*(1), 1–13.

Yamane, S. (1973). Localisation of amylase activity in the digestive organs of carp determined by a substrate film method. *Bulletin of the Japanese Society of Scientific Fisheries*, *39*(5), 497–504.

Yasmin, S., & Haniffa, R. (2017). Accountability and narrative disclosure by Muslim charity organisations in the UK. *Journal of Islamic Accounting and Business Research*, *8*(1), 70–86.

Yebi, D. K., & Cudjoe, E. K. (2022). Artificial Intelligence as a Disruptive Business Model in Auditing. A study of the impact of artificial intelligence on auditors' skills and competence, the audit process, and audit quality.

Zawacki-Richter, O., Marín, V. I., Bond, M., & Gouverneur, F. (2019). Systematic review of research on artificial intelligence applications in higher education–where are the

educators? *International Journal of Educational Technology in Higher Education, 16(*1), 1–27. https://doi.org/10.1186/s41239-019-0171-0

Zemankova, A. (2019, December). Artificial intelligence in audit and accounting: Development, current trends, opportunities and threats-literature review. In *2019 International Conference on Control, Artificial Intelligence, Robotics & Optimisation (ICCAIRO)* (pp. 148–154). IEEE.

Zhang, C., Bengio, S., Hardt, M., Recht, B., & Vinyals, O. (2021). Understanding deep learning (still) requires rethinking generalisation. *Communications of the ACM*, *64*(3), 107–115.

Zhou, G. (2021, March). Research on the problems of enterprise internal audit in the background of artificial intelligence. In *Journal of Physics: Conference Series* (Vol. 1861, No. 1, p. 012051). IOP Publishing.

APPENDIXES

a. Consent form, information letter and Research instrument (questionnaire/interview schedule).

Title:

The impact of artificial intelligence on internal audit functions in Ghanaian public universities: Perceptions, limitations, and future directions.

By:

Jonathan Casely Wiredu

(PhD)

Accountancy

(224 193 361)

Quan: https://forms.office.com/r/gyYPqesPHa

Qual: https://forms.office.com/r/26U5JXTpim

STRICTLY CONFIDENTIAL
Questionnaire For: **Internal Auditors in Public Universities in Ghana.**

Study on:

Impact of artificial intelligence on internal audit functions in Ghanaian public universities: Perceptions, limitations, and future directions.

Instructions for the completion of the questionnaire:

- You are requested to answer all the questions carefully and honestly.
- Your responses will be treated confidentially and will be valuable to the study.
- Your name should not appear on the questionnaire.
- You are kindly requested to indicate your reply by placing a ticking, in the appropriate box which best represents your view.

Thank you very much for your cooperation.

Researcher: Mr Jonathan Casely Wiredu, CA (224 193 361)

Supervisor: Prof. Mischelle Doorasamy

Co-supervisor: Mr Kiran Baldavoo

College: Law and Management Studies (UKZN)

Year study conducted:

SECTION A: Biographical details (please tick ✓) in the box with the appropriate option).

1. What gender are you?

Male	
Female	

2. What is your age?

20-30	
31-40	
41-50	
50-60	
Prefer not to answer.	

3. What is your Place of employment?

1.	University of Ghana	
2.	Kwame Nkrumah University of Science and Technology	
3.	University of Cape Coast	
4	University of Education, Winneba,	
5.	Ghana Communication Technology University	
6.	University of Energy and Natural Resources	

4. What is your highest level of Qualification?

Advanced Diploma (HND)	
Bachelor's degree	
Master's degree	
Master's and Professional Qualifications	
Doctorate Degree and Professional Qualifications (ACCA, CIMA, ICA, CIA OR OTHERS)	

5. What is your current Position?

Senior Auditing Assistant	

Principal Auditing Assistant	
Chief Auditing Assistant	
Assistant Internal Auditor	
Internal Auditor	
Senior Internal Auditor	
Deputy Director, Internal Audit	
Director, Internal Audit	

6. Types of AI Tools Used

Machine Learning Algorithms	
Natural Language Processing (NLP)	
Predictive Analytics	
Robotic Process Automation (RPA)	
Generative AI	
AI-Powered Audit Software	
Other (please specify)	

7. Primary Purpose of AI Tools Used

Fraud Detection	
Risk Assessment	
Process Automation	
Data Analysis	
Compliance Monitoring	
Audit Planning	
Other (please specify)	

SECTION B:

Part I: The following statement deals with your perceptions towards issues surrounding the **usage of artificial intelligence in the internal audit functions to ensure accountability in public universities in Ghana**. Please indicate the extent to which you agree or disagree by ticking (✓), where Strongly Agree (SD-5), Agree (A-4), Neutral (N-3), Disagree (D-2), Strongly Disagree (SD-1).

Please tick ✓) in the box with the appropriate option.

Statements	**Strongly Agree (SD-5)**	**Agree (A-4)**	**Neutral (N-3)**	**Disagree (D-2)**	**Strongly Disagree (SD-1)**
7. The utilisation of AI in internal audit processes significantly enhances accountability measures within public universities in Ghana.					
8. The frequency of AI usage in internal audit procedures positively correlates with the efficiency and accuracy of accountability assessments.					
10. Different types of AI tools, such as machine learning, generative AI and predictive analytics, are effectively employed in various aspects of internal audit functions to ensure accountability.					
11. The integration of AI technologies in specific tasks like transaction monitoring and risk assessment improves the overall accountability framework within public universities.					
12. Internal audit departments that consistently utilise AI tools demonstrate higher levels of accountability compared to those relying solely on traditional methods					
13. The strategic deployment of AI in critical areas of internal audit, such as fraud detection and compliance monitoring, strengthens accountability mechanisms.					
14. Specific AI applications, such as anomaly detection systems and robotic process automation, play crucial roles in enhancing accountability within internal audit processes.					

15. Internal audit teams that employ a diverse range of AI tools across different audit tasks demonstrate a more robust approach to ensuring accountability.					
16. The systematic integration of AI technologies in internal audit functions leads to more comprehensive and accurate accountability reports.					
17. Public universities that invest in training their internal audit staff on the effective use of AI witness significant improvements in accountability practices.					
18. The effective deployment of AI in internal audit functions results in timely and actionable insights that bolster accountability mechanisms within public universities in Ghana.					
19. Internal audit departments that invest in the development of AI capabilities demonstrate a long-term commitment to enhancing accountability standards.					
20. The collaborative use of AI technologies among internal audit teams and other university departments fosters a holistic approach to ensuring accountability.					
21. Internal audit departments that leverage AI for continuous monitoring of financial transactions demonstrate greater accountability in identifying irregularities.					
22. The widespread adoption of AI tools in internal audit functions fosters a culture of accountability and transparency within public universities.					
23. Generative AI tools like ChatGPT and Gemini A are commonly and frequently used in audit report writing and audit planning.					

Part II: The following statements deal with your perceptions towards the **evaluation of the effectiveness of artificial intelligence in detecting fraudulent activities and improving internal controls in public universities in Ghana.** Please indicate the extent to which you agree or disagree by ticking (✓), where; Strongly Agree (SD-5), Agree (A-4), Neutral (N-3), Disagree (D-2), Strongly Disagree (SD-1).

Please tick ✓) in the box with the appropriate option.

Statements	**Strongly Agree (SD-5)**	**Agree (A-4)**	**Neutral (N-3)**	**Disagree (D-2)**	**Strongly Disagree (SD-1)**
24. AI-powered fraud detection systems have significantly increased the number of fraudulent activities identified compared to traditional methods.					
25. The accuracy rates of fraud detection have noticeably improved since the implementation of AI technologies within internal audit processes.					
26. AI-enabled internal controls have resulted in a substantial decrease in false positives, enhancing the efficiency of fraud detection efforts.					
27. The adoption of AI technologies has led to a higher rate of early detection of fraudulent activities, minimising potential financial losses for the organisation.					
28. The integration of AI into internal control processes has resulted in a more comprehensive and adaptive approach to fraud prevention and detection.					
29. AI-powered risk assessment tools have improved the prioritisation of audit efforts, focusing resources on areas with the highest likelihood of fraudulent activities.					
30. AI-based internal controls have improved the timeliness of response to detected fraud incidents.					
31. AI-enabled internal controls have enhanced the organisation's ability to comply with					

regulatory requirements related to fraud prevention and detection.					
32. The integration of AI has reduced the time and resources required to investigate potentially fraudulent activities.					
33. AI technologies have strengthened the ability to detect complex fraud schemes that may go unnoticed by traditional methods.					
34. AI-enabled fraud detection systems have enhanced the depth and breadth of fraud detection capabilities.					
35. AI algorithms have improved the adaptability of internal control systems to evolving fraud schemes**.**					
36. AI-driven predictive analytics have improved the forecasting of potential fraud risks within university operations.					
37. AI-based fraud detection systems have reduced false positives and negatives in identifying suspicious activities.					

Part III: The following statement deals with your perceptions towards identifying **the challenges of using artificial intelligence in the internal audit function in public universities in Ghana**. Please indicate the extent to which you agree or disagree by ticking (✓), where; Strongly Agree (SD-5), Agree (A-4), Neutral (N-3), Disagree (D-2), Strongly Disagree (SD-1).

Please tick ✓) in the box with the appropriate option.

Statements	**Strongly Agree (SD-5)**	**Agree (A-4)**	**Neutral (N-3)**	**Disagree (D-2)**	**Strongly Disagree (SD-1)**
38. There is a lack of understanding among audit staff about how to utilise AI tools effectively.					
39. The lack of internal audit staff with sufficient expertise in AI technologies poses a significant barrier to practical implementation.					

40. Integrating AI into existing audit systems requires extensive training and re-skilling of audit personnel.					
41. Inadequate availability of high-quality data for AI analysis undermines the accuracy and reliability of audit outcomes.					
42. The reliance on AI technology may lead to over-reliance on automated processes and reduced human oversight.					
43. AI implementation in audit functions may face resistance from traditionalists within the organisation.					
44. Insufficient training and educational programs tailored to internal audit professionals on AI technologies increase skill deficiencies.					
45. The current IT infrastructure is inadequate to support the implementation of AI for internal audits.					
46. The complexity of AI tools makes them difficult to integrate with the specific needs of internal audit functions.					
47. The lack of readily available AI solutions specifically designed for internal auditing in the public sector creates implementation challenges.					
48. The ethical considerations surrounding the use of AI in audits, such as potential bias in algorithms, pose a significant challenge.					
49. There is a lack of qualified personnel within Ghanaian public universities to maintain and manage AI systems for internal audit purposes.					
50. Limited collaboration between internal audit departments and IT departments hinders the alignment of AI initiatives with organisational goals and objectives.					
51. The high initial investment required for acquiring and implementing AI technologies					

deters public universities from embracing AI-driven audit approaches.					
52. Inadequate support from top management in driving AI adoption and fostering a culture of innovation within internal audit departments leads to implementation challenges.					

Part IV: The following statement deals with your perceptions towards identifying **strategies for the effective use of artificial intelligence by internal auditors in public universities in Ghana**. Please indicate the extent to which you agree or disagree by ticking (✓), where Strongly Agree (SD-5), Agree (A-4), Neutral (N-3), Disagree (D-2), Strongly Disagree (SD-1).

Please tick ✓) in the box with the appropriate option.

Statements	**Strongly Agree (SD-5)**	**Agree (A-4)**	**Neutral (N-3)**	**Disagree (D-2)**	**Strongly Disagree (SD-1)**
53. Providing comprehensive training programs for internal auditors on AI technologies will enhance their proficiency in utilising AI tools**.**					
54. Providing incentives and recognition for internal auditors who demonstrate proficiency and creativity in applying AI techniques can enhance audit processes.					
55. Investing in AI infrastructure and resources, such as hardware and software, supports the successful implementation of AI in audit functions.					
54. Encouraging a culture of innovation and experimentation within the audit department promotes the exploration and adoption of AI solutions.					
55. Fostering collaboration and knowledge-sharing among internal auditors facilitates the exchange of best practices and lessons learned in using AI.					

56. Leveraging AI for predictive analytics enables internal auditors to anticipate risks and proactively address potential issues.					
57. Integrating AI into audit planning and risk assessment processes enhances the efficiency and effectiveness of audit engagements.					
58. Providing ongoing support and resources for internal auditors encourages continuous learning and skill development in using AI technologies.					
59. Tailoring AI solutions to the specific needs and requirements of the university's audit environment will enhance their relevance and applicability.					
60. Encouraging a culture of experimentation and risk-taking within internal audit teams can drive innovation in the adoption and usage of AI tools.					
61. Facilitating cross-functional collaboration between internal audit, IT, and data analytics teams can enhance collective expertise in implementing AI solutions.					

Follow up

Would you be willing to be contacted for any further participation (e.g. interview) in this research?

(A) Yes (B) No

If yes, please state your contact number (s)…….

Thank you.

Interview Consent Form

Interview Consent Form

This consent form outlines your rights as a participant in the study "I**mpact of artificial intelligence on internal audit functions in Ghanaian public universities: Perceptions, limitations, and future directions"** conducted by Jonathan Casely Wiredu, the University of KwaZulu-Natal.

I understand that:

- Taking part in this study is entirely voluntary.
- The purpose and nature of the interview have been clearly explained to me.
- It is my right to decline to answer any question that I am asked.
- I am free to end the interview at any time.
- I hereby consent/do not consent to have this interview recorded; and
- My name will not appear on any tapes or transcripts resulting from the interview.

I HAVE READ THIS CONSENT FORM. I HAVE HAD A CHANCE TO ASK QUESTIONS
CONCERNING ANY AREAS THAT I DID NOT UNDERSTAND.

_____ _____

Signature of Interviewee Date

_____

Printed Name of Interviewee

Ensuring your anonymity is of utmost importance, and all necessary measures will be taken to conceal your identity. The interview tapes and transcripts will not contain any identifying information. Only the research supervisor(s) will be allowed to listen to the audio recordings or review the transcripts. All materials produced as a result of this interview will be kept in my possession and treated with complete confidentiality. I have discussed the project and the implications of participating in the interview with the interviewee, and I believe they have given informed consent and fully understand the implications of their participation.

_____

(Researcher's signature)

Interview Survey

Interview Schedule

Interview Date:_____

Time:_____

Place:_____

Thanks for the consent and appointment.
Introduce yourself.
Mention the nature, relevance and importance of the survey.
Assure anonymity and strict confidentiality.

Section I: Background Information

Name of the Public University:_____

Name of the Participant:_____

Current Position:_____

Years of Experience:_____

Educational Qualification and Professional Qualification(if any):_____

Professional Qualification (if any):_____

Section II: Questions

Part I: Perception of artificial intelligence usage in internal audit Functions.

1. Enhancing Accountability:

a. Can you describe any specific instances where the use of AI significantly enhanced accountability within your institution?
b. What do you believe are the key factors that contribute to AI's effectiveness in improving accountability measures?

2. Efficiency and Accuracy:

a. How has the frequency of AI usage affected the efficiency and accuracy of internal audits in your experience?
b. Are there particular AI tools or techniques that you find more effective in ensuring accountability?

3. Types of AI Tools:

a. Which types of AI tools (e.g., machine learning, generative AI or predictive analytics) have you found most useful in internal audit functions, and why?

b. Can you share an example of how these tools have been implemented in your audit processes?

4. Integration in Specific Tasks:

a. How has the integration of AI in tasks like transaction monitoring and risk assessment improved your audit processes?

b. What challenges have you faced during this integration?

5. Comparison with Traditional Methods:

a. In what ways do AI tools enhance accountability compared to traditional audit methods?

b. What are some limitations of traditional audit methods that AI helps to overcome?

Part II: Perceived effectiveness of artificial intelligence in detecting fraud and improving internal controls

1. Fraud Detection:

a. How has the implementation of AI-powered fraud detection systems changed the way you identify fraudulent activities?

b. Can you provide specific examples of fraud that were detected more effectively through AI?

2. Accuracy and Efficiency:

a. How has AI improved the accuracy of fraud detection and reduced false positives?

b. What impact has this had on your overall fraud detection efforts?

3. Early Detection and Prevention:

a. In what ways has AI contributed to the early detection and prevention of fraudulent activities in your institution?

b. How has this early detection affected the financial health of your institution?

4. Comprehensive and Adaptive Controls:

a. How has AI integration resulted in more comprehensive and adaptive internal controls?

b. What benefits have you observed from using AI in risk assessment and prioritisation?

Part III: Challenges of using artificial intelligence in internal audit functions

1. Understanding and Expertise:

a. What steps have been taken to improve the understanding and expertise of audit staff regarding AI tools?

b. Can you discuss any specific training or educational programs that have been effective?

2. Integration and Training:

a. What are the main challenges you have encountered while integrating AI into existing audit systems?

b. How have you addressed the need for extensive training and re-skilling of audit personnel?

3. Resistance and Ethical Considerations:

a. Have you faced resistance from traditionalists within the organisation regarding AI implementation? How was it addressed?

b. What ethical considerations have been raised in the use of AI for audits, and how are they managed?

Part IV: Strategies for effective use of artificial intelligence by internal auditors

1. Training and Incentives:

a. How important is comprehensive training for internal auditors on AI technologies, and what training methods have been most successful?

b. What kinds of incentives and recognition have been effective in encouraging auditors to utilise AI creatively?

2. Investment and Culture:

a. How has investing in AI infrastructure and resources impacted the success of AI implementation in audit functions?

b. Can you share examples of how a culture of innovation and experimentation has been promoted within your audit department?

3. Collaboration and Knowledge-Sharing:

a. How does fostering collaboration among internal auditors enhance the use of AI in audits?

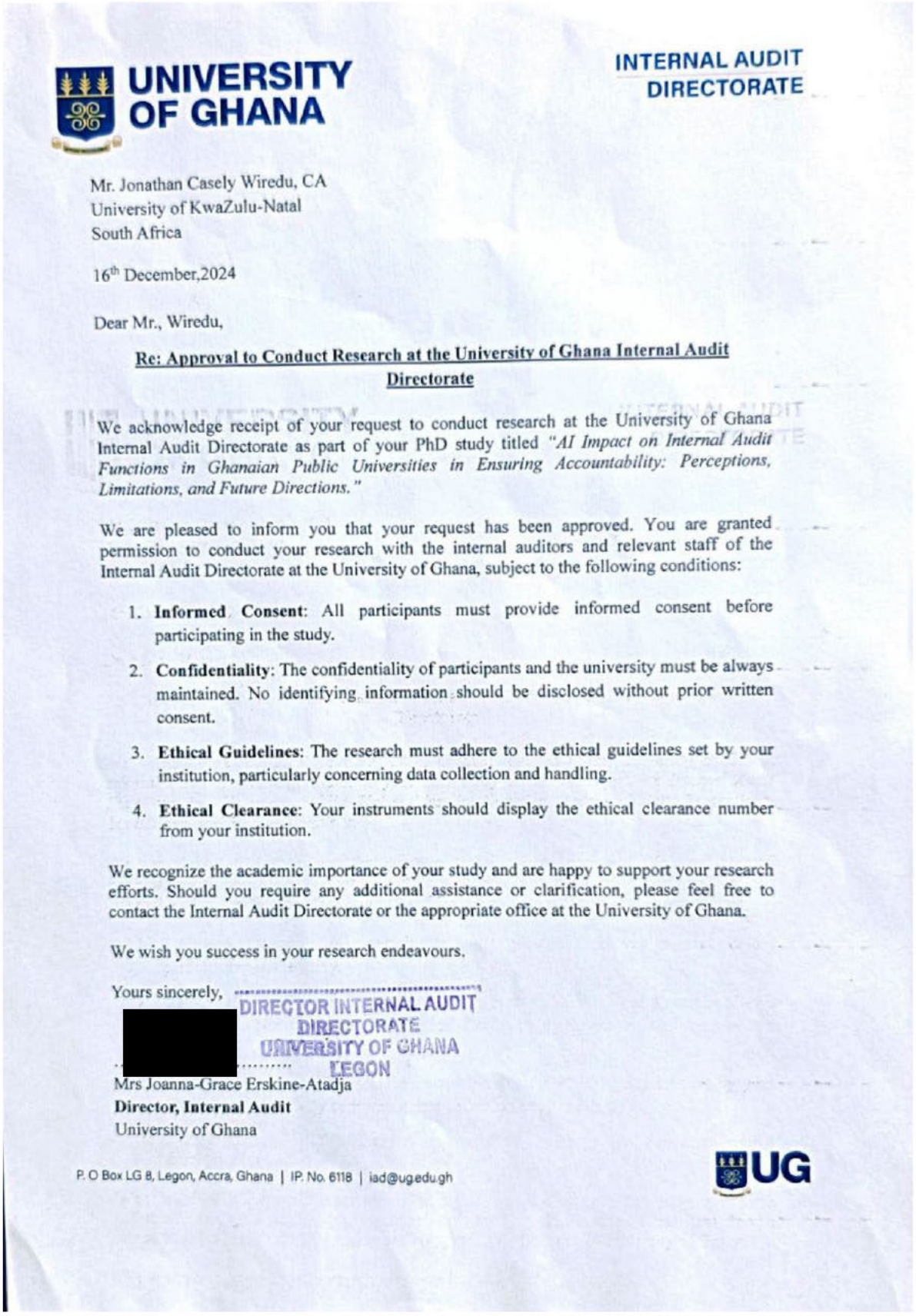
b. What strategies have been effective in facilitating cross-functional collaboration between internal audit, IT, and data analytics teams?

Section III: Ending Question

Are there any other aspects of AI in internal audit functions that you feel were not covered in the survey but are important to discuss? Please feel free to share and elaborate as you deem appropriate.

Thank you once again. Your generous cooperation is much appreciated!

b. Gatekeeper's letter attached



UNIVERSITY OF GHANA

INTERNAL AUDIT DIRECTORATE

Mr. Jonathan Casely Wiredu, CA
University of KwaZulu-Natal
South Africa

16th December,2024

Dear Mr., Wiredu,

Re: Approval to Conduct Research at the University of Ghana Internal Audit Directorate

We acknowledge receipt of your request to conduct research at the University of Ghana Internal Audit Directorate as part of your PhD study titled *"AI Impact on Internal Audit Functions in Ghanaian Public Universities in Ensuring Accountability: Perceptions, Limitations, and Future Directions."*

We are pleased to inform you that your request has been approved. You are granted permission to conduct your research with the internal auditors and relevant staff of the Internal Audit Directorate at the University of Ghana, subject to the following conditions:

1. **Informed Consent**: All participants must provide informed consent before participating in the study.
2. **Confidentiality**: The confidentiality of participants and the university must be always maintained. No identifying information should be disclosed without prior written consent.
3. **Ethical Guidelines**: The research must adhere to the ethical guidelines set by your institution, particularly concerning data collection and handling.
4. **Ethical Clearance**: Your instruments should display the ethical clearance number from your institution.

We recognize the academic importance of your study and are happy to support your research efforts. Should you require any additional assistance or clarification, please feel free to contact the Internal Audit Directorate or the appropriate office at the University of Ghana.

We wish you success in your research endeavours.

Yours sincerely,

DIRECTOR INTERNAL AUDIT DIRECTORATE UNIVERSITY OF GHANA LEGON

Mrs Joanna-Grace Erskine-Atadja
Director, Internal Audit
University of Ghana

P. O Box LG 8, Legon, Accra, Ghana | IP. No. 6118 | iad@ug.edu.gh

UG

Kwame Nkrumah
University of Science
and Technology, Kumasi

OFFICE OF THE INTERNAL AUDITOR

January 6, 2025

Mr. Jonathan Casely Wiredu, CA
University of KwaZulu-Natal
South Africa

Dear Mr. Wiredu,

APPROVAL TO CONDUCT RESEARCH AT KWAME NKRUMAH UNIVERSITY OF SCIENCE AND TECHNOLOGY, INTERNAL AUDIT DIRECTORATE.

Warm greetings from the Internal Audit Directorate of Kwame Nkrumah University of Science and Technology (KNUST).

We write in response to a request made to conduct PhD research on the topic *"Artificial intelligence impact on internal audit functions in Ghanaian public universities in ensuring accountability: Perceptions, limitations, and future directions."* After a careful review of your proposal and the associated ethical considerations, we are pleased to grant you approval to carry out your research within the Internal Audit Directorate of KNUST.

Your research aligns with our commitment to enhancing accountability and exploring innovative technologies in internal audit processes. As indicated, you will be engaging with members of our Internal Audit Directorate to administer surveys and conduct semi-structured interviews. We are confident that the findings of your study will provide valuable insights into the role of Artificial Intelligence in strengthening internal audit functions in Ghanaian public universities.

We kindly request that you:

1. Ensure that all data collection adheres strictly to the approved ethical guidelines provided by the University of KwaZulu-Natal and our internal policies.

2. Protect the confidentiality and anonymity of all participants.

3. All communication regarding your research should be coordinated through this office to ensure smooth facilitation.

Should you require any further assistance or information, please do not hesitate to contact the Internal Audit Directorate at KNUST.

PMB UPO, KNUST, Kumasi, Ghana. **Tel:** +233 (0) 322 060 251
Telegrams: KumasiTech, Universities Post Office, Kumasi, Ghana

We wish you success in your research and look forward to your valuable contribution to this field.



INTERNAL AUDITOR
KNUST
KUMASI

UNIVERSITY OF CAPE COAST
DIRECTORATE OF INTERNAL AUDIT

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Telegrams & Cables: University, Cape Coast
In case of reply please quote:

UNIVERSITY POST OFFICE
CAPE COAST, GHANA

Our Ref: IA/SM/Vol.1/01

Your Ref:

19th December, 2024

Mr. Jonathan Casely Wiredu, CA
University of KwaZulu-Natal
South Africa

Dear Mr. Wiredu,

RE: AUTHORIZATION TO CONDUCT RESEARCH AT THE UNIVERSITY OF CAPE COAST, DIRECTORATE OF INTERNAL AUDIT

We refer to your request to conduct research on the topic: *"Artificial intelligence impact on internal audit functions in Ghanaian public universities in ensuring accountability: Perceptions, limitations, and future directions."* Following our review of your proposal and its objectives, we are pleased to grant you authorization to conduct your study involving the Directorate of Internal Audit staff of the University of Cape Coast.

Your research, which includes administering surveys and conducting semi-structured interviews, is timely and relevant to addressing critical areas of accountability and the adoption of Artificial Intelligence in internal audit processes. We are confident that your work will provide valuable insights to advance this important field.

As you undertake this research, we kindly urge you to seek consents of respondents, protect their rights throughout the process and maintain strict confidentiality.

We wish you success in your research endeavours and look forward to the meaningful outcomes of your study.

Yours sin[redacted]

Samuel H[redacted]
Ag. Deputy Director of Internal Audit
For: DIRECTOR

AG. DEPUTY DIRECTOR
DIRECTORATE OF INTERNAL AUDIT
UNIVERSITY OF CAPE COAST
CAPE COAST

UNIVERSITY OF EDUCATION, WINNEBA
OFFICE OF THE INTERNAL AUDITOR
P. O. Box 25, Winneba, Ghana
+233 (03323) 22271 / 22319 Ext. 1123/1135
internalaudit@uew.edu.gh
+233 (03323) 20954

Our Ref: IA/UEW/VOL. 3/09

21st November 2024

Mr. Jonathan Casely Wiredu, CA
University of KwaZulu-Natal
South Africa

Dear Mr. Wiredu,

RE: APPROVAL TO CONDUCT RESEARCH AT THE UNIVERSITY OF EDUCATION, WINNEBA INTERNAL AUDIT OFFICE

We are pleased to inform you that your request to conduct your PhD research titled "AI Impact on Internal Audit Functions in Ghanaian Public Universities in Ensuring Accountability: Perceptions, Limitations, and Future Directions" within the Internal Audit Directorate of the University of Education, Winneba has been approved.

We acknowledge the relevance and significance of your study in enhancing Internal Audit Functions, particularly with the integration of emerging technologies like AI, and its impact on improving accountability and transparency in public universities.

You are hereby granted access to the internal audit staff of the University of Education, Winneba for data collection, interviews, surveys, or any other research-related activities as outlined in your research proposal.

We trust that all research activities will be conducted in line with the University's ethical guidelines and will ensure minimal disruption to the operations of our Internal Audit Directorate.

We wish you the best in your research and look forward to its contribution to the academic and professional community.

Yours faithfully,

[redacted]

Charles A. Coffie (FCCA, ADE)
Ag. Internal Auditor

Ag. Internal Auditor
University of Education,
Winneba

GHANA COMMUNICATION TECHNOLOGY UNIVERSITY

Private Mail Bag 100,
Accra North, Ghana.

Tel: 0233 302 200607 / 221479
Fax: +233 302 223531

Mr. Jonathan Casely Wiredu, CA
University of KwaZulu-Natal
South Africa
31st October 2024

Dear Mr., Wiredu,

Re: Approval to Conduct Research at Ghana Communication Technology University, Internal Audit Directorate

I trust this letter finds you well. We have received your request to conduct research at Ghana Communication Technology University, Internal Audit Directorate, as part of your PhD study titled *" AI Impact on Internal Audit Functions in Ghanaian Public Universities in Ensuring Accountability: Perceptions, Limitations, and Future Directions."*

I am pleased to inform you that your request has been approved. You are hereby granted permission to conduct your research with the internal auditors and relevant staff of the Internal Audit Directorate at Ghana Communication Technology University, subject to the following conditions:

1. All participants must provide informed consent before participating in the study.
2. Confidentiality of the participants and the university must be always maintained. No identifying information should be disclosed without prior written consent.
3. The research must adhere to the ethical guidelines set out by your institution, particularly about data collection and handling.
4. Ethical Clearance number appears on your instruments.

We appreciate the academic significance of your study and are happy to support your research efforts. Should you require any further assistance, please do not hesitate to contact the Internal Audit Directorate or the Office of Research at Ghana Communication Technology University.

We wish you success in your study.

Yours sincerely,

[redacted] 31/10/2024

Mr. Kennedy Oppong-Fosu, CA
Director, Internal Audit

DIRECTOR OF INTERNAL AUDIT
GHANA COMMUNICATION TECHNOLOGY UNIVERSITY
TESANO, ACCRA

UNIVERSITY OF ENERGY AND NATURAL RESOURCES, SUNYANI
OFFICE OF THE INTERNAL AUDIT DIRECTORATE
P. O. Box 214, Sunyani www.uenr.edu.gh +233 (0) 352 023 461 audit.directorate@uenr.edu.gh

MR. JONATHAN CASELY WIREDU, CA
UNIVERSITY OF KWAZULU-NATAL
SOUTH AFRICA

29th October, 2024

Dear Mr.Wiredu,

Re: Approval to Conduct Research at the University of Energy and Natural Resources, Internal Audit Directorate

We are pleased to inform you that the Internal Audit Directorate of the University of Energy and Natural Resources has reviewed and approved your request to conduct your PhD research titled "AI Impact on Internal Audit Functions in Ghanaian Public Universities in Ensuring Accountability: Perceptions, Limitations, and Future Directions" within our university.

We believe this research aligns well with our commitment to enhancing accountability and innovation within internal audit practices. Furthermore, it promises valuable insights into the potential of artificial intelligence to strengthen internal controls and improve the effectiveness of audit functions in the public sector.

Your research will be facilitated by the Internal Audit Directorate, granting you access to our internal auditors for interviews, surveys, and other relevant interactions, in line with ethical standards and confidentiality agreements. Kindly ensure that all data collection and research activities follow the university's guidelines for research ethics and privacy protection.

Please feel free to reach out to our office should you need further assistance or clarification as you commence this important study.

We look forward to the valuable findings your research will bring to the field of internal auditing.

Yours faithfully,

[redacted]

RICHARD TWUM BARIMAH, CA
INTERNAL AUDITOR/ HEAD OF COMPLIANCE AND INFORMATION TECHNOLOGY AUDIT SECTION
FOR: **DIRECTOR OF INTERNAL AUDIT**

HEAD OF INTERNAL AUDIT
UNIV. OF ENERGY & NATURAL RESOURCES
P. O. BOX 214, SUNYANI

c. English Proficiency

C Woudberg

Language Practitioner

[redacted] | [redacted]

To whom this may concern:

I hereby confirm that I have completed the language and technical editing of the research article titled **The Impact of Artificial Intelligence on Internal Audit Functions in Ghanaian Public Universities: Perceptions, Limitations, and Future Directions** by Jonathan Wiredu. My involvement was restricted to language usage, spelling, completeness, and consistency. I did not structurally rewrite the content and did not influence the academic content in any way.

[redacted]

Kind regards,

Christelle Woudberg

ND Language Practice

Member of the South African Translators 'Institute

a. Ethical clearance attached

UNIVERSITY OF KWAZULU-NATAL
INYUVESI YAKWAZULU-NATALI

23 January 2025

Jonathan Casely Wiredu (224193361)
School of Acc Economics & Fin
Westville Campus

Dear JC Wiredu,

Protocol reference number: HSSREC/00008064/2024
Project title: Artificial intelligence impact on internal audit functions in Ghanaian public universities in ensuring accountability: Perceptions, limitations, and future directions
Degree: PhD

Approval Notification – Expedited Application

This letter serves to notify you that your application received on 25 November 2024 in connection with the above, was reviewed by the Humanities and Social Sciences Research Ethics Committee (HSSREC) and the protocol has been granted **FULL APPROVAL**.

Any alteration/s to the approved research protocol i.e. Questionnaire/Interview Schedule, Informed Consent Form, Title of the Project, Location of the Study, Research Approach and Methods must be reviewed and approved through the amendment/modification prior to its implementation. In case you have further queries, please quote the above reference number.

PLEASE NOTE: Research data should be securely stored in the discipline/department for a period of 5 years.

Incidents of adverse events and serious adverse events (AEs and SAEs) should be reported in writing to HSSREC, the study sponsors, and any regulatory authority (where appropriate), within 7 working days of the occurrence for local sites and 14 days for all other South African sites.

This approval is valid until 23 January 2026.
To ensure uninterrupted approval of this study beyond the approval expiry date, a progress report must be submitted to the Research Office on the appropriate form 2 - 3 months before the expiry date. A close-out report to be submitted when study is finished.

HSSREC is registered with the South African National Health Research Ethics Council (REC-040414-040).

Yours sincerely,

[redacted]

Professor Dipane Hlalele (Chair)
/nng