UNIVERSITY OF CAPE COAST

FACTORS INFLUENCING AUDIT QUALITY OF AUDIT FIRMS IN GHANA: THE ROLE OF AUDIT AUTOMATION ADOPTION, CORPORATE CULTURE, AND TECHNOLOGICAL TRAINING

CORNELIUS ADORM-TAKYI

2023

UNIVERSITY OF CAPE COAST

FACTORS INFLUENCING AUDIT QUALITY OF AUDIT FIRMS IN GHANA: THE ROLE OF AUDIT AUTOMATION ADOPTION, CORPORATE CULTURE, AND TECHNOLOGICAL TRAINING

BY

CORNELIUS ADORM-TAKYI

Thesis submitted to the School of Business of the College of Humanities and Legal Studies, University of Cape Coast, in partial fulfilment of the requirements for the award of Doctor of Philosophy (Business Administration) degree

JANUARY, 2023

DECLARATION

Candidate's Declaration

I hereby declare that this thesis is the result of our own original research and that no part of it has been presented for another degree in this university or elsewhere.

Candidate's Signature ……Date …….

Name: Cornelius Adorm-Takyi

Supervisors' Declaration

We hereby declare that the preparation and presentation of the thesis were supervised in accordance with the guidelines on supervision of thesis laid down by the University of Cape Coast.

Principal Supervisor's Signature …… Date ……

Name: Rev. Dr. George Tackie

Co-Supervisor's Signature …… Date ……..

Name: Dr. Anthony Adu-Asare Idun

ABSTRACT

The study examined the factors influencing audit quality, the role of audit automation adoption, corporate culture and technological training among audit firms in Ghana. The study employed a positivist paradigm, a quantitative research approach and an explanatory research design. Using simple random sampling, data was obtained from 190 audit firms in good standing with the Institute of Chartered Accountants, Ghana (ICAG). Partial least square structural equation modelling (PLS-SEM) was used to analyse the data by employing the concept of higher-order constructs. The study revealed that corporate culture weakened the effect of technological factors on audit quality. Furthermore, technological training strengthened the effect of individual factors and technological factors on audit automation adoption but weakened the effect of environmental factors on audit automation adoption. The study recommends that by addressing cultural barriers and promoting a harmonious integration of technology and audit quality goals, audit firms can create an environment where technology becomes an enabler rather than an obstacle. The study further recommends that training programmes should be designed and tailored to address specific individual and technological factors that enhance successful audit automation adoption. The study contributes significantly to the auditing literature. It extends prior research on the factors influencing audit quality and the roles of audit automation adoption, corporate culture and technological training. The study is one of the first studies to investigate the predictors of audit automation adoption and audit quality within external audits using the TOE and UTAUT frameworks which few studies have attempted to explore.

KEYWORDS

Audit quality

Audit automation adoption

Corporate culture

Technology training

Higher-order constructs

ACKNOWLEDGEMENTS

I wish to express my sincerest gratitude to the following people and organisations for their support that made the completion of this thesis a reality. To my supervisors, Rev. Dr. George Tackie (Principal supervisor) and Dr. Anthony Adu-Asare Idun (Co-supervisor), to whom I am forever grateful for their support, encouragement, commitment, and constructive comments that facilitated the effective completion of this thesis. I salute you Rev. Dr. George Tackie and Dr. Anthony Adu-Asare Idun.

I thank, sincerely, the Head of the Department of Accounting, Prof. Edward Marfo-Yiadom, Dean of the School of Business, Prof. John G. Gatsi and all my lecturers under whose quality tutelage I have learnt and acquired invaluable knowledge in my academic pursuit.

I also thank the management of the University of Cape Coast for being the main sponsor of my PhD programme. I also thank the Dean and staff of the School of Graduate Studies for giving me the privilege to participate in a thesis writing boot camp that facilitated the completion of my thesis. I also thank the Director and staff of the Quality Assurance Monitoring and the Member Sections of the Institute of Chartered Accountants, Ghana (ICAG) for their invaluable assistance during the data collection.

I thank Rev. Monsignor James Robert Myers, former Chaplain of Our Lady Seat of Wisdom Catholic Chaplaincy, and my colleagues for their inspiration and motivation.

To all who contributed to my education, I say thank you.

DEDICATION

To Rosemary, Emmanuel, Joseph and Gracemary

TABLE OF CONTENTS

LIST OF TABLES

LIST OF FIGURES

LIST OF ACRONYMS

ATT	Automated Tools and Techniques
CAAT	Computer-Assisted Auditing Techniques
CAATT	Computer-Assisted Auditing Tools and Techniques
CAQ	Center for Audit Quality
GAX	Ghana Alternative Market
IAASB	International Auditing and Assurance Standards Board
ICAG	Institute of Chartered Accountants, Ghana
IFAC	International Federation of Accountants
IFRS	International Financial Reporting Standards
ISA	International Standards of Auditing
PCAOB	Public Company Accounting Standards Board

CHAPTER ONE

INTRODUCTION

Audit quality deludes any specific definition. Generally, a quality audit will ensure that financial statements reflect the economic reality of the entity. That is, audit quality is achieved when the assurance auditors give about financial statements of entities are free from material misstatements and represent the economic reality they purport to represent (Centre for Audit Quality, [CAQ], 2022; Dickins, Johnson-Snyder, & Reisch, 2018; DeAngelo, 1981). Several factors which include individual, technological, organisational and environmental factors influence audit quality. In addition, audit automation adoption, corporate culture and technological training also impact audit quality. The study adopts the resource-based view, unified theory of acceptance and use of technology, technology-organisation-environment framework, and the task technology fit theory to explain the relationships among these variables.

Background to the Study

According to the International Auditing and Assurance Standards Board (IAASB), 2022, the fundamental purpose of financial auditing is to give an opinion regarding the financial statements and internal controls of an entity to assist with decision-making. Through the distribution of high-quality audit reports, financial audits make it possible for agents of organisations to be held accountable for the actions in which they engage. The thoroughness with which an auditor conducts the investigations necessary to arrive at an audit opinion directly contributes to the level of audit quality that is obtained. Because of its contribution to financial stability, investor trust, and overall

market efficiency, audit quality plays an essential part in the global economy (CAQ, 2022).

By providing independent verification of financial reports, audit quality helps to enhance the credibility of financial statements to users of accounting information (Francis, 2023; Raiszadeh, Mohseni, & Ghasemi, 2023; Coffie, Bedi, & Amidu, 2018). This in turn helps to reduce investors' information risk, ensure financial stability, and effectively allocate capital (Coffie, Bedi, & Amidu, 2018). Audit quality is accomplished when the auditor is able to identify and report misstatements, comply with legal and professional obligations, and/or satisfy the requirements of investors (CAQ, 2022; Dickins, Johnson-Snyder & Reisch, 2018; DeAngelo, 1981). Finding, correcting, and reporting substantial misstatements can be distilled down to its essential components to provide the level of audit quality that is required. The question of how to achieve these audit objectives to attain a quality audit has always been the primary focus of audit research.

Nevertheless, the perspective from which one views it can affect one's assessment of the quality of the audit. Users of financial reports may link a high-quality audit with the lack of significant misstatements in those financial statements as verified by the audit report (Sulaiman, 2023; DeAngelo 1981). This is because users of financial reports may believe that a high-quality audit indicates that there are no significant misstatements in those financial statements. Audit quality is associated with the auditor who is carrying out the audit with the satisfactory fulfilment of all duties required by the company's audit methodology (CAQ, 2022). A high level of audit quality is determined by the accounting firm based on the degree to which work can be supported

and demonstrated during an inspection. According to Francis (2023), regulators consider anything to be of high quality if it demonstrates that professional standards have been satisfied and applied. In conclusion, the public views an audit as being of high quality if it helps a company, or even the market as a whole, to avoid experiencing negative financial consequences (Hategan, Pitorac, & Crucean, 2022; Knechel et al., 2021).

This research is in line with the Sustainable Development Goals (SDGs) that were established by the United Nations in 2015 (United Nations, 2015). This study has a direct connection to Sustainable Development Goal 16, which focuses on promoting peace, justice, and strong institutions. Goal 16 of the Sustainable Development Goals aims to foster peaceful and inclusive societies for sustainable development, ensure that everyone has access to justice, and build institutions that are effective, responsible, and inclusive at all levels. This objective has ten different result targets, and there are two different ways to accomplish each of those targets. The development of institutions that are efficient, accountable, and open to scrutiny is the focus of the sixth target. According to Montero and Le Blanc (2019), financial audit firms are generally responsible for ensuring the promotion of openness, efficiency, effectiveness, and accountability in both commercial and public institutions. Audit quality can play a role in the accomplishment of this objective by evaluating the performance of the institution, improving governance and internal controls, fostering compliance with legislation and standards, identifying and preventing fraud and misbehaviour, and encouraging continual development.

The COVID-19 pandemic and the fourth industrial revolution have both accelerated the need for automation in the accounting and auditing professions (Appelbaum, Budnik, & Vasarhelye, 2020). The fourth industrial revolution has seen the application of artificial intelligence, robotics, and big data analytics (Al-Khasawneh, 2022; Nyandongo & Pillay, 2022; Schwab, 2017). Accounting firms have already adopted basic accounting systems to process accounting data; however, more modern technologies such as big data analytics, cloud computing, and real-time financial reporting have not yet been utilised on a broad scale by the majority of organisations (KPMG, 2017, p. 6). Accounting firms have already developed basic accounting systems to process accounting data. Due to the close connection between accounting and auditing, any modifications made to accounting procedures will have an immediate impact on auditing businesses. It mandates that audit firms put in place appropriate processes to manage the data generated by the accounting systems of their client organisations.

Audit automation is described as the use of computers in the management, planning, performance and completion of audits to eliminate or reduce time spent on computational or clerical tasks, to improve the quality of audit judgements, and to ensure consistent audit quality (Fotoh & Lorentzon, 2023; Zhang, Thomas, & Vasarhelyi, 2022; Institute of Chartered Accountants England and Wales [ICAEW], 2018; Manson, McCartney, Sherer, & Wallace, 1998). Audit automation will make it possible for audit firms to improve their audit procedures and uncover misstatements and malpractices in the financial statements of organisations. This will be made possible by the increased use of audit automation. Although, in more recent times, the auditing profession has

witnessed the use of emerging technologies such as continuous auditing, data analytics, blockchain, artificial intelligence, robotic process automation, machine learning, drone technology, and big data, amongst others, in the auditing process, albeit on a limited scale. Some organisations are still using the manual method of auditing (Zhang, Thomas, & Vasarhelyi, 2022).

The use of these technologies in auditing has the potential to ensure the efficiency and effectiveness of the audit process, which could ultimately lead to improved audit quality (Islam & Stafford, 2022; Awuah, Onumah & Duho, 2022; KPMG, 2017). It will also assist in minimising workload and routine processes, improve audit quality, increase efficiency, and lower audit costs. According to Elommal and Manita (2022), the implementation of audit automation guarantees the efficiency and effectiveness of the audit process, which ultimately results in audit quality. This is because audit automation boosts accuracy, provides a thorough audit trail, improves data analytics, enhances risk assessment, provides real-time monitoring, and ensures efficient sampling (Handoko, Lindawati, & Mustapha, 2020; Cohen & Rozario, 2019). In addition to these benefits, audit automation also ensures efficient sampling.

In this investigation, the resource-based view (RBV) theory is utilised to explain the components that contribute to high audit quality. The key tenet of the resource-based view is that businesses already have resources at their disposal that can help them gain a competitive edge and boost their overall performance over the long term (Barney, 1991, 2001). Businesses will continue to reap the benefits of a competitive edge to the degree that they can shield themselves from the imitation, transfer, or substitution of their resources. According to the resource-based view (RBV), audit quality can be

affected by tangible resources, intangible resources, and organisational competencies (Chong & Lim, 2022; Montenegro & Bras, 2015). This is something that can be determined from the RBV. The research contends that individual factors, technological factors, organisational factors, environmental factors, audit automation adoption, corporate culture, and technological training are essential resources for achieving audit quality (Elommal & Manita, 2022; Owino & Musuva, 2021; Mardian & Avianti, 2019). Therefore, it is reasonable to investigate the effect that these resources have on the quality of the audit.

Previous research has revealed individual factors as predictors of audit automation adoption (Owino & Musuva, 2021; Pedrosa, Costa & Aparicio, 2020). These individual factors are described by the unified theory of acceptance and use of technology (UTAUT), which was developed by Venkatesh, Morris, Davis, and Davis in 2003. According to the theory, the direct determinants of technology adoption include performance expectancy, effort expectancy, social influence, and facilitating conditions (Owino & Musuva, 2021; Mahzan & Lymer, 2014; Venkatesh, et al., 2003).

Other research identified firm factors as determinants of audit automation adoption (Awuah, Onumah & Duho, 2022; Masood & Alfzal, 2016). These firm factors are described by the technology-organization-environmental paradigm (Siew, Rosli, & Yeow, 2020; Venkatesh et al., 2003; Rogers, 1995; Tornatzky, Fleischer & Chakrabarti, 1990). The TOE framework identifies several technological characteristics, including cost-benefit, compatibility, complexity, relative advantage, observability, and trialability. Top management support and technological skills are examples of

organisational factors (Awuah, Onumah, & Duho, 2022; Siew, Rosli & Yeow, 2020; Tornatzky, Fleischer & Chakrabarti, 1990). Audit standards, professional body support, external pressure, and the client's accounting information systems are all examples of environmental influences (Awuah, Onumah, & Duho, 2022; Siew, Rosli & Yeow, 2020; Tornatzky, Fleischer & Chakrabarti, 1990).

The research used higher-order constructs to produce a model that was both parsimonious and interpretable (Hair et al., 2019). These higher-order components included individual factors, technological factors, organisational factors, and environmental factors. According to the findings of the study, individual factors, technological factors, organisational factors, and environmental factors all play a role in the adoption of audit automation, which in turn affects audit quality.

The research contends that the integration of audit automation into the audit process will improve audit quality, as predicted by the task technology fit (TTF) theory (Goodhue & Thompson, 1995). According to the task technology fit theory, information technology is more likely to have a positive influence on performance and be used if the capabilities of the IT correspond to the tasks that the user must complete (Siew, Rosli, & Yeow, 2020; Goodhue & Thompson, 1995). Therefore, the theory coordinates the use of technology with the tasks that need to be carried out to achieve increased output. It is essential to make certain that the type of activity being carried out is compatible with the technology that is being utilised. If the technology that is used is not appropriate for the task that is being performed, then the desired results will not be accomplished. The task technology fit theory is used in this

study to describe how the implementation of audit automation by an audit company can improve the financial audit process and ultimately lead to higher audit quality.

In addition, auditors are encouraged to apply a holistic approach to auditing, which integrates both the qualitative and quantitative financial components of the company (Public Company Accounting Oversight Board [PCAOB], 2015). Auditors are obliged to evaluate their customers' control environments as a means of assessing the corporate cultures of their clients. In addition, auditors gain a deeper comprehension of the corporate culture by conducting substantial examinations and engaging in conversation with executives and staff (Deloitte, 2016).

Corporate culture is defined as the shared values, assumptions, and beliefs that are held by employees of a company (Ballestero, 2023; Denison & Mishra, 1995; Hofstede, 1984). According to Chen, Francis, Hasan, and Wu (2021), auditors should not gloss over corporate culture since it is one of the most important qualitative characteristics. The consolidation of the culture of audit firms has been a primary focus of concern (Alberti, Bedard, Bik, & Vanstraelen, 2022; Jenkins, Deis, Bedard, & Curtis, 2008). Several reports of regulators and standard setters (e.g., International Auditing and Assurance Standards Board [IAASB], 2022; Public Company Accounting Oversight Board [PCAOB], 2015) encourage firms to create an appropriate corporate culture to promote high audit quality.

Corporate culture has been recognised as a variable that influences the adoption of automated systems (Ramen, Jugurnath, & Ramhit, 2015) and audit quality (Alberti, Bedard, Bik, & Vanstraelen, 2022). Even though it is

common knowledge that a company's culture has a significant bearing on how it does its business, only in the recent past has the topic of corporate culture been brought up in the context of businesses. According to the findings of Graham, Grennan, Harvey, and Rajgopal (2022), more than ninety per cent of top executives hold the belief that the culture of their company is either significant or very important.

Even though the significance of corporate culture has long been recognised, empirical study on the value of corporate culture is limited, primarily due to challenges in measuring. The measure of the company's culture developed by Denison and Mishra (1995) is used in this study. This research seeks to address a gap in the existing auditing literature by investigating the part that corporate culture plays in the association between the adoption of audit automation and audit quality.

In addition, technological training, which is an intangible resource, prepares the auditor with the knowledge necessary to employ automation to expedite the audit job and ensure the quality of the audit. Because of this, it is essential to discuss the function that technological education plays in the implementation of audit automation (Ocak, Ozkan, & Can, 2022; Witte, Earley, & Thibodeau, 2022). Curtis and Payne (2008) claim that, despite their ability to improve the efficiency of auditing functions, computer-assisted auditing tools (CAATs) are not being utilised to their full potential. As a result, carefully designed and implemented training programs will equip practitioners with the essential skills to adopt and apply CAATs more fully to realise the full effect on audit quality (Lowe, Bierstaker, Janvrin, & Jenkins, 2018). According to Halbouni, Obeid, and Garbou (2016), providing auditors

with training on how to utilize audit automation will help them feel more at ease and confident while utilising such technologies. The training will teach auditors the required skills and expertise for using audit automation.

Statement of the Problem

Since the 2000s, there has been a significant growth in the amount of research as well as rules concerning audit quality. This could be linked to the various accounting scandals that have tarnished the reputation of the accounting and auditing profession (for example, KPMG and VBS Mutual Bank (South Africa), 2018; Carillion and KPMG (United Kingdom), 2018; Wirecard and Ernst & Young (Germany), 2020; etc.). This has resulted in a decline in trust in financial reports, corporate management, and capital markets, as well as doubts regarding the quality of work in the auditing profession (Ciger, 2020). The attempt by policymakers to identify the driving forces in audit quality led to the development of numerous professional groups, one of which was the Centre of Audit Quality (CAQ), to promote investor trust in the global capital markets as well as the public trust (CAQ, 2022).

The situation in Ghana is not unique in any way. According to Banahene (2018) and Benson (2019), the failure of corporations has emerged as one of the most pressing problems in Ghana in recent years. To clean up the banking and specialised deposit institution sector, the Bank of Ghana revoked the licenses of 347 microfinance companies, 39 microcredit companies, and eight universal banks (including Sovereign Bank, Beige Bank, Premium Bank, Royal Bank, Heritage Bank, Construction Bank, UniBank, and Capital Bank). Additionally, the Bank of Ghana closed eight universal banks. According to

the Ministry of Finance's report from 2020, the cost of the banking sector clean-up was roughly GHS 64.7 billion or $11.7 billion. According to Osei, Yusheng, Caesar, Tawiah, and Angelina (2019), the failure of these banks also resulted in the loss of employment opportunities and livelihoods.

It is possible that the inability of financial audits to identify and avert the occurrence of these failures harmed the economy. An inquiry into the role that auditing firms played in the demise of these organisations was requested by the Institute of Chartered Accountants of Ghana (ICAG). The Institute of Chartered Accountants of Ghana (ICAG) levied a total fine of GHS 2.2 million against four auditing firms for the role they played in contributing to the failure of these banks (Deloitte & Touche GHS 1,150,000; PKF Chartered Accountants GHS 550,000; J. Mills Lamptey & Co. GHS 150,000; and Morrison & Associates GHS 350,000) (ICAG, 2019). Although there could be several possible causes for what happened to these financial institutions, it appears that there was a problem with the quality of the audit. This begs the question; how exactly can auditors improve the quality of their audits?

According to International Standards on Auditing (ISA) 240, an auditor who is conducting an audit per the ISAs is responsible for obtaining reasonable assurance that the financial statements taken as a whole are free from material misstatements. This is true even though the primary responsibility for the prevention and detection of fraud rests with both those charged with the governance and the management of an entity. Even if the audit is correctly planned and carried out by ISA 200, there is an unavoidable risk that some major misstatements of the financial statements will not be discovered. This is because an audit has constraints that are intrinsic to the

process, such as the use of sampling, and it is impossible to eliminate this risk. The deployment of audit automation can lower the risk of detection since, according to ISA 315 (updated 2019), automated tools and methodologies allow for the entire population to be audited without the requirement for sampling. This eliminates the necessity for auditing samples.

This calls into question the auditors' ability to carry out their responsibilities in a professional manner since it is the responsibility of the external auditor to provide an independent and objective assessment of an organisation's financial information to ensure that it is accurate, reliable, and compliant with relevant laws and regulations. To avoid becoming obsolete, auditors need to modernise their auditing practices by incorporating various forms of automation into their work. Some examples of such technologies include generalized audit software, electronic audit modules, database SQL search and retrieve, parallel simulation software, and test data.

Despite the tremendous advantage of using automation in all audit engagements (Fotoh & Lorentzon, 2023; Doğanay, 2019; Bierstaker et al., 2014), numerous recent studies suggest that the use of automation by auditors remains unsatisfactory (Zhang, Thomas, & Vasarhelyi, 2022; Kend & Nguyen, 2020; Moffitt, Rozario & Vasarhelyi, 2018). According to Byrnes et al. (2018) and Moffitt, Rozario, and Vasarhelyi (2018), audit companies continue to execute their audit operations using traditional audit procedures that are primarily manual. Appelbaum, Kogan, and Vasarhelyi (2018) conducted preliminary research that demonstrated external auditors have not utilised numerous functions and facilities of computer-assisted auditing tools and techniques (CAATTs). Instead, auditors primarily use fundamental

functions such as analytical procedures. The outcome is an imbalance between automated transaction processing on the side of the firms and manual audit procedures on the side of the auditors, which results in a higher cost of the audit and a lower quality of the audit (Emett, Kaplan, Mauldin, & Pickerd, 2021; Kang & Piercey, 2020). This causes an increase in the cost of the audit and a decrease in the quality of the audit.

Many audit firms are beginning to increase their capital expenditure on automation to improve audit quality (Fotoh & Lorentzon, 2023; Nunes, Leite, & Pedrosa, 2020; Huang & Vasarhelyi, 2019). This is a response to pressure from financial regulators, the desire to ensure efficiency and reduce cost, and the volume of daily transactions. The utilisation of automation, so the thinking goes, will help to contribute to an increase in the efficiency of audit work. According to Raphael (2017), audit automation has the potential to reduce the number of errors that are connected with traditional manual audits while also saving time. When millions of transactions are carried out at a company daily, as is the case, for example, in the financial and telecommunications sectors, the human inspection of a tiny sample of transactions is insufficient. When the sheer amount of completed transactions renders manual audit methods undesirable, the adoption of automated audit procedures is always an option to consider.

In addition, the research contends that auditing companies have not been able to see automation as a strategic resource that is capable of providing a competitive advantage to companies that adopt and make use of it, as the resource-based perspective theory explains. This is one of the arguments that the study makes. The use of automation may result in greater performance

over a longer period. Several empirical studies (Gierbl, 2021; Kend & Nguyen, 2020; Siew, Rosli & Yeow, 2020; Lowe, Bierstaker, Janvrin, & Jenkins 2018) have shown that Big 4 audit companies that use automation in their audit process can achieve good audit quality compared to non-Big 4 audit firms.

According to the unified theory of acceptance and use of technology (UTAUT) model, individual auditors might not have a strong intention to embrace and apply automation, which would result in a low level of audit quality. Alternately, having a strong intention to accept and make use of technology can not necessarily result in audit quality that meets the intended standards. According to the UTAUT, individuals will behave in the expected manner if, for instance, they possess the appropriate resources, and attitudes toward the behaviour, and believe they have control over the behaviour (Huang & Vasarhelyi, 2019).

There has been a significant amount of literature devoted to the subject of audit automation applications in the auditing profession. Rather than concentrating on the organisation as a whole, the focus of some research (Owino & Musuva, 2021; Pedrosa, Costa & Aparicio, 2020; Venkatesh et al., 2003; Curtis & Payne, 2008, 2014; Curtis, Jenkins, Bedard, & Deis, 2009; Janvrin, Bierstaker, & Lowe, 2008) has been on the individual usage of automation. While earlier studies concentrated on the utilisation and acceptance of technology within businesses (Siew, Rosli, & Yeow, 2020; Awuah, Onumah, & Duho, 2022; Masood & Alfzal, 2016), the focus of this article will be on those aspects. There has not been a study conducted that

takes into account both individual and organisational characteristics to explain the adoption of audit automation and its impact on audit quality.

In addition, very little consideration has been given to the factors that influence the adoption of audit automation by external auditing companies. Studies conducted in this field concentrated their attention on the application of technology in the setting of an internal audit (Awuah, Onumah, & Duho, 2022; Li, Dai, Gershberg, & Vasarhelyi, 2018; Mahzan & Lymer, 2014). Only a few research investigated the factors that determined the adoption of audit automation among external audit firms. As an illustration, Vasarhelyi and Romero (2014) investigated the factors that determine adoption among external auditors. Cross-sectional case studies were used in the research, and it was hypothesised that adoption is influenced by the qualities of the management, the availability of support systems, the cost, and the amount of time it takes to deploy the system. In a study on the adoption of CAATT among external auditors, Widuri, Sari, Wicaksono, Sun, and Sari (2017) concluded that CAATT adoption follows a two-stage approach. The first stage requires the presence of suitable environmental factors, and the second stage requires the existence of organisational and technological factors.

The current study modelled a theoretical framework for successful audit automation adoption through the lens of the UTAUT and suggested that the factors influencing individual auditors' intention to use CAATT are performance expectancy, effort expectancy, social influence, and facilitating conditions. This study builds on earlier works using the resource-based approach, the UTAUT model, the TOE framework, and the technology task fit theory to analyse the drivers of audit quality. There haven't been many studies

conducted in the field of external auditing within the context of Africa, thus this investigation is necessary.

Even though there has been a substantial amount of discussion both within and outside of academic circles regarding how automation affects the auditing process, the existing body of literature on the subject appears to be heavily shaped by the experiences of industrialized countries. Because of this, it has become necessary to carry out research in the context of a developing country such as Ghana to supplement the growing body of knowledge and, in particular, to make a contribution to the discussion regarding the use of automation in the auditing process to produce high-quality audits.

The implementation of audit automation is comprised of a sequence of individual decisions, each of which is impacted by the surrounding environment. According to Erumban and De Jong (2006), the process of innovation is heavily influenced by both the values and attitudes of the individual participant as well as the expectations of the wider group. Within any particular national culture, there will inevitably be differences not only in the demands of individual people, but also in the behaviours of individuals, teams, and organisations. Nevertheless, every person lives and works within a cultural milieu in which particular values, norms, attitudes, and practices serve as common sources of socialisation and social control and are more or less prevalent.

Even though the adoption of audit automation might be identified as a unique resource per the resource-based view (RBV) theory (Barney, 1991), which enhances audit quality and is impacted by individual factors, technology factors, organisational factors, and environmental factors. It has

not been determined whether the use of audit automation has a mediating influence on the relationship between the aforementioned parameters and audit quality.

In addition, according to the task technology fit (TTF) theory (Goodhue & Thompson, 1995), an accepted technology will have a beneficial influence on performance if there is a match between the technology and the work that is to be performed. Despite this, there has not yet been a study that evaluates the influence of the implementation of audit automation on audit quality.

Corporate culture influences actual behaviour through its influence on attitudes and subjective standards and, as a result, improves the adoption and usage of audit automation. However, it may also create significant impediments to the use of these technologies by either encouraging or discouraging individual creativity. Volkoff and Strong (2010) claimed that cultural mismatches might develop when an organisation's standards for using technology conflict with the technology that is being used. It is therefore necessary to match technology with the culture of the organisation to guarantee that its adoption will be effective.

According to Claver, Llopis, González, and Gasco (2001), in many instances, an information system is implemented based solely on the analyses and point of view of the information system (IS) developer. This does not take into consideration end users nor does it involve them in the conception and implementation of that IS. This explains the cultural clash that arises afterwards, which ultimately leads to the technology not being adopted. When

seen from this perspective, it is impossible to deny the significance of the end user in the process of implementing audit automation.

Both the UTAUT and the TOE frameworks did not include corporate culture, even though they play an important role in the process of adopting new technology (Hassani, Chroqui, Okar, Talea, & Ouiddad, 2019). Despite this, the relevance of culture cannot be understated. This vacuum is therefore exploited by the current study, which looks at the influence of corporate culture in the deployment of automation and how it also affects audit quality.

The existing academic literature has not devoted a great deal of attention to culture, although it can be a key factor in determining audit quality. Therefore, there is a limited understanding of how cultural influences impact audit quality, especially how an auditor's ethical behaviour differs according to the cultural background (Nyamori, Abdul-Rahaman, & Samkin, 2017). This is because there is a lack of research on the topic. As a result, the study offers a review of the previous research on audit quality and the role that culture plays in determining audit quality.

According to the resource-based view (RBV) theory (Barney, 1991), corporate culture could be a unique resource that determines the level of audit automation adoption as well as the effect of individual factors, technological factors, organisational factors, and environmental factors on audit quality. This is because corporate culture is deeply ingrained in an organisation's day-to-day operations. Regardless of this, there has not yet been a study that analyses the role that corporate culture plays in moderating the effects of these linkages.

Audit quality is dependent not only on the norms of auditing but also on the qualifications of auditors and the training they get. From a resource-

based point of view, audit companies should place a strong emphasis on continued professional development to improve the overall quality of the audit services they provide (Ocak, Ozkan, & Can, 2022). Regular participation in technological training can significantly improve one's comprehension, knowledge, and abilities, all of which are essential for the efficient application of any technology. A deficiency in technological education can adversely affect the smooth deployment of any technology, which in turn has unfavourable implications for the accomplishment of audit quality.

According to Masood and Lodhi (2015), auditors cannot automatically transition to the usage of audit automation technologies without first receiving adequate ongoing training. As a consequence, auditors who possess the relevant levels of technical knowledge and skill must be assigned to audit engagements (Lee, Su, Tsai, Lu, & Dong, 2016). Auditors can promote their professional development through continuous learning to strengthen their knowledge and abilities with the use of automation to enhance their sensitivity to the identification of fraud. This can help auditors become more vigilant in their search for fraudulent activity.

Even though technological training might be a one-of-a-kind resource according to the resource-based view (RBV) theory (Barney, 1991), it still has the potential to have an impact on the degree to which audit automation is adopted, as well as the effect of individual factors, technological factors, organisational factors, and environmental factors on audit quality. Nevertheless, there is yet to be a study that investigates the moderating effect of technological training among these relationships.

Purpose of the Study

The purpose of the study is to advance the understanding of the factors that enhance the audit quality of audit firms in Ghana. The study also examines the mediating role of audit automation adoption and the moderating role of corporate culture and technological training.

Research Objectives

The study specifically seeks to:

1. Assess the mediation effect of audit automation adoption on individual, technological, organisational, environmental factors, and audit quality;
2. Examine the moderation effect of corporate culture on audit automation adoption and audit quality;
3. Investigate the moderation effect of corporate culture on individual, technological, organisational, environmental factors, and audit quality;
4. Assess the moderating effect of technological training on individual, technological, organisational, environmental factors, and audit automation adoption;
5. Examine the moderation effect of technological training on audit automation adoption and audit quality;
6. Investigate the moderation effect of technological training on individual, technological, organisational, environmental factors, and audit quality.

Research Hypotheses

Objectives one to six were hypothesised as follows:

Objective one

H1a. Audit automation adoption mediates the relationship between individual factors and audit quality.

H1b. Audit automation adoption mediates the relationship between technological factors and audit quality.

H1c. Audit automation adoption mediates the relationship between organisational factors and audit quality.

H1d. Audit automation adoption mediates the relationship between environmental factors and audit quality.

Objective two

H2. Corporate culture moderates the relationship between audit automation adoption and audit quality.

Objective three

H3a. Corporate culture moderates the relationship between individual factors and audit quality.

H3b. Corporate culture moderates the relationship between technological factors and audit quality.

H3c. Corporate culture moderates the relationship between organisational factors and audit quality.

H3d. Corporate culture moderates the relationship between environmental factors and audit quality.

Objective four

H4a. Technological training moderates the relationship between individual factors and audit automation adoption

H4b. Technological training moderates the relationship between technological factors and audit automation adoption

H4c. Technological training moderates the relationship between organisational factors and audit automation adoption

H4d. Technological training moderates the relationship between environmental factors and audit automation adoption

Objective five

H5. Technological training moderates the relationship between audit automation adoption and audit quality.

Objective six

H6a. Technological training moderates the relationship between individual factors and audit quality

H6b. Technological training moderates the relationship between technological factors and audit quality

H6c. Technological training moderates the relationship between organisational factors and audit quality

H6d. Technological training moderates the relationship between environmental factors and audit quality

Significance of the Study

This work contributes to the current body of literature on audits, providing both academic and practical insights. The study holds academic relevance as it contributes to the existing body of literature on the factors

influencing external audit quality. Specifically, it offers insights from a developing country context and explores the impact of audit automation adoption, corporate culture, and technological training. Additionally, this facilitates the comprehension of automation's implications in the accounting and auditing sectors by organisations, enabling them to proactively anticipate and adapt to potential alterations. This platform provides audit businesses with the potential to augment the caliber of their work and raise the efficiency of their personnel.

This study aims to examine the predictors of audit quality by drawing on several theoretical frameworks, including the resource-based view theory, the technology-organisation-environment (TOE) framework, the unified theory of acceptance and use of technology (UTAUT), and the task technology fit theory. The study takes an empirical approach to explore these predictors. This study aims to further examine the interplay between the adoption of audit automation, business culture, and technology training.

Furthermore, the study also offers practical contributions. At the national level, the findings provide support for the importance of ongoing education and skill development. Moreover, this study has the potential to establish a fundamental basis for future investigations, particularly in areas pertaining to the effectiveness of automation implementation in the audit procedure and potential regulatory measures. The purpose of this study is to provide managers with insights into the essential components required for the successful adoption and utilization of financial audit automation. The findings of this research aim to assist managers in their efforts to enhance the effectiveness and reliability of audits.

This study introduces a novel perspective by considering corporate culture and technology training as potential moderating factors in the association between the use of audit automation and audit quality. This study is a valuable contribution to the existing body of research on corporate culture and training. The outcomes of this investigation are anticipated to function as a point of reference for managers and regulators in their efforts to address the utilization of audit automation as a means to enhance audit quality. Aligned with the domain of information systems research, this study illuminates the significance of comprehending the ramifications associated with audit quality.

Delimitation

Delimitation encompasses the parameters and magnitude of the investigation (Saunders, Lewis & Thornhill, 2009). The research was centered on audit firms that possess a valid license from the Institute of Chartered Accountants Ghana (ICAG) and maintain a favorable status with the institute as of December 2022.

The research found a limited set of audit automation technologies within the scope of the study, including generalized audit software, electronic audit working papers software, embedded audit modules, database SQL search and retrieve, parallel simulation software, and test data. There exist additional technologies that warrant further investigation.

Limitations

Limitations include shortcomings and conditions of the study (Saunders, Lewis & Thornhill, 2009). The study employed the use of a questionnaire which has some inherent limitations. The risk of respondents

providing socially desirable answers and dependency on self-reporting. The data is influenced by the honesty and integrity of respondents.

This study suffers from the inherent limitations associated with all cross-sectional surveys. The study only investigated licensed audit firms that are in good standing with the ICAG and therefore do not allow for the generalization of the results to cover for example other forms of audits. Notwithstanding these limitations, the research highlights valuable insights into the literature on audit quality among external audit firms.

Organisation of the Study

The thesis is organised into five Chapters. Chapter One provides a general introduction to the study dealing with the background to the study, statement of the problem, the purpose of the study, research objectives, significance of the study, delimitations, and limitations of the study. Chapter Two presents a review of relevant literature, related theories, concepts, empirical studies, the hypotheses development and the conceptual framework. Rubrics of the research methodology are presented in Chapter Three which itemises the research philosophy, research design, study area, population, sampling procedure, data collection instruments, data collection procedures, data processing and analysis. Chapter Four consists of the presentation of the research results and the discussion of the various findings. Chapter Five consists of the summary, conclusions, recommendations, contributions, and suggestions for further research.

CHAPTER TWO

LITERATURE REVIEW

Introduction

This chapter consists of a thematic review of related theories, concepts, empirical studies, hypotheses development and the conceptual framework. The theoretical review includes a presentation and discussion of the theories that underpin the study. The theories were then used to explain the hypotheses i.e., the relationships that exist between the independent variables, audit automation adoption, corporate culture, technological training and audit quality.

Theoretical Review

The theoretical foundations of this study encompass several prominent theories. These include the resource-based view (RBV) theory proposed by Barney (1991, 2001), the unified theory of acceptance and use of technology (UTAUT) developed by Venkatesh et al. (2003), the technology-organisation-environment (TOE) framework introduced by Tornatzky, Fleischer, and Chakrabarti (1990), and finally, the task technology fit theory formulated by Goodhue and Thompson (1995).

Resource-based view (RBV)

The resource-based view theory offers a complete framework for comprehending how an organisation may achieve enduring competitive advantage via the acquisition and effective management of its internal resources and capabilities (Barney, 1991, 2001). It provides valuable insights into the mechanisms involved in defining, explaining, and forecasting the methods by which a company might attain enduring success via the

procurement and management of its unique resource combinations. The organisation contains unique resources and competencies that provide a competitive edge. The resources and competencies under consideration exhibit distinct attributes such as their inherent worth, scarcity, replication challenges, limited substitutability, and unequal distribution among enterprises within the sector (Ocak, Ozkan, & Can, 2022; Nandi, Nandi, Moya, & Kaynak, 2020; Bharadwaj, 2000; Barney, 1991, 2001).

According to Barney (1991, 2001), the concept of resources comprises a wide array of assets, capabilities, organisational procedures, business attitudes, and strategies that together contribute to improving efficiency and effectiveness. The resources of a business consist of its assets, which may be categorised as either physical (e.g., information technology infrastructure) or intangible (e.g., information or process expertise). These resources are of paramount importance in enabling the organisation to effectively generate and distribute products and services.

Grant (1991) posits that resources may be seen as inputs that are used in the process of production. The resources may be classified into six main categories: financial resources, physical resources, human resources, technological resources, reputational resources, and organisational resources. In contrast, the concept of capabilities refers to how a firm efficiently uses its resources, namely via the implementation of organisational procedures, to get the intended result (Montenegro & Bras, 2015; Bharadwaj, 2000).

The resource-based view (RBV) is a theoretical framework that provides a comprehensive understanding of the processes via which a corporation might get a competitive advantage. This advantage is attained by

using its unique resources and transforming them into capabilities. The aforementioned procedure entails the methodical construction, integration, and reconfiguration of the company's resources inside its organisational processes and routines. Nandi, Nandi, Moya, and Kaynak (2020) argue that the use of computer-assisted auditing tools (CAAT) in software format has the potential to streamline the automation of certain audit activities. The use of audit automation provides many benefits in relation to the planning and reporting aspects of audits. According to Aikins (2020), the use of computerised methods in auditing facilitates the broadening of audit coverage, fosters the integration of audit skills, strengthens the independence of auditing from information system operations, boosts credibility, and achieves cost-effectiveness via the development of reusable computerised procedures.

The human resources of an organisation often refer to the combined knowledge, skills, connections, and perspectives held by its staff members (Barney, 1991; 2001). The fundamental constituents of human information technology (IT) resources comprise technical proficiencies in IT, including programming, systems analysis, and design, alongside proficiencies in new technologies. Moreover, managerial information technology (IT) skills comprise a range of talents, including the effective administration of activities inside information systems, coordination and engagement with the user community, as well as project management and leadership capabilities. The resource-based paradigm offers a notable contribution by clearly recognising the significance of intangible resources inside an organisation. Numerous noteworthy intangible elements inside firms need consideration, including know-how, corporate culture, corporate reputation, and performance.

Bharadwaj (2000) asserts that the study emphasises the significance of automation, corporate culture, and technologica training as valuable assets capable of generating a competitive edge. Nevertheless, the aforementioned value can only be actualised when these resources are effectively used to enhance or facilitate the current resources and capabilities of the organisation.

Unified theory of acceptance and use of technology (UTAUT)

The unified theory of acceptance and use of technology (UTAUT) was developed by Venkatesh, Morris, Davis, and Davis (2003) to provide a comprehensive framework for understanding the factors that influence an individual's adoption of information technology (IT). The theory was developed through a comprehensive assessment, comparison, and trial of eight competing ideas within the field of research. Over an extended period, researchers have extensively examined this subject matter to identify fundamental factors that influence consumers' decision-making processes while adopting technology in many fields.

Venkatesh et al. (2003) conducted an extensive examination of eight models, including the Technology Acceptance Model (TAM), the Theory of Reasoned Action (TRA), the Theory of Planned Behaviour (TPB), the Motivational Model (MM), Innovation Diffusion Theory (IDT), Model of Personal Computer Utilization (MPCU), the Social Cognitive Theory (SCT), and a hybrid model that combines TAM and TPB. The authors conducted a comprehensive analysis, comparison, and empirical evaluation of these models. The UTAUT theory was later empirically validated by collecting data from four distinct organisations over six months. The findings of this validation study demonstrated that UTAUT outperformed the eight individual

models in its capacity to elucidate the adoption behaviour of diverse technologies, in comparison to these alternative models (Venkatesh et al., 2003). The UTAUT model has exhibited a greater level of explanatory capability, explaining 70% of the variability in intention to use, surpassing the individual contributions of the TAM studies.

The effectiveness of the Unified Theory of Acceptance and Use of Technology (UTAUT) has been proven to be a valied research instrument and predictive tool for technology adoption behaviour. Hence, the aforementioned model has garnered much acclaim in comparison to other models, mostly due to its simplicity, cost-effectiveness, and robustness. Moreover, the empirical data has provided evidence to support the superiority of this particular model when compared to other previously prevalent models in the area (Venkatesh et al., 2003; Zhang, Thomas, & Vasarhelyi, 2022).

Despite the extensive replication, utilisation, and integration of the Unified Theory of Acceptance and Use of Technology (UTAUT), several scholars contend that there is still a need for a systematic investigation and conceptualisation of the key factors related to the adoption of technology in particular contexts (Venkatesh et al., 2003). Furthermore, it is important to acknowledge that a considerable proportion of technology adoption models, namely the Unified Theory of Acceptance and Use of Technology (UTAUT), have not been extensively tested in the specific setting of a developing nation like Ghana (Owino & Musuva, 2021). This research gives a distinctive examination of the relationship between personal variables, the use of audit automation, and the efficacy of audits.

The UTAUT model was established by the identification of four factors that have a significant influence on an individual's acceptance and use behaviour. The components included in this framework consist of performance expectation (PE), effort expectancy (EE), social influence (SI), and enabling conditions (FC). Furthermore, Venkatesh et al. (2003) proposed that gender, age, and experience act as modifiers for the four basic characteristics mentioned. The idea has been operationalised in several nations as a means of doing research. The present research investigates the theoretical framework of individual components as a higher-order construct, which encompasses performance expectation, effort expectancy, social impact, and enabling factors.

Performance expectancy

Performance expectancy highlights the degree to which a person holds the opinion that the implementation of a certain system will contribute to enhancing their performance (Venkatesh et al., 2003). Based on established auditing rules and guidelines, the incorporation of audit automation can enhance the efficiency and efficacy of external audits (International Standard on Auditing [ISA] 315, 200, 500). Moreover, prior studies on automation have shown that the utilisation of automation aids auditors in improving their understanding of their client's information technology controls, simplifying risk assessment during the planning stage, and enhancing the efficiency of audit testing. Hence, there is a prevalent belief that the use of audit automation can augment the efficacy of external auditors. Existing literature has consistently shown a positive influence of performance expectancy on the adoption of Computer-Assisted Audit Tools and Techniques (CAATT)

(Pedrosa, Costa, & Aparicio, 2020; Ramen, Jugurnath, & Ramhit, 2015; Rosli et al., 2012; Janvrin et al., 2008; Curtis & Payne, 2008; Venkatesh et al., 2003).

Effort expectancy

Effort expectancy refers to the degree of user happiness and usability that the adopter associates with the technology being evaluated. The research done by Venkatesh et al. (2003) also investigates the concept of effort expectation within the unified theory of acceptance and use of technology (UTAUT). This construct specifically relates to people's perceptions of the ease of using technology. The Unified Theory of Acceptance and Use of Technology (UTAUT) suggests that, in similar conditions, the likelihood of external auditors adopting automation is higher when the technology is designed to be user-friendly. This eliminates the requirement for a difficult learning process to effectively utilise automation.

Bedard, Jackson, Ettredge, and Johnstone (2003) suggest that the sense of ease of use may be modified by the impact of training. Therefore, this research seeks to examine the influence of usability and training on the automation practices of external auditors. The study seeks to provide more empirical data about the significance of these factors in the decision-making process of adopting automation methods. Existing research indicates that the proficiency of auditors in the field of Information Technology/Information Systems (IT/IS) has a significant influence on the extent to which audit automation is embraced. Multiple studies (Pedrosa, Costa, & Aparicio, 2020; Ramen, Jugurnath & Ramhit, 2015; Rosli et al., 2012; Janvrin et al., 2008; Curtis & Payne, 2008; Venkatesh et al., 2003) have provided evidence

indicating that auditors with a significant level of IT/IS competency tend to exhibit a reduced perception of effort expectancy when it comes to embracing audit automation.

Social influence

Social influence refers to the degree to which a person perceives that others value the importance of adopting new technologies (Venkatesh et al., 2003). This research seeks to examine the potential effect of image and normative belief on the desire to adopt automation within the context of social influence. The decision regarding the adoption of automation within an organisation can be impacted by a range of factors, such as the viewpoints and outlooks of the audit partner, colleagues within the auditing firm, and other professional connections (Pedrosa, Costa, & Aparicio, 2020; Ramen, Jugurnath & Ramhit, 2015; Rosli et al., 2012; Janvrin et al., 2008; Curtis & Payne, 2008; Venkatesh et al., 2003).

Facilitating conditions

Venkatesh et al. (2003) define the concept of facilitating conditions as an individual's subjective assessment of the degree to which the organisational and technical infrastructure is accessible and capable of facilitating the adoption of a certain technology. The factors that can influence external auditors' adoption of automation include the availability of sufficient information about the capabilities of automation, support from vendors or software providers, and endorsement from top-level management in their organisations. Previous scholarly research examining the association between performance expectancy and the adoption of Computer-Assisted Audit Tools and Techniques (CAATT) has consistently revealed a positive influence on the

acceptance of technology (Pedrosa, Costa, & Aparicio, 2020; Ramen, Jugurnath & Ramhit, 2015; Rosli et al., 2012; Janvrin et al., 2008; Curtis & Payne, 2008; Venkatesh et al., 2003).

Task-technology fit theory

The concept of task-technology fit (TTF) posits that the probability of information technology yielding a favourable effect on person performance and being effectively used is increased when the functionalities of the technology are congruent with the tasks that the user is obligated to do (Goodhue & Thompson, 1995). The idea being discussed relates to the degree to which the functions of an information system align with or meet the needs of the activities that must be performed (Siew, Rosli & Yeow, 2020; Van Nhi & Lam, 2019). In an alternate formulation, the efficacy of information technology is dependent on its capacity to decrease the expenses borne by users during the execution of a certain job or process. Rational and experienced persons tend to choose technologies and procedures that enable them to efficiently complete jobs while maximising overall benefits. Based on the investigations done by Siew, Rosli, and Yeow (2020) and Braun and Davis (2003), the adoption and use of a particular information technology are improbable if it fails to provide substantial advantages. The present research implemented a measurement of task-technology fit based on the principles of task-technology fit theory. This theory suggests that task-technology fit refers to the degree of alignment between the auditor's ability to adopt audit automation and the particular work allocated to them.

The concept of "technology," often referred to as automation, comprises a wide range of information technologies, such as hardware,

software, data, user-support services, or any combination thereof (Siew, Rosli & Yeow, 2020; Braun & Davis, 2003). In the present era, the domain of audit automation has seen progressions covering diverse methodologies and technology. Notable developments in the field encompass a range of technologies such as continuous auditing, electronic accounting and data processing, electronic data interchange, generalised audit software, electronic audit working papers, embedded audit modules, database SQL search and retrieve, parallel simulation software, test data, data analytics, blockchain, artificial intelligence, robotic process automation, machine learning, distributed ledger technology, deep learning, smart contracts, cloud technologies, natural language processing, big data, integrated language processing, and enterprise resource planning, among others. The audit process comprises many essential steps, including engagement definition, engagement planning, internal control review, compliance testing, substantive testing, and audit report generation. Hence, it is crucial to provide a proper synchronization between tasks and technology, wherein the chosen technology effectively boosts the audit procedures, ultimately leading to the attainment of audit quality.

The concept of task-technology fit, as originally conceptualized by Goodhue and Thompson (1995), comprises a set of eight unique attributes. The elements included in this analysis are quality, authorisation, compatibility, simplicity of use and training, production timeliness, systems dependability, and interaction with users. In the context of this study, the operationalisation of the idea of "fit" pertains to the extent to which automation may assist auditors in efficiently executing their duties and eventually improving audit

quality. The effective execution of audit processes relies on the use of technology that contains the necessary features. In such situations, the process of resolving work-related difficulties is facilitated.

The use of the task-technology fit model has been noticed in several situations within the field of information systems research. Furthermore, it has been included or used as an extension of various frameworks concerning the outcomes of information systems (Siew, Rosli & Yeow, 2020; Braun & Davis, 2003). The notion of task-technology fit suggests that the efficiency of an information system depends on how well the unique task needs connect with the technical capabilities. Existing literature has shown a significant correlation between the effectiveness of an information system and both individual performance (Goodhue & Thompson, 1995) and group performance (Zigurs & Buckland, 1998). The significance of task-technology fit is generally recognised; yet, there are unsolved queries about the applicability of this theory in the context of the relationship between audit automation and audit quality (Akwam & Yua, 2021). The theory of task-technology fit asserts that the alignment between audit processes and information technology is essential for understanding and predicting the effectiveness of automation technologies in achieving audit quality.

Technology-organisation-environment (TOE) framework

The TOE framework, created by Tornatzky, Fleischer, and Chakrabarti in 1990, offers significant insights into the determinants that impact the adoption of innovation within organisational contexts. This approach emphasises the importance of contextual elements in the process of adoption. The Technology-Organization-Environment (TOE) paradigm offers a

comprehensive framework for comprehending the many factors that might influence the adoption of technological advancements. The aforementioned elements comprise the implications on technology, the environment, and organisational structures. The ability to integrate several factors into a complete model enables the analysis of how these variables influence the adoption of information technology. Consequently, this leads to valuable observations on significant areas of concern.

The TOE framework is an all-encompassing analytical framework that integrates technical and non-technological factors to clarify the process of technology adoption. The TOE framework is widely recognised as a useful approach for predicting and explaining the adoption of technology, primarily owing to its strategic orientation and extensive influence on the whole business (Awuah, Onumah & Duho, 2022; Masood & Alfzal, 2016; Tornatzky, Fleischer & Chakrabarti, 1990). Furthermore, the Technology-Organization-Environment (TOE) model has shown its efficacy in identifying the elements that facilitate or impede the adoption of technology. The use of the TOE framework has been extensively employed in many studies conducted in the area of information systems (IS) and auditing (Awuah, Onumah & Duho, 2022; Alawaqleh, 2021; Ghanem & Hamid, 2021; Kimunguyi, 2020; Alfzal & Masood, 2016).

Technological factors

The technological factors included by the TOE framework are associated with the attributes that possess the capacity to influence the decision-making process of organisations with regard to the acceptance or refusal of technologies. However, the TOE framework lacks a precise and

unequivocal description of these specific attributes. The research integrated the six technological characteristics outlined in the Diffusion of Innovation (DOI) hypothesis as proposed by Rogers (1995). The characteristics under consideration encompass cost-benefit analysis (Rosli, Yeow, & Siew, 2012), relative advantage (Li, Dai, Gershberg, & Vasarhelyi, 2018; Appelbaum et al., 2017; Braun & Davis, 2003), compatibility (Yang, Li, Jin, Zeng, Wu, & Vasilakos, 2015), complexity (Venkatesh, & Bala, 2012), observability (Rogers, 1995; Moore & Benbasat, 1991), and trialability (Rogers, 1995; Tan & Teo, 2000). The extant body of evidence indicates a positive association between the aforementioned characteristics and the uptake of technology (Siew, Rosli, & Yeow, 2020; Venkatesh et al., 2003). These components together have an impact on the decision-making process of technological innovation inside the firm.

The research conducted in this study established technical aspects as a higher-level construct, including several components such as cost-benefit analysis, technological compatibility, technology complexity, relative advantage, observability, and trialability (Awuah, Onumah & Duho, 2022; Siew, Rosli & Yeow, 2020).

Organisational factors

The organisational aspect of the TOE framework provides a comprehensive understanding of the characteristics of an organisation that influence the decision-making process about the adoption of a certain technology. This section provides an analysis of the organisational characteristics that may either support or hinder the adoption process (Awuah, Onumah & Duho, 2022; Siew, Rosli, & Yeow, 2020; Venkatesh & Bala,

2012; Tornatzky, Fleischer & Chakrabarti, 1990). Numerous research has presented empirical findings that substantiate the proposition that this specific characteristic has a strong predictive capability about the adoption choices made by enterprises. The adoption of certain practices in this particular domain is influenced by many key factors, including the scale of the firm, the level of support from top-level management, and the proficiency of technology or individuals involved (Li et al., 2018). The construct of organisational factors at a higher level is established by the amalgamation of top management support and technical competency (Awuah, Onumah & Duho, 2022; Siew, Rosli & Yeow, 2020).

Environmental factors

The environmental factors cover the contextual framework in which a corporation works, including its industry, competitors, availability of resources, and relations with the government. The environmental factors within an audit context consist of the level of assistance offered by professional organisations and regulatory bodies, the intricacy of the client's accounting information system (AIS), external or competitive influences, and compliance with audit standards (Tornatzky, Fleischer, & Chakrabarti, 1990). Organisations are exposed to both potential advantages and disadvantages while adopting technology, as a result of the impact of the environmental context, which comprises the external circumstances in which they operate.

The analysis of environmental factors is of great importance as it allows audit companies to comply with auditing standards and relevant legislation throughout the auditing process. Moreover, previous studies have been conducted in developed nations, demonstrating that the use of

automation in auditing businesses is promoted by professional and regulatory guidance (Awuah, Onumah & Duho, 2022; Siew, Rosli, & Yeow, 2020; Ahmi & Kent, 2013; Braun & Davis, 2003). However, there exists a dearth of lucidity about the importance of professional and legal requirements as crucial factors in the use of automation. Therefore, it is crucial to investigate the extent to which environmental concerns affect audit quality within the framework of a developing country. The study examined the incorporation of auditing standards, external factors, perceived assistance from professional accounting organisations, and customers' accounting information systems to present environmental factors as a more comprehensive and overarching concept (Awuah, Onumah & Duho, 2022; Siew, Rosli, & Yeow, 2020).

Conceptual Review

External financial audit

The incorporation of an external financial audit assumes a critical function in maintaining the resilient functioning, credibility, and welfare of Ghana's financial system (Coffie, Bedi & Amidu, 2018). To ensure the accurate, comprehensive, and timely distribution of crucial data necessary for making investment decisions, the Securities and Exchange Commission (SEC) requires publicly traded companies to undergo periodic external audits of their accounting information. Subsequently, these companies are obligated to disclose this information to their shareholders and investors. According to the agency theory, the presence of financial audits contributes to the optimisation of capital markets by promoting openness and accuracy in an organisation's accounting information. Consequently, the likelihood of corporations participating in fraudulent behaviour and hiding unethical conduct is reduced

(Francis, 2023; Raiszadeh, Mohseni & Ghasemi, 2023; Sampet, Sarapaivanich & Patterson, 2019; Coffie, Bedi & Amidu, 2018). Hence, the significance of auditors' provision of service quality cannot be overstated in its contribution to the enhancement of capital market efficacy.

As per Section 127 of the corporations Act 2019 (Act 992) in Ghana, corporations must maintain precise accounting records about their financial position and any alterations made to these records. Furthermore, it is essential for organisations to efficiently oversee and document the acquisition of assets, regardless of whether they are meant for resale or internal utilisation in the company's operational activities. The establishment of the financial statements should be based on the accounting records. The aforementioned statements include the statement of financial position, statement of comprehensive income, statement of cash flows, statement of changes in equity, and a summary of major accounting policies, in addition to supplementary explanatory notes. As per the legislation, the financial statements must be formulated in adherence to the International Financial Reporting Standards (IFRS) as sanctioned by the Institute of Chartered Accountants, Ghana, or any other standards that have received endorsement or adoption by the Institute.

Per the provisions delineated in Section 128 (1c), it is incumbent upon directors of companies to assemble and distribute the financial statements, report of directors, and a report by the auditors to their members yearly. As stipulated in Section 137, the audit report must be authored by an auditor who holds the requisite credentials. The audit report should have a comprehensive scope that includes a thorough analysis of the company's accounting records and a comprehensive assessment of its financial statements. The analysis of

the financial statements should conform to the International Standards on Auditing (ISA) as approved by the Institute of Chartered Accountants, Ghana (ICAG), for both publicly traded and privately held corporations. The audit report is necessary to provide evidence that the financial statements released by the firm effectively depict the company's financial status at the end of the fiscal year.

Financial audit process/ financial audit phases

The audit process is a sequence of activities conducted by an auditor to generate an audit opinion. According to the International Auditing and Assurance Standards Board (IAASB, 2022), the audit process activities are important due to their capacity to guarantee the efficiency and effectiveness of audits. The significance of the audit process in ensuring audit quality is generally acknowledged in academic literature, as shown by the scholarly contributions of Francis (2023), Sulaiman (2023), and the study done by the Center for Audit Quality (CAQ, 2022). Auditors exhibit the use of professional judgment and maintain a state of professional scepticism throughout the whole audit process.

The commencement of the financial audit process entails the collection of relevant information about the audited firm and its business environment to assess possible risks, identify risk factors, and determine suitable materiality levels (IAASB, 2022). The third phase is assessing the effectiveness of internal controls through testing. Internal controls may be defined as a collection of processes and measures that are developed, implemented, and maintained by persons who have responsibility for governance, management, and other personnel, as stated by the International Federation of Accountants

(IFAC, 2016). The main objective of implementing these controls is to provide a satisfactory level of assurance regarding the achievement of an organization's goals, particularly concerning the reliability of financial reporting, the efficiency and effectiveness of operations, and compliance with applicable laws and regulations (IFAC, 2016, para. 4c). The main purpose of doing a design effectiveness test is to confirm that the internal controls have been appropriately organised to successfully achieve the designated control objectives.

The second stage in a financial audit entails assessing the operational effectiveness of the designated controls, to confirm their efficiency throughout the examined timeframe. The audit technique progresses by executing substantive testing methods, which include traditional analytical procedures, physical examinations of inventory, and the assessment of confirmations of balances obtained from suppliers. The conclusion of the audit process is indicated by the generation of the final audit report (IAASB, 2022; Emett, Kaplan, Mauldin & Pickerd, 2021; Krasodomska, Simnett & Street, 2021; Saliha & Flayyihb, 2020).

Auditors use several audit procedures to evaluate the sufficiency and effectiveness of internal controls in relation to its design and operational effectiveness. As stated by the International Federation of Accountants (IFAC, 2016, para. A73), the primary audit procedures used to evaluate internal controls are inquiry, observation, inspection, and re-performance. These activities exhibit a manual nature, leading to a substantial time investment and an elevated probability of mistakes. The aforementioned steps are executed with a sampling approach. To effectively depict the amount of conducted

transactions, it is imperative to continually increase the sample size. The limited availability of audit resources hampers the effectiveness of the audit process by impeding the capacity to choose an appropriate sample size.

Audit automation/ technologies

The industrial revolution is closely linked to a notable increase in technological progress, resulting in significant expansion and change. The period known as the original industrial revolution, which occurred between 1750 and 1870, resulted in an increased application of scientific ideas in the industrial sector, leading to the emergence of automated methods of production. The second revolution, which occurred between 1870 and 1970, was initiated by the introduction of electric motors powered by electricity. The ensuing revolutionary development had a crucial role in enabling the establishment of mass production and the widespread diffusion of large-scale machine tool manufacturing. The third revolution, which occurred between 1970 and 2011, was characterised by the adoption and use of Information and Communication Technology (ICT). The fourth industrial revolution, often known as Industry 4.0, is distinguished by the incorporation of autonomous systems and networked companies (Al-Khasawneh, 2022; Nyandongo & Pillay, 2022; Dai & Vasarhelyi, 2016).

Audit automation, as defined by the Institute of Chartered Accountants England and Wales (ICAEW, 2018) to encompass the use of computer technology in several facets of audit management, including planning, execution, and finalisation. The fundamental aim of this initiative is to reduce or eliminate the amount of time dedicated to computational or clerical tasks, improve the precision of audit evaluations, and maintain a consistent standard

of audit quality. The term "audit automation" in this study refers to the application of different technological tools, such as Electronic Spreadsheets, Electronic Working Papers, Generalised Audit Software, Embedded Audit Modules, Database SQL search and retrieve, Parallel Simulation Software, and Test Data, as defined by previous research. The aforementioned instruments are used to assist auditors in the execution of audit procedures (Siew, Rosli, & Yeow, 2020; Dai & Vasarhelyi, 2016).

Manyika et al. (2017) define automation as the use of technology to reduce human mistakes and improve overall performance. It is crucial to differentiate this idea from digitisation, which pertains to the transformation of analogue data into a digital format. This study prioritizes automation above digitalization, given that the audit process has already experienced digitization. The primary aim of automation is to improve the execution of operations.

Dai and Vasarhelyi (2016) assert that auditors possess the capacity to use sophisticated technologies to acquire a significant amount of data in real-time. This technology furthermore allows for the automation of repeated tasks that require limited or uncomplicated decision-making. Consequently, auditors are capable of obtaining thorough, timely, and accurate assurance of information. According to the International Standard on Auditing (ISA) 500, the use of audit automation may augment the auditor's capacity to detect any occurrences of misrepresentation or fraudulent conduct inside the financial statement. The achievement of these goals is facilitated via the effective consideration and resolution of the primary audit objectives, which include

correctness, completeness, ownership, value, dependability, classification, and disclosure of the data (IFAC, 2009; Debreceny, Lee, Neo & Toh, 2005).

Uses of automated tools and techniques

The degree of confidence provided by the auditor's report is deemed reasonable; nonetheless, it is crucial to recognise that it does not give an absolute level of certainty. This restriction arises from the inherent constraints associated with conducting an audit, as outlined in the International Standard on Auditing (ISA) 200. The possible redefinition of the idea of assurance may be attributed to the emergence of new technologies, which can mitigate the inherent constraints of audits and enhance the degree of confidence. This perspective is substantiated by several researchers and institutions, such as Francis (2023), Sulaiman (2023), CAQ (2022), Dickins, Johnson-Snyder, and Reisch (2018), and DeAngelo (1981). The use of electronic data via Computer Assisted Audit Techniques (CAATs) is recognised by the International Standard on Auditing (ISA) 330 as a feasible option for acquiring audit evidence. This may be employed either as a substitute or as a complementary method alongside current control mechanisms.

Audit automation may be used to carry out risk assessment procedures. Auditors may use automated tools and techniques (ATT) to facilitate the gathering of information about an entity's business and organisational structure, as well as to enhance their understanding of transaction flows and processing. The auditors use these methods and strategies as components of their operations to acquire comprehension of the information system, in alignment with ISA 315 (updated 2019), particularly paragraph A57.

The deployment of audit automation has the potential to enhance the auditor's ability to exercise professional scepticism throughout the implementation of risk assessment processes. As to the International Standard on Auditing (ISA) 200, auditors have a duty to use professional scepticism throughout the preparation and execution of an audit, recognizing the potential occurrence of material misstatements in the financial statements arising from diverse circumstances. Professional scepticism refers to a cognitive inclination characterized by a tendency to question and remain vigilant towards situations that may indicate the existence of errors arising from either unintentional errors or deliberate deception. It involves critically evaluating the available evidence (International Standard on Auditing 200, paragraph 13(i)).

The auditor's ability to improve the detection and assessment of significant risks related to material misstatements may be strengthened by using modern technical tools and gaining broader access to a wide array of data from many sources. The aforementioned outcome may be attributed to the advancement of technology and the increased accessibility of information to conduct audit processes. Although these technologies have significant potential, they are unable to function as a substitute for the experience and professional judgment of auditors. In light of the auditor's ability to obtain a wide array of data from various sources, resulting in a greater volume of information, it is crucial to maintain a sense of professional scepticism. This is necessary to assess the calibre and dependability of the data, as well as the conclusions drawn from the utilization of automated tools and methodologies (IFAC, 2020).

Audit quality

The notion of audit quality is complex and lacks a commonly accepted definition or complete analysis. The subject matter being examined exhibits several facets and is inherently unobservable (Francis, 2023; Sulaiman, 2023; CAQ, 2022; Dickins, Johnson-Snyder, & Reisch, 2018; DeAngelo, 1981). The concept of audit quality has been the focus of scholarly investigation for a considerable duration. Nevertheless, there exists a dearth of agreement about the precise delineation and implementation of this concept across several research endeavours (Francis, 2023; Sulaiman, 2023; Ismael & Kamel, 2021). According to De Angelo (1981), audit quality may be defined as the assessment of the probability that the auditor would detect significant misrepresentations in the financial statements (technical competence) and effectively convey them (auditor independence). Audit quality may be defined as the overall probability that an auditor would successfully detect and expose a prior problem.

According to the Financial Reporting Council (FRC) in the United Kingdom (2015, p. 6), the quality of an audit is considered high when it achieves a "heightened level of confidence in the conformity of the financial statements to the financial reporting framework or results in an auditor's report that expresses the auditor's dissent or limited capacity." The reliability of financial statements is significantly dependent on the existence of rigorous audits, which are considered to protect the financial interests of owners and other stakeholders by enhancing the accuracy and value of the financial statements provided by management.

Numerous academics use externally visible metrics, including anomalous accruals, audit size, auditor tenure, audit fees, and reputation, as a method for evaluating the efficacy of audits (Abu Kwaik, Sweis, Allan, & Sweis, 2023; Francis, 2023; Sulaiman, 2023; CAQ, 2022). While previous academic studies have shown the advantages of using a certain proxy, it is crucial to recognize that this proxy may not fully capture all aspects of audit quality.

Additionally, it is important to acknowledge that these proxies function as indirect measures of audit quality and may not provide a thorough evaluation of the quality of the audit from the perspective of the client. Furthermore, in some situations when the actual quality of an audit cannot be directly seen, perceptions may be considered a valid measure for investigating the relationships between real audit quality and other factors. Francis (2023) highlights the importance of perceptions in building the confidence of auditors since the direct observation of audit quality has inherent challenges. The research used the audit quality measurement approach established by Afroze and Aulad (2020), Masood and Afzal (2016), and Sulaiman (2018).

Corporate culture and audit quality

The extant literature offers a complete delineation of corporate culture, including the shared underlying beliefs that dictate acceptable and undesirable behaviours within an organisational context. Moreover, it incorporates the collective perspectives of the incorporation and exclusion of people within the collective (Ballestero, 2023; Jenkins, Deis, Bedard, & Curtis, 2008; Denison & Mishra, 1995; Hofstede, 1984). Corporate culture refers to the shared beliefs, assumptions, and symbolic representations that are held by individuals

inside an organization. These elements have a role in defining how a company carries out its commercial activities.

According to Jenkins et al. (2008), the auditing profession has consistently regarded corporate culture as a unique and exclusive element that embodies the essence of the business. The impact of audit culture on audit quality is recognised as a prominent element in several professional frameworks, including the International Auditing and Assurance Standards Board (IAASB, 2014) and the Financial Reporting Council (FRC, 2015). The 2019 Audit Quality Framework, produced by the Centre for Audit Quality (CAQ), highlights the importance of culture in influencing attitudes and behaviours, hence playing a critical role in guaranteeing audit quality. This framework, which incorporates perspectives from professionals in the field, emphasizes the crucial importance of inclusivity activities in enhancing audit quality (CAQ, 2022; IFAC, 2022).

According to the Centre for Audit Quality (2022), the fundamental basis for ensuring audit quality is the establishment and enforcement of policies and processes that cultivate an organisational culture that recognizes the essential nature of quality in performing audit engagements. The impact of culture and core ideas encompasses a wide range of behaviours that provide difficulties in terms of measurement, such as professional scepticism and professional judgment. Furthermore, it is crucial to acknowledge that culture has a substantial influence in influencing attitudes and behaviours about crucial elements of audit quality, such as coaching, consultation, compliance, remediation, innovation, and continuous improvement.

Denison's organisational culture model

Ndemewah and Hiebl (2021) argue that Africa displays considerable variety in terms of culture, history, socio-economic factors, and institutions, with notable distinctions between the Maghreb and Sub-Saharan Africa areas. Therefore, notwithstanding its extensive use, one may contend that Hofstede's (1984) framework inadequately encompasses the complete scope of national culture's impact on both the automation of audit procedures and audit quality. The false nature of identifying a distinct African culture has been emphasized by Nsor-Ambala (2022).

The use of the Denison and Mishra (1995) model of organisational culture was applied to conduct an assessment and evaluation of the organisational culture. The development process included a thorough investigation of the organisational culture, using a combination of qualitative and quantitative research approaches. The Denison organisational culture model is composed of four essential elements: adaptability, mission, consistency, and involvement (Kwarteng & Aveh, 2018; Denison & Mishra, 1995).

The influence of organisational culture permeates several dimensions inside a company, including its surrounding context, operational methodologies, overall performance, efficiency, and economic achievements (Graham, Grennan, Harvey & Rajgopal, 2022; Ghanem & Hamid, 2021). The extant corpus of scholarly literature about organisational culture contains a substantial volume of publications originating from Western nations, mostly from the 1980s. Nevertheless, there exists a conspicuous scarcity of scholarly investigations about this domain, particularly in the context of developing

nations (Nwibere, 2013). Nwibere (2013) highlights the limited availability of academic literature about organisational studies in the African environment.

Technological training

Training programs provide individuals with useful insights and help to the improvement of their performance achievements. Fundamentally, the provision of training facilitates the acquisition of necessary competencies that are vital for achieving optimum performance in an audit environment. Janvrin, Lowe, and Bierstaker (2008) suggest that audit firm management should consider improving their information technology training programs to boost auditors' perception of the usability of information technologies, including computer-assisted audit procedures.

Audit firms place a significant emphasis on the allocation of resources to train and develop their employees. This is done to improve their competence in effectively utilising audit automation technologies, which in turn facilitates the execution of audits of superior quality (Daniel, Hussein, Karim, & Nicholas, 2021; IAASB, 2014; Al-Ansi, Ismail & Al-Swidi, 2013; Bedard, Jackson, Ettredge, & Johnstone, 2003; Curtis, Jenkins, Bedard & Deis, 2009). Chen, Liu, Liu, and Wang (2022) propose that the audit quality of non-Big 4 auditors exhibits a relatively lower level when compared to that of Big 4 auditors. The observed discrepancy may be ascribed to the limited capacity of auditors outside of the Big 4 firms to provide comprehensive training programs and standardized audit methods.

Technological training is an organisational strategy used by management to improve the skillset and competence of employees. The participation of auditors in established training programs, such as the Certified

Information System Auditors programs, equips them with the requisite competencies to proficiently and efficiently employ automation to augment the calibre of audits (Daniel, Hussein, Karim, & Nicholas, 2021; Al-Ansi, Ismail & Al-Swidi, 2013; Bedard, Jackson, Ettredge & Johnstone, 2003). Hence, the effectiveness and quality of audits may be greatly improved if auditors show enough skill and exhibit a proactive approach in using their auditing expertise. The rationale behind offering audit training is to enhance individuals' auditing abilities and cultivate the essential technical proficiency needed to carry out professional audit engagements.

Empirical Review and Hypotheses Development

The mediation effect of audit automation adoption on individual factors and audit quality

The present research proposes that audit quality is impacted by individual factors namely performance expectation, effort expectancy, social influence, and enabling circumstances, as elucidated by the resource-based perspective. The aforementioned attributes contribute to the achievement of a superior standard of audit quality by the auditing company. The reputation and performance of audit firms depend on the proficiency of their personnel, particularly auditors, in effectively carrying out audit assignments for their customers (Rosli et al., 2012; Curtis & Payne, 2008; Venkatesh et al., 2003).

Several studies have examined the correlation between individual factors and the adoption of audit automation, as suggested by the unified theory of acceptance and use of technology (Rosli et al., 2012; Curtis & Payne, 2008; Venkatesh et al., 2003). Auditors may have a propensity to use automation if they consider it as a mechanism to improve the effectiveness of

their professional pursuits. Therefore, the use of audit automation is essential to attain high standards of audit quality. This research aims to investigate the mediating function of audit automation adoption in the link between individual variables and audit quality. It proposes that audit automation adoption serves as a mediator in this relationship:

H1a: Audit automation adoption mediates the relationship between individual factors and audit quality.

The mediation effect of audit automation adoption on technological factors and audit quality

Technological factors comprise a diverse array of technologies that are relevant to a firm, including some that may not already be used by the company but are available in the market. The influence of these technologies on audit quality is explicated via the lens of the resource-based view (Barney, 1991; Tornatzky, Fleischer, & Chakrabarti, 1990). Prior to implementing audit automation, it is crucial to take into account many technology-related factors that may influence the quality of the audit. Technological factors such as cost-benefit, compatibility, technological complexity, relative advantage, observability and trialability (Siew, Rosli, & Yeow, 2020; Venkatesh & Davis, 2000; Rogers, 1995). These factors should be considered before implementing audit automation since they can influence audit quality.

The subject of implementing audit automation has been extensively examined in scholarly literature. According to scholarly research, the use of audit automation has been argued to provide auditors with a multitude of benefits, eventually resulting in enhanced organisational performance (Li et al., 2018; Appelbaum et al., 2017; Braun & Davis, 2003). Tan and Teo (2000)

argue that allowing customers to directly engage with an invention may successfully reduce uncertainty and eventually promote its adoption. Through the provision of instructions and examples about the use of audit automation during the trial period, developers of technology may successfully mitigate concerns around its deployment. This strategy also acts as a means to motivate potential users to adopt the technology. The study, therefore, examines the mediation role of audit automation in the relationship between technological factors and audit quality and proposes that:

H1b: Audit automation adoption mediates the relationship between technological factors and audit quality.

The mediation effect of audit automation adoption on organisational factors and audit quality

The audit quality of a corporation is influenced by its organisational environment, which is defined by its features and resources. This relationship is shown by the resource-based perspective, as discussed by Barney (1991) and Tornatzky, Fleischer, and Chakrabarti (1990). According to Siew et al. (2020), the implementation of audit automation contributes to the enhancement of job efficiency. According to previous research conducted by Siew et al. (2020) and Li et al. (2018), it has been argued that the adoption of audit automation and its subsequent impact on audit quality is influenced by factors such as top management support and technical competency. The decision to use audit automation inside an organization rests with the upper management, who possess the requisite authority. Additionally, they are responsible for encouraging and inspiring personnel to effectively utilize this technology.

Existing research on the adoption of audit automation suggests that the involvement and dedication of a company's management play a crucial role in predicting the extent to which audit automation is embraced (Awuah, Onumah, & Duho, 2021; Mahzan & Lymer, 2014; Venkatesh et al., 2003; Rogers, 1995). The effectiveness of audit companies may be enhanced by the implementation of audit automation, provided that the necessary infrastructure and staff are in place to support this adoption. The existing body of research on the adoption of audit automation (Li et al., 2018; Vasarhelyi & Romero, 2014; Gonzalez et al., 2012) posits that the possession of technological competence is essential for facilitating a successful adoption and acceptance process. The study, therefore, examines the mediation role of audit automation in the relationship between organisational factors and audit quality and posits that:

H1c: Audit automation adoption mediates the relationship between organisational factors and audit quality.

The mediation effect of audit automation adoption on environmental factors and audit quality

The environmental aspects in the technology-organisation-environment (TOE) paradigm pertain to the external business environment (Tornatzky, Fleischer, & Chakrabarti, 1990). The effect of audit quality is influenced by several environmental elements, such as auditing standards, external and competitive pressures, the perceived amount of support from professional accounting bodies, and the complexity of the client's accounting information systems (AIS), as outlined in the resource-based approach. According to Li et al. (2018), organisations encounter a range of hazards, leading to varied

perspectives on the efficacy of standards in influencing the adoption process. According to the study conducted by Awuah, Onumah, and Duho (2021), it was determined that internal audit standards have a significant role in facilitating the implementation of technology inside internal audit units.

Advocates of the institutional theory argue that organisations tend to adopt similar structures and practices, known as isomorphism, to gain legitimacy by conforming to societal norms and standards (Li et al., 2018; Vasarhelyi & Romero, 2014; Gonzalez et al., 2012). Therefore, organisations exhibit similar operational patterns due to the influence of external factors, sometimes referred to as isomorphic pressures. The isomorphic forces, whether official or informal, exert an effect on firms, compelling them to adopt similar behaviours to their rivals. Mahzan and Lymer (2009) assert that auditors consider professional body recommendations as one of the key elements in their decision-making process for picking audit tools. The existing body of research has shown a correlation between professional affiliation and the adoption of technology (Siew, Rosli, & Yeow, 2020). The study, therefore, examines the mediation role of audit automation in the relationship between environmental factors and audit quality and posits that:

H1d: Audit automation adoption mediates the relationship between environmental factors and audit quality.

The moderating effect of corporate culture on audit automation adoption and audit quality

The application of culture theory has been used to elucidate a wide array of social behaviours and consequences inside organisational contexts, including factors such as the efficacy of firms, their performance, corporate

strategies, job attitudes, and practices related to the transfer of technology (Denison & Mishra, 1995). The impact of culture on information-related behaviours is significant. In their seminal work, Myers and Tan (2002) conduct a comprehensive analysis of cross-cultural information systems research, with a particular focus on the intersection of national culture and information technology (IT). The authors not only critically evaluate existing studies in this field but also provide valuable recommendations for future research endeavours in the realm of IT that address the complexities arising from national cultural differences.

The enhancement of audit quality is facilitated by the presence of an inclusive, cooperative, and collaborative atmosphere inside an audit business. According to Diya (2022), the research contends that the quality of an audit is improved when the audit company demonstrates responsiveness to the dynamic environment and incorporates suggestions from its personnel.

The interconnection between information flows and information technology is often acknowledged to be intimately associated with culture. Consequently, culture is frequently held accountable for instances of failure within the domain of information systems (IS) inside organisations (Vos & Boonstra, 2022). The adoption of technology in an organization is influenced by cultural differences, whether they exist inside a particular unit or between several units (Vos & Boonstra, 2022). Hence, it is essential for those responsible for implementing audit automation to exhibit sensitivity towards the cultural variety present to devise tactics and interventions that are tailored to distinct cultural contexts.

The field of cultural studies facilitates the examination of how distinct cultural attributes within a given society impact the acceptance and use of technological advancements by its constituents. According to Hassani, Chroqui, Okar, Talea, and Ouiddad (2019), the cultural component has significant importance as a construct. Despite the findings of several studies (Park, Rhoads, Hou, & Lee, 2014) emphasising the need to include cultural variables in technology adoption models, this aspect continues to be overlooked. The study, therefore, posits that:

H2: Corporate culture moderates the relationship between audit automation adoption and audit quality.

The moderating effect of corporate culture on individual factors and audit quality

Scholars have posited that the culture of a corporation is a significant determinant of both audit quality and the behaviour of individual auditors (Svanberg & Ohman, 2013; Knechel et al., 2013). Audit quality may be further impacted by the individual auditor, which is ultimately shaped by the social environment, communication within the audit business, and workplace culture (Broberg, 2013). The work environment and corporate culture can exert an effect on audit quality. An instance whereby the organisational culture of a corporation may pose a risk to the integrity of the audit process is shown by the well-recognised trade-off between quality and cost, as discussed by Pierce and Sweeney (2004). The present predicament involves a cultural norm inside the organisation that may result in a decline in audit quality due to constraints related to time and budgetary considerations. Therefore, the study contends that;

H3a: Corporate culture moderates the relationship between individual factors and audit quality.

The moderation effect of corporate culture on technological, organisational, environmental factors and audit quality

In their study, Herda, Cannon, and Young (2019) examined auditor behaviour within the United States. Their findings revealed a great influence of supervisors on the behaviours shown by staff auditors, hence highlighting the considerable importance of the work environment in relation to audit quality. Moreover, a considerable body of research suggests that significant disparities exist in the context of ethical organisational culture between Big 4 organisations and non-Big 4 firms (Tran, Khairi, & Laili, 2019).

In their study, Hassani, Okar, Talea, and Ouiddad (2019) investigated the influence of corporate culture on the implementation of an information system inside a Moroccan organisation. The research findings indicate that corporate culture has a significant role in the adoption process inside Moroccan companies. The study conducted by Younus and Raju (2021) examined the deployment of smart contract technology and its effects on human, environmental, and organisational variables, while also considering the potential moderating influence of culture. The findings of the research indicate that there is a somewhat significant beneficial moderating influence of organisational culture. Therefore, the following hypotheses were empirically tested:

H3b: Corporate culture moderates the relationship between technological factors and audit quality.

H3c: Corporate culture moderates the relationship between organisational factors and audit quality.

H3d: Corporate culture moderates the relationship between environmental factors and audit quality.

The moderating effect of technological training on individual factors and audit automation adoption

The present research proposes that many individual characteristics, including performance expectation, effort expectancy, social impact, and enabling circumstances, might have an effect on the adoption of audit automation by audit firms. This influence is explained by the unified theory of acceptance and use of technology. The reputation and performance of audit companies are contingent upon the ability of its staff, namely auditors, to complete audit tasks for clients (Rosli et al., 2012; Curtis & Payne, 2008). If auditors have the belief that the use of automation will aid them in conducting audit investigations, they will exert influence on the management of audit companies to implement automation. Hence, the study posits that:

H4a: Technological training moderates the relationship between individual factors and audit automation adoption.

Technological training moderates the relationship between technological factors and audit automation adoption

The TOE framework posits that the adoption of audit automation is influenced by technology considerations, organisational factors, and environmental factors. When considering the adoption of an accounting software package, it is important to carefully consider various technological characteristics. These characteristics include factors such as price, ease of use,

availability of backup recovery, guidance, technology compatibility, complexity, relative advantage, observability, trialability, and trialability. These factors have been discussed and examined in previous studies conducted by Rosli, Yeow, and Siew (2012), Venkatesh and Davis (2000), Al-Jabri and Sohail (2012), and Rogers (1995). Numerous studies have shown a significant correlation between the perceived ease of use of novel technology and its adoption (Al-Jabri & Sohail, 2012; Venkatesh & Davis, 2000). The adoption of audit automation is a topic that has been discussed in the academic literature. Scholars have claimed that using audit automation may provide auditors with several advantages, ultimately leading to improved organisational performance (Li et al., 2018; Appelbaum et al., 2017; Braun & Davis, 2003).

The existing body of evidence further suggests that the primary factor influencing organisations or consumers to use a certain technology-based audit tool is relative benefit (Bierstaker et al., 2014; Curtis & Payne, 2014). Furthermore, it is crucial to assess the cost-effectiveness of technology since it serves as a metric for evaluating its performance (Tan, Teo, & Lai, 2011). According to Tan and Teo (2000), the provision of an opportunity for clients to experience the innovation may effectively mitigate unfamiliar anxieties and facilitate its acceptance. The provision of support and demonstrations by technology developers during the trial period of audit automation may effectively mitigate concerns about its utilisation. Moreover, this approach can inspire prospective adopters to embrace the technology. The connection in question is subject to a certain degree of impact from technology training. The study, therefore, proposes that:

H4b: Technological training moderates the relationship between technological factors and audit automation adoption.

Technological training moderates the relationship between organisational factors and audit automation adoption

Variables such as senior management support and technical expertise within an organization have been identified as factors that contribute to the increased adoption of audit automation. The decision to use audit automation inside an audit company and the subsequent encouragement of staff throughout the adoption process are within the purview of the top management (Siew et al., 2020; Li et al., 2018; Curtis & Payne, 2008). Awuah, Onumah, and Duho (2022) have posited that the attitude and philosophy of management play a crucial role in determining the effective adoption of technology.

The successful use of audit automation necessitates auditors to possess a high level of technical proficiency, encompassing the ability to effectively utilize the instrument and, more significantly, comprehend and analyze the outcomes it produces. In order to effectively use sophisticated audit automation techniques such as test data, integrated test facilities, parallel simulations, and embedded audit modules, auditors need to possess a comprehensive understanding of computer programming languages and the ability to validate the source codes of their clients. To analyse the findings, auditors must possess the requisite knowledge to comprehend essential systems and possess the capability to discern broad computer controls (Axelsen et al., 2017). The study, therefore, posits that:

H4c: Technological training moderates the relationship between organisational factors and audit automation adoption

Technological training moderates the relationship between environmental factors and audit automation adoption

The TOE model encompasses environmental elements, which pertain to the external business environment and have a direct influence on the adoption of innovation. The adoption of audit automation is influenced by several environmental variables, including auditing standards, external or competitive pressure, the perceived amount of support from professional accounting bodies, and the complexity of a client's accounting information systems (AIS). According to Li et al. (2018), organisations encounter various risks, leading to varying opinions on the effect of standards on the adoption process.

According to the research conducted by Awuah, Onumah, and Duho (2021), it was determined that internal audit standards have a significant role in facilitating the implementation of technology inside internal audit units. The adoption of technology by an organization may be influenced by competitive forces (Awuah, Onumah & Duho, 2021; Venkatesh & Bala, 2012). For instance, if an organisation becomes aware that other audit firms are using technology to enhance the quality and efficiency of their audits, it may choose to adopt similar strategies to get comparable advantages. The existing body of research has shown a correlation between professional affiliation and the adoption of technology (Siew, Rosli, & Yeow, 2020). The professional organization plays a significant role in the dissemination of information on emerging technical advancements to its members and offers advice, support, and training in the use of technology. The study there posits that:

H4d: Technological training moderates the relationship between environmental factors and audit automation adoption

Technological training moderates the relationship between audit automation adoption and audit quality

The field of audit work has been significantly influenced by the integration of information technology, resulting in the creation of advanced tools like audit automation. These technologies have been designed to enhance the efficiency and effectiveness of performing audit activities. The use of technology in auditing undeniably enhances the efficiency and capacity of external audit procedures. Automation plays a crucial role in many processes by decreasing the time needed to complete activities, reducing audit expenses, enhancing audit quality, mitigating risks, and ultimately boosting profitability and market share (Okab, 2013).

The use of audit automation is crucial since audit technologies are specifically developed to enhance audit performance (Bierstaker et al., 2014). Audit companies that effectively use audit automation are those that employ pertinent technology and eventually enhance their audit quality. Hence, it is anticipated that regular training sessions focused on the utilization of audit automation possess the capacity to enhance audit quality by fostering a symbiotic relationship between the usage of audit automation and the overall quality of audits. Hence, the study hypothesises that:

H5: Technological training moderates the relationship between audit automation adoption and audit quality.

Technological training moderates the relationship between the individual, technological, environmental factors and audit quality

The resolution of training concerns needs to be undertaken as part of the automation process of the audit function. According to Curtis and Payne (2008), computer-assisted audit techniques (CAATs) are not being fully used, despite their potential to enhance the effectiveness and efficiency of auditing tasks. According to Janvrin et al. (2008), the effective adoption and use of audit automation may be facilitated by the implementation of well-designed training programs. To optimise the potential for auditors to fully use the advantages offered by automated technologies, it is imperative that sufficient training be included as a crucial element within any audit automation endeavour (Halbouni et al., 2016; Manita, Elommal, Baudier, & Hikkerova, 2020). Hence, four hypotheses in which technology training is a moderator are proposed:

H6a: Technological training moderates the relationship between individual factors and audit quality

H6b: Technological training moderates the relationship between technological factors and audit quality

H6c: Technological training moderates the relationship between organisational factors and audit quality

H6d: Technological training moderates the relationship between environmental factors and audit quality.

Conceptual Framework

The development of a conceptual framework is informed by a thorough assessment of the existing literature, as shown in Figure 1. The proposed

framework posits that many components, including person, technical, organisational, and environmental factors, serve as independent variables that might predict audit quality, which is the dependent variable. This relationship is elucidated via the lens of the resource-based perspective. The aforementioned independent variables include resources that have the potential to confer a competitive advantage onto audit firms via the assurance of audit quality.

The conceptual framework also elucidated the intermediary function of audit automation adoption in the correlation between the independent variables and audit quality. The explanation for the correlation between the deployment of audit automation and audit quality may be attributed to the theoretical framework known as task technology fit (TTF). The unified theory of acceptance and use of technology (UTAUT) elucidates the correlation between individual factors and the adoption of audit automation. Conversely, the technology-organisation-environment (TOE) framework elucidates the correlation between the remaining independent variables (technological, organisational, and environmental factors) and the adoption of audit automation.

Once again, the conceptual framework posits that corporate culture and technological training functioned as moderating factors, as elucidated by the resource-based perspective theory. The resource-based concept posits that corporate culture and technological training are intangible resources and competencies that have the potential to enhance existing connections. The interaction between individual characteristics, technological factors, organisational factors, environmental factors, and audit quality is influenced

by corporate culture. The aforementioned statement serves to regulate the association between the deployment of audit automation and audit quality.

The resource-based perspective hypothesis posits that technical training has a moderating role in the link between individual factors, technological factors, organisational factors, environmental factors, and the adoption of audit automation. Furthermore, it had a moderating role in the association between the use of audit automation and audit quality. The impact of technological training on the association between the independent variables and audit quality was found to be significant.

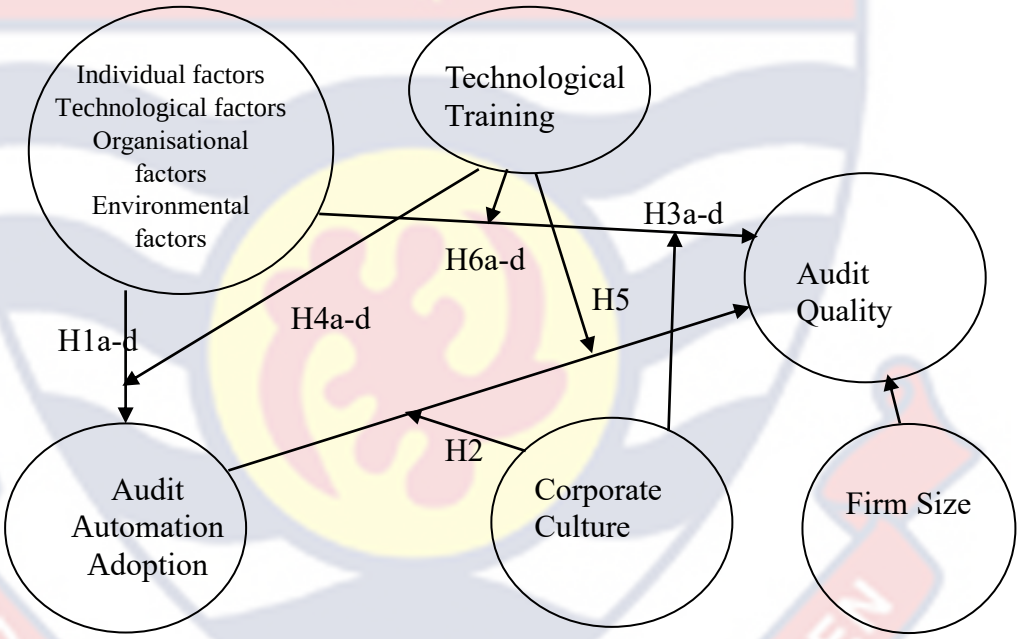

Figure 1: Conceptual framework
Source: Author's construct (2022)

Chapter Summary

The chapter provided an overview of many theoretical frameworks that serve as the foundation for the research. These frameworks include the resource-based approach, the unified theory of acceptance and utilization of technology (UTAUT) model, the technology, organization, environment (TOE) framework, and the task technology fit theory. A comprehensive

examination was conducted on the several theoretical frameworks that form the foundation of this research. The chapter provided an overview of the existing empirical literature and stated the hypotheses for the investigation. The research also examined the empirical associations between the determinants of audit quality, including person variables, technology factors, organisational factors, and environmental factors, as proposed by relevant theories. The study also examined the dynamic relationship between the adoption of audit automation, business culture, and technological training. The conceptual framework represents and illustrates these linkages.

CHAPTER THREE

RESEARCH METHODS

Introduction

According to Creswell & Creswell (2017), the methodology of a study functions as a framework for the execution of the research. This chapter, therefore, establishes the framework for the investigation. The first section of the document provides an overview of the study philosophy, strategy, and design. Subsequently, a comprehensive account of the research cohort and the methodologies used for sample selection is provided. Subsequently, the research delineates the goals, data needs, and equipment design. Following this, the subsequent sections will outline the methodologies used for data collecting as well as the methods utilised for data analysis.

Research Philosophy

The researcher's mental models or frames of reference have a significant role in shaping the design and implementation of research, impacting the structure of the research process (Creswell & Creswell, 2017; Kuhn, 1970). The conceptual frameworks in question are often known as research philosophies or paradigms. According to Creswell & Creswell (2017), the selection of a research design is heavily influenced by the research paradigm, which represents a certain approach towards doing research. Cohen, Manion, and Morrison (2017) suggest that the scientific research paradigm is a comprehensive framework that encompasses the perception, beliefs, and understanding of many theories and techniques used in the conduct of scientific research. The writings of several scholars have identified and

examined three primary research paradigms: positivism, interpretivism, and pragmatism. These paradigms are characterized and analyzed in detail.

The study is grounded on the philosophical framework of positivism. Positivism is a philosophical school that gained popularity in the early 19th century due to the contributions of Auguste Comte, a French philosopher (Creswell & Creswell, 2017; Rehman & Alharthi, 2016). The philosophical framework of positivism posits the notion that the existence of reality is independent of human perception or interpretation. This phenomenon is independent of sensory perception and is regulated by unchanging principles. Positivists have a realist ontological stance. Positivists endeavour to comprehend the social realm in a manner akin to their approach to the natural realm. Within the realm of natural events, a discernible cause-effect link exists, which, once established, enables accurate predictions of future occurrences (Cohen, 2017).

According to Cohen, Manion, and Morrison (2017), the positivist paradigm aims to elucidate phenomena by discerning patterns and linkages within the social realm. The assertion that researchers from various temporal and geographical contexts would arrive at identical results for a certain occurrence is based on the assumption that reality lacks contextual constraints (Rehman & Alharthi, 2016). Positivists adhere to an epistemic stance characterized by objectivism. Researchers assume the role of impartial observers to investigate phenomena that possess inherent existence and remain unaffected or undisturbed by their presence. The individuals will use linguistic expressions and symbolic representations to accurately depict occurrences in their unadulterated state, devoid of any external influence or distortion.

Positivists claim that social phenomena are governed by laws, and with the use of scientific procedures, it becomes feasible to articulate these laws and convey them in the form of factual assertions.

The technique used by positivists places significant emphasis on the use of experimentation. Hypotheses are formulated in the form of propositions or questions to explore the potential causal connection between occurrences. The process involves the collection of empirical facts, followed by the analysis and formulation of a theory that elucidates the relationship between the independent variable and the dependent variable. The methodology used for data analysis follows a deductive framework, whereby a hypothesis is first formulated and then subjected to statistical analysis to determine its confirmation or rejection based on the obtained findings. The objective of this study is to assess, regulate, forecast, establish principles, and attribute causation (Creswell & Creswell, 2017; Cohen et al., 2017; Rehman & Alharthi, 2016).

Positivist study often yields quantitative data. Positivist researchers use quantitative data to address research inquiries and develop hypotheses. This data may be gathered via genuine experiments or quasi-experiments of lesser rigour, standardized examinations, and surveys of varying scales using closed-ended questionnaires. The numerical data obtained by these procedures undergo descriptive or inferential statistical analysis. The positivist perspective asserts that research is considered to be high quality when it demonstrates internal validity, external validity, dependability, and objectivity.

The positivist method has been subject to criticism by many researchers (Creswell & Creswell, 2017; Cohen et al., 2017; Rehman &

Alharthi, 2016). Objective and scientific procedures are well-suited for the examination of natural things, but their effectiveness diminishes when applied to social phenomena. The intricate nature of legal frameworks that regulate the behaviour of people, including their unique characteristics and interactions with both societal institutions and the broader community, stands in striking juxtaposition to the inherent order and predictability seen in the natural realm.

The positivist paradigm has faced significant criticism from interpretivism and critical theorists (Creswell & Creswell, 2017; Cohen et al., 2017; Rehman & Alharthi, 2016). An often-voiced critique is the perceived limitations of scientific techniques in investigating interpersonal and social phenomena, notwithstanding their suitability for examining natural phenomena (Creswell & Creswell, 2017). While acknowledging the validity of this critique, it is important to recognize that individuals who express criticism against positivism may possess diverse perspectives and belief systems.

The use of the positivist paradigm for this research is justified since it is based on the assumption of rational human acts and beliefs and facilitates the comprehension of behaviour via the process of hypothesis testing (Creswell & Creswell, 2017). The utilization of quantitative tools and techniques enables the application of predictive models to analyze the associations between variables. Given that this study aims to examine the connections between the antecedents of audit quality, corporate culture, adoption of audit automation, and technology training, the positivist paradigm is deemed suitable and well-suited for this research.

Research Approach

According to Cohen, Manion, and Morrison (2017), the choice of study technique is influenced by factors such as the formulation of the research issue, the establishment of research goals, and the researcher's worldview. According to Collis and Hussey (2013), if a researcher's research orientation is based on positivism, the research design will include quantifying the phenomena being studied, leading to the adoption of a quantitative research strategy. In contrast, if the researcher adheres to an interpretivist perspective, the study design will include specifying the studied phenomena in a manner that leads to a qualitative research technique. If the researcher aligns with positivism and interpretivism, it is necessary to use both quantitative and qualitative techniques to study the research phenomena, resulting in the adoption of a mixed methodologies approach or mixed research. Hence, social research has the option to use several approaches, including quantitative, qualitative, or mixed methodologies, as outlined by Creswell and Creswell (2017), Cohen et al. (2017), Rehman and Alharthi (2016), and Saunders, Lewis, and Thornhill (2009).

Consistent with the positivist paradigm, the study used a quantitative research methodology. According to Zikmund, Babin, Carr, and Griffin (2013), quantitative research is characterized by its focus on study goals via the use of empirical evaluations, which include the collection and analysis of numerical data. The quantitative research technique is grounded on the ontological belief that reality is constructed by empirical evidence and personal experiences (Creswell & Creswell, 2017; Cohen et al., 2017; Rehman & Alharthi, 2016). According to Blumberg, Cooper, and Schindler (2014),

quantitative research is used when the primary objective is to describe, explain, or anticipate phenomena, and the researcher maintains objectivity to prevent any potential bias from influencing the outcomes. One other characteristic of quantitative research is that the study plan is established before initiating the research endeavour. Additionally, this research method utilises probability sampling techniques and performs statistical analysis, resulting in findings that may be extrapolated to the broader study population (Blumberg, Cooper & Schindler, 2014; Zikmund et al., 2013; Saunders, Lewis, & Thornhill, 2009).

Blumberg, Cooper, and Schindler (2014) argue that the use of quantitative research methods may be constrained by the inability to further inquire respondents for more insights. The selection of this strategy is based on the study goals and its suitability for predicting the connection between the variables of interest. Furthermore, it is worth noting that quantitative research has several benefits, with one prominent benefit being its suitability for examining extensive sample sizes. Additionally, this approach is characterized by its relatively economical nature and efficiency in terms of time utilization. In addition, quantitative research allows for the extrapolation of results to the broader study population, provided that the findings are both accurate and valid (Creswell & Creswell, 2017; Cohen et al., 2017; Rehman & Alharthi, 2016; Saunders, Lewis, & Thornhill, 2009). Moreover, an examination of previous scholarly works on the subject of audit quality (Gonzalez et al., 2012; Li et al., 2018; Mahzan & Lymer, 2008) demonstrates a widespread use of the quantitative research methodology.

Research Design

The research design is a systematic and time-dependent framework that is developed in accordance with the research questions and/or hypotheses. It functions as a roadmap for the research process (Blumberg, Cooper & Schindler, 2014). According to Zikmund et al. (2013), the study design encompasses the selection and implementation of methodologies and protocols for measuring variables, as well as the systematic gathering and examination of data. Hence, it is essential to choose a study methodology that minimizes costs while maximizing the validity of the information obtained (Creswell & Creswell, 2017; Cohen et al., 2017; Blumberg, Cooper and Schindler, 2014; Rehman & Alharthi, 2016; Saunders, Lewis, & Thornhill, 2009).

According to Blumberg, Cooper, and Schindler (2014), there are three distinct styles of study design, namely exploratory, descriptive, and explanatory. The categorization is a result of the research's intended objectives. For example, the primary objective of descriptive research is to provide a comprehensive portrayal of a certain scenario, person, or event, while also illustrating the inherent relationships and occurrences between them (Zikmund et al., 2013). Nevertheless, descriptive studies are limited in their ability to provide causal explanations for events, making them more appropriate for study areas that are relatively new or unexplored.

The use of an exploratory research strategy is warranted in situations when there is little knowledge about a particular occurrence and an ill-defined topic (Saunders, Lewis, & Thornhill, 2009). The objective of this study is not to provide definitive and conclusive responses to the research inquiries, but rather to investigate the research subject matter with varied degrees of

thoroughness. Hence, the primary focus of this work is to address novel issues that have received little or no prior scholarly investigation. Exploratory research, even in its most extreme manifestation, serves as the foundational framework for further conclusive research endeavours. It plays a pivotal role in establishing the original study design, sampling strategy, and data-gathering methodology.

An explanatory research design, as described by Creswell and Creswell (2017), is a research approach that seeks to investigate and comprehend the causal connections between variables. Researchers often use this approach to elucidate the causes and contributing aspects behind certain occurrences or phenomena. Explanatory study beyond the mere depiction of a circumstance or correlation by delving into the fundamental causes and processes that propel these correlations.

The objective of this research is to investigate the relationship between many factors that influence audit quality, including audit quality drivers, audit automation adoption, corporate culture, technology training, and audit quality. To accomplish this objective, the study utilizes statistical and quantitative data to analyze and develop linkages, while also providing a rationale for these established connections. Hence, the research design in question is deemed explanatory since it addresses both the "how" and "why" components of the underlying research inquiry. Additionally, the present research seeks to empirically examine the proposed hypotheses to establish the existence of correlations among the variables of interest (Creswell & Creswell, 2017).

Study Design

The research methodology used in this study is a cross-sectional survey approach. According to Saunders, Lewis, and Thornhill (2009), the purpose of a survey design is to acquire knowledge about a certain aspect of a well-defined population by focusing the investigation on a subset of that population via the use of sampling techniques. The survey approach used in this study is intended to enhance the reliability of verifying the hypotheses put forward to facilitate generalisation (Creswell & Creswell, 2017; Cohen et al., 2017; Blumberg, Cooper & Schindler, 2014; Rehman & Alharthi, 2016; Saunders, Lewis, & Thornhill, 2009).

Previous scholarly works (Zikmund, Babin, Carr, & Griffin, 2013; Saunders, Lewis, & Thornhill, 2009; Creswell, 2009) indicate that surveys are often used in descriptive and explanatory research endeavours aimed at addressing inquiries about the aspects of what, why, who, and how much. In addition, the data collected via surveys may be effectively analyzed using quantitative methods, allowing for the derivation of summary statistics and other crucial insights about the surveyed population that can be extrapolated to other scenarios (Saunders, Lewis, & Thornhill, 2009). Surveys are also useful in acquiring data on the attributes and perspectives of a certain community.

The study design used in this research was cross-sectional, as determined by the temporal dimension. Zikmund et al. (2013) define a cross-sectional study as a research design that involves sampling different segments of a population and collecting data at a single point in time. In contrast, a longitudinal study involves studying research subjects or phenomena at multiple time points, enabling the analysis of continuity and changes over

time. The use of a cross-sectional survey is deemed suitable for this research due to the constraints of time and the inherent characteristics of the subject matter.

Population

According to Creswell & Creswell (2017), the term "population" refers to the whole of components for whom we want to draw certain conclusions. The term "population" is commonly employed in statistics to refer to the complete set of individuals, objects, or phenomena that are the subject of study and from which inferences are to be made (Creswell & Creswell, 2017; Cohen et al., 2017; Blumberg, Cooper & Schindler, 2014; Rehman & Alharthi, 2016; Saunders, Lewis, & Thornhill, 2009). The study's population consisted of all audit companies that maintained a favourable status with the Institute of Chartered Accountants, Ghana (ICAG). The ICAG provided a comprehensive list (Appendix 2) including the names of all accredited audit companies that are currently in compliance with the requirements. According to the Institute of Chartered Accountants of Ghana (ICAG, 2022), there were a total of 329 audit businesses that had valid licenses till the end of the year 2022.

Sampling Procedure

Sampling refers to the systematic procedure of choosing specific elements from a population to conduct a study, to draw meaningful conclusions based on the observations and findings derived from the selected elements (Creswell & Creswell, 2017; Cohen et al., 2017; Blumberg, Cooper & Schindler, 2014; Saunders, Lewis, & Thornhill, 2009; Zikmund et al., 2013). According to Saunders, Lewis, and Thornhill (2009), one alternative to sampling is conducting a census of the study population. A census is defined

as a method that provides comprehensive coverage of a population of interest, as opposed to partial coverage or a survey of the population. The decision to use sampling rather than conducting a census was motivated by the need to optimize time efficiency and the recognition that a census of the whole population may not provide significantly greater benefits compared to a survey conducted using a sample (Creswell & Creswell, 2017).

Sample size

The concept of sample size pertains to the quantity of components that are chosen from a certain target population, and from which data is collected (Creswell & Creswell, 2017; Zikmund et al., 2013). The quality of study findings and the selection of acceptable statistical analysis methods may be influenced by the size of the sample (Hair, Risher, Sarstedt, & Ringle, 2019). Hence, it is important in research to provide an appropriate and satisfactory sample size to mitigate the potential biases and mistakes that may arise from the sample (Adam, 2020).

The minimum required sample size of 146 was determined using the G*Power tool, specifically the F-Tests-Linear multiple regression: Fixed Model, R2 departure from zero. The parameters utilised in this analysis were as follows: Effect size = 0.15, error probability = 0.05, power = 0.95, and number of predictors = 6. According to Stoop (2005), it is recommended to raise the minimum sample size by 30% to account for potential non-response. To account for non-response, the initial minimum sample size of 146 was augmented by 30% resulting in a final sample size of 190. The adequacy, representativeness, and fairness of the sample size are deemed to be satisfactory in relation to the target population.

Sampling technique

Sampling may be classified into two main categories: probability sampling and non-probability sampling (Creswell & Creswell, 2017; Cohen et al., 2017; Blumberg, Cooper & Schindler, 2014; Saunders, Lewis, & Thornhill, 2009). The process of selecting a sample, known as probability or random sampling, ensures that every member of the population has an equal opportunity to be chosen (Creswell & Creswell, 2017; Cohen et al., 2017). Two common examples of probability sampling methods are simple random sampling and stratified random sampling. According to Creswell and Creswell (2017), the use of probability sampling is warranted when researchers want to extrapolate the outcomes of a study to the broader study population.

The research used a basic random sample methodology to choose the participants for the study. Each member of the population was allocated a unique numerical identifier that preserved the anonymity of the individuals. The research used a computerized randomization approach, namely a random number generator, to pick a sample of 190 participants (Kneusel, 2018; Creswell & Creswell, 2017; Cohen et al., 2017; Blumberg, Cooper & Schindler, 2014).

Participants

The level of analysis used in this study was at the company level. A questionnaire was sent to each selected audit company through Google Forms for completion. Demographic information on the participants was gathered. This study aims to gather data about the variables of gender, age, educational qualification, professional qualification, and audit business size.

Sources of data

According to Zikmund et al. (2013), data refers to factual information or documented measurements of certain events. The research required the use of primary data rather than secondary data to satisfy all of its aims. Creswell and Creswell (2017) differentiate primary and secondary data by asserting that primary data consists of newly collected and original items or units of information, while secondary data refers to information that has been previously collected by another individual and is analyzed using statistical methods. The use of primary data was deemed necessary due to its intrinsic superiority over secondary data (Blumberg, Cooper & Schindler, 2014). According to Creswell and Creswell (2017), primary data has the characteristic of closely aligning with the truth and providing researchers the opportunity to exercise control over any inaccuracies.

The research used primary data of a quantitative kind for the investigation. According to Zikmund et al. (2013), quantitative data refers to phenomena that are given numerical values systematically and understandably. The study necessitated the use of quantitative primary data to effectively address all of the goals and provide answers to the associated research questions.

The main quantitative data were a combination of category and numerical data. According to Saunders, Lewis, and Thornhill (2009), categorical data refers to values or measurements that are categorised into distinct categories, which may be identified either by name, such as sex or by rank, such as degree of education. Numerical data, conversely, refers to

quantities or measurements that are quantitatively represented (Cohen et al., 2017).

Data Collection Instrument

The data-gathering process included the use of a questionnaire. A questionnaire is a tool used for gathering data, consisting of a series of questions that are sent to research participants with the expectation that they would complete it and return it to the researcher (Blumberg, Cooper & Schindler, 2014). Creswell and Creswell (2017) posit that the data collection method known as the questionnaire entails the distribution of written or typed sets of questions to study participants for their completion. In contrast, interviewing involves the use of oral questioning to elicit data from respondents (Creswell & Creswell, 2017).

The use of a questionnaire in this research is justified due to its capacity to elicit answers that are both accurate and trustworthy, hence enabling the generalization of findings to the broader study population (Zikmund et al., 2013). Additionally, this method affords participants the chance to allocate sufficient time for thoughtful responses and allows for the inclusion of large samples, hence facilitating the acquisition of trustworthy and valid outcomes (Zikmund et al., 2013).

Although the questionnaire has some advantages, it is not without its limitations. A significant drawback associated with the use of questionnaires is their vulnerability to a substantial non-return rate (Creswell & Creswell, 2017), as well as the potential for response bias. This bias occurs when respondents intentionally or subconsciously provide answers that are skewed in a manner that distorts the truth (Zikmund et al., 2013). To mitigate the

occurrence of non-return or non-response rate and response bias, the questionnaire was constructed following established criteria for questionnaire design. The design of the questions employed in this study utilised straightforward, non-debatable, and clear language. Furthermore, the questions were arranged in a manner consistent with the funnel technique, which involves starting with general inquiries before progressing to more specific ones (Creswell & Creswell, 2017; Cohen et al., 2017; Blumberg, Cooper & Schindler, 2014). To ensure the validity of the questionnaire, it underwent a rigorous evaluation process including two audit practitioners and three academics that specialize in the relevant research area. Following this evaluation, a pre-test of the instrument was conducted.

Sections of the questionnaire

The questionnaire was developed and formulated based on a comprehensive analysis of existing literature on the resource-based perspective, technology-organisation-environment framework, the unified theory of acceptance and use of technology model, Denison's cultural theory, and the task-technology fit theory (see Appendix 1). The data-collecting instrument was implemented with an introductory statement that provided information about the researcher and ensured the anonymity of the respondents. In Section A, demographic information of the respondents was gathered, including variables such as gender, age, greatest educational attainment, professional qualifications, technology training, and the size of the audit business.

In Section B, data was gathered on technology elements, organisational factors, environmental issues, and individual variables. Participants were

instructed to use a five-point Likert scale, where 1 represented "Strongly disagree" and 5 denoted "Strongly agree." They were then asked to indicate their degree of agreement or disagreement by marking the relevant box with a checkmark (√). (Awuah, Onumah, & Duho, 2022; Siew, Rosli, & Yeow, 2020; Pedrosa, Costa, & Aparicio, 2020; Pallant, 2020; Hair et al., 2019; Pimentel, 2019).

Section C was specifically developed to gather data about the deployment of audit automation. Participants were requested to determine their use of audit automation during the auditing procedure. The many programs used in audit automation include generalised audit software, electronic audit working papers software, embedded audit modules, database SQL search and retrieval, parallel simulation software, and test data. Respondents were requested to utilize a five-point Likert scale, ranging from 0% (indicating no usage) to 100% (indicating extensive usage), to indicate the proportion of tasks performed through audit automation tools. The sources referenced for this study include Siew, Rosli, and Yeow (2020), Pallant (2020), Pimentel (2019), Hair et al. (2019), and Braun and Davis (2003).

Section D requested information about corporate culture within different audit firms. The concept of corporate culture encompasses a set of eight distinct elements. The participants were instructed to use a five-point Likert scale, ranging from 1 (Strongly disagree) to 5 (Strongly agree), by marking the corresponding box that best represented their degree of agreement or disagreement (Pallant, 2020; Pimentel, 2019; Hair et al., 2019; Braun & Davis, 2003; Denison & Mishra, 1995).

In Section E, participants were requested to provide details on the concept of audit quality within their respective audit companies. The assessment of audit quality was conducted using a set of seven indicators. The participants were instructed to use a Likert scale consisting of five points, ranging from 1 (Strongly disagree) to 5 (Strongly agree). They were required to mark the relevant box with a checkmark (√) to indicate their degree of agreement or disagreement (Afroze & Aulad, 2020; Masood & Afzal, 2016; Sulaiman, 2018; Pallant, 2020; Hair et al., 2019; Pimentel, 2019).

Pilot study

A pre-test refers to an initial evaluation of a measuring instrument aimed at identifying possible challenges that respondents may experience while completing it. The primary objectives of the pre-test included the assessment of question phrasing, the revision or removal of unclear or redundant items, the creation of novel questions, and ultimately the evaluation of validity and reliability. To clarify, a pre-test is the process of verifying the content validity of the measuring instrument, as described by Creswell and Creswell (2017). Even though the questionnaire questions were derived from a robust model, a preliminary test was conducted to refine and enhance the questionnaire items, as well as to confirm content validity and reliability. This pilot test included a random selection of 33 people. The participants who took part in the first research were excluded from the subsequent data-gathering process. Consequently, the phrasing was somewhat altered to suit the specific research situation of this study. The findings indicated that the questionnaire demonstrated validity and reliability.

Validity

The assessment of the research instrument's validity involves determining whether the instrument effectively measures the intended construct, taking into account and mitigating any systematic mistakes caused by environmental and respondent variables (Hair et al., 2017). According to Saunders et al. (2009), the importance of instrument validity cannot be overstated as it plays a critical role in guaranteeing the correctness and reliability of the data collected. According to Creswell and Creswell (2017) and Hair et al. (2019), the assessment of an instrument's validity requires the execution of two distinct kinds of validity checks: convergent validity and discriminant validity. The present research evaluated the convergent validity by using the Average Variance Extracted (AVE) as proposed by Hair et al. (2019). The study also conducted an assessment of discriminant validity to establish that the constructs under investigation are distinct and separate from one another (Hair et al., 2019).

Reliability

Additionally, the study evaluated the dependability of the research instrument. The concept of reliability pertains to the degree of consistency in the outcomes generated by the research instrument across various contexts and conditions (Saunders et al., 2009). The researchers assessed the internal consistency reliability by using Cronbach's Alpha and Composite reliability scores, as outlined in the study conducted by Hair et al. (2019).

Variable Operationalisation and Measurement

The process of variable operationalization is used to make abstract latent variables more concrete and amenable to accurate measurement via the

utilization of unit measures. Whenever feasible, scales that had been previously validated were used, and in cases where it was required, some scales were modified to suit the requirements of the present investigation.

Dependent variable

The variable under investigation in this study is audit quality. The operationalization of this variable pertained to the capacity of the audit process to detect instances of significant misrepresentation within an employer's financial and accounting system, and subsequently communicate the identification of such misrepresentation (Afroze & Aulad, 2020; IFAC, 2020; CAQ, 2019; Sulaiman, 2018; Li et al., 2018; Masood & Afzal, 2016; De Angelo, 1981). Table 1 presents the operational concept of audit quality.

Table 1: Operationalisation of Audit Quality

Variable	Operational definition	Source
Audit quality	The ability of the audit to identify cases of material misstatement of the financial and accounting system of an employer and to report the discovery of this material misstatement	Afroze and Aulad (2020) Masood and Afzal (2016) Sulaiman (2018).

Source: Researcher's summary (2022)

Independent variables

The independent variables encompass four second-order constructs, namely technological factors, organisational factors, environmental factors, and individual factors (Awuah, Onumah, & Duho, 2022; Siew, Rosli, & Yeow, 2020; Pedrosa, Costa, & Aparicio, 2020; Pallant, 2020; Hair et al., 2019; Venkatesh et al., 2003). The construct of individual components was conceptualized as a higher-order construct, including four indicators for performance expectation, four indications for effort expectancy, four markers

for social impact, and five indicators for enabling circumstances. Table 2 presents the operationalization of the various components.

Table 2: Operationalisation of Individual Factors

Variable	Indicators	Operational definition	Source
Individual factors	Performance Expectancy (PE)	Corresponds to individual performance and perceived utility as a result of adopting audit automation	Venkatesh et al. (2003) Venkatesh et al. (2012)
	Effort Expectancy (EE)	The degree of ease that auditors perceive when they adopt audit automation in their auditing tasks	Venkatesh et al. (2003) ; Janvrin et al. (2008); Curtis and Payne (2014)
	Social Influence (SI)	The degree to which an individual perceives that other people are important to him/her and believes he/she should adopt audit automation	Venkatesh et al. (2003) ; Janvrin et al. (2008); Curtis and Payne (2014)
	Facilitating Conditions (FC)	The degree to which an individual perceives that organisational and technical infrastructure exists to support the adoption of audit automation	Venkatesh et al. (2003) ; Janvrin et al. (2008); Mahzan and Lymer (2014); Curtis & Payne (2014)

Source: Researcher's summary (2022)

The higher-order construct of technological aspects has many indicators, including cost-benefit (consisting of 5 indicators), compatibility (consisting of 4 indications), complexity (consisting of 4 indicators), relative advantage (consisting of 5 indicators), observability (consisting of 3 indices),

and trialability (consisting of 3 indicators). Table 3 presents the operationalization of the variable in question.

Table 3: Operationalisation of Technological Factors

Variable	Indicators	Operational definition	Source
Technological factors	Cost-benefit	The degree to which the benefits of audit automation adoption outweigh the cost	Rosli et al. (2012) Rogers (1995)
	Technological compatibility	The degree to which audit automation fits with audit requirements and tasks to be completed	Rosli et al. (2012) Rogers (1995)
	Technological complexity	The degree to which audit automation is perceived as relatively difficult to understand and use	Rosli et al. (2012) Rogers (1995)
	Relative advantage	The perceived advantages that an audit firm would acquire from audit automation adoption	Moore and Benbasat (1991); Venkatesh et. al, (2003) Rogers (1995)
	Observability	The extent to which an innovation is visible to the members of a social system, and the benefits can easily be observed and communicated	Rogers (1995)
	Trialability	The degree to which audit automation may be tried out and experimented before adoption	Rosli et al., (2012) Rogers (1995)

Source: Researcher's summary (2022)

The construct of organisational elements, as a higher-order concept, has two key components: top management support, which comprises five indications, and technical competence, which also comprises five indicators. Table 4 presents the operationalization of the variable in question.

Table 4: Operationalisation of Organisational Factors

Variables	Indicators	Operational definition	Source
Organisational factors	Top management support	The extent to which management provides the necessary resources to support the use of audit automation	Wang et al. (2015) ; Li et al. (2018); Mahzan and Lymer (2009) Venkatesh and Bala (2012)
	Technological competence	The extent to which employees have the necessary skills to use audit automation	Wang et al. (2015) ; Axelsen et al. (2017); Tornatzky & Fleischer (1990)

Source: Researcher's summary (2022)

The higher-order construct of environmental variables included four key components: audit standards (3), external pressure (7), professional body support (5), and accounting information systems (4). Table 5 presents the operationalization of the variable in question.

Table 5: Operationalisation of Environmental Factors

Variables	Indicators	Operational definition	Source
Environmental factors	Audit standards	The degree to which audit standards encourage audit automation adoption	Li et al. (2018)
	External/ Competitive pressure	The degree to which competition and other external forces compel audit firms to adopt audit automation	Mahzan and Lymer (2008); Venkatesh and Bala (2013) Rosli et al. (2012)
	Perceived level of professional body support	The degree of professional accounting bodies encourages audit firms to adopt audit automation	Rosli et al. (2012)
	Client's AIS complexity	The extent to which the audit firm's clients have complex accounting systems	Rosli et al. (2012) ; Janvrin et al. (2008) ; Axelsen et al. (2017) Rosli et al. (2012)

Source: Researcher's summary (2022)

Mediator variable

The use of audit automation served as a mediator in the link between the independent factors and the dependent variable, as outlined in goal one. The operational definition of this concept is shown in Table 6.

Table 6: Operationalisation of Audit Automation Adoption

Variables	Indicators	Operational definition	Source
Audit automation adoption	Generalised audit software	Audit software helps the auditor access the client's system database, extract relevant data, and perform an analysis of the audit function.	Janvrin et al. (2008) ; Mahzan and Lymer (2014) Mahzan and Lymer (2014); Bierstaker et al. (2014); IFRS (2008); Siew, Rosli and Yeow (2020)
	Electronic audit working papers software	Software that produces a trial balance and other schedules useful to record evidence in an audit or assurance engagement	Braun and Davis (2003) Siew, Rosli and Yeow (2020)
	Embedded audit modules	Programmed audit module incorporated into client's application programme to identify transactions that meet auditor's measures. The identified transaction is reviewed in real-time or in batches.	Braun and Davis (2003) Siew, Rosli and Yeow (2020)
	Database SQL search and retrieve	Software that uses relational structures between data files and query language that facilitates data retrieval and use.	Braun and Davis (2003) Siew, Rosli and Yeow (2020)
	Parallel simulation software	Abstraction of the client's application system that is developed to imitate the results produced by the client's	Braun and Davis (2003) Siew, Rosli and Yeow (2020)

	application. The auditor may use a model to compare the results and evaluate the reliability of information generated by the client's system	
Test data	A set of transaction input data prepared by an auditor to test the application program or procedural operations.	Braun and Davis (2003) Siew, Rosli and Yeow (2020)

Source: Researcher's summary (2022)

Moderator variables

Moderator factors were seen in the context of corporate culture and technology training. The impact of audit automation implementation on audit quality (objective 2) was influenced by corporate culture. Additionally, the study controlled for other independent variables, including individual factors, technological factors, organisational factors, environmental factors (which were conceptualized as second-order constructs), and audit quality (as the third aim). The Denison organisational culture model (Denison & Mishra, 1995) was used for measurement purposes. Denison and Mishra (1995) claim that culture encompasses a diverse array of intricate social phenomena and encompasses the ideas and assumptions that serve as the fundamental underpinnings of organisational culture. The measurement was conducted using a set of eight items.

The link between the independent variables and audit automation adoption (objective 4), audit automation adoption and audit quality (objective 5), and the independent factors and audit quality (objective 6) was influenced by technological training. The participants were requested to specify the quantity of audit automation training programs that their audit companies had

conducted within the previous 12-month period, whether it was fewer than one or more than one.

Control variable

In order to mitigate any confounding factors in the analysis of the association between the variables, the study used a control for business size, since prior research has shown its impact on audit quality (Kamil, 2020; Salehi, Mahmoudi, & Gah, 2019). By including controls for company size, the potential systematic impact may be minimised, hence enhancing the trustworthiness of the results. The audit companies were classified into two categories: the Big 4 and non-Big 4 firms. The research used a control variable for firm size due to the anticipated disparity in audit quality between Big 4 audit firms and non-Big 4 audit firms.

Data Collection Procedure

The online survey tool known as Google Forms was used for data collecting. According to Al-Hiyari, Al Said, and Hattab (2019), this particular medium has shown its effectiveness and suitability in expeditiously acquiring data from external auditors. Online surveys provide both benefits and disadvantages. Creswell and Creswell (2017) assert that online surveys may possess limitations in terms of their capacity to include the whole of the general population. If auditors do not use computers, the findings of online surveys will just reflect the perspectives of persons who employ such technology.

The process of data gathering spanned two months, commencing on July 1st, 2022 and concluding on August 31st, 2022. Following the acquisition of ethical approval (Appendix 4) from the Institutional Review Board of the

University of Cape Coast on May 23, 2022, an introduction letter for data collection was received from the Head of the Department of Accounting (Appendix 3) on May 30, 2022. The Institute of Chartered Accountants, Ghana (ICAG) was contacted via an introduction letter to acquire the roster of audit companies that have a favourable status with the ICAG. The appendix containing the roster of audit companies (Appendix 2) was received on June 14, 2022. Following this, a Google form was created and then sent via email to the 329 audit companies. A total of 190 audit firms responded after the completion of the data-gathering process.

Data editing, coding, entry, and treatment of missing data

According to Saunders et al. (2009), researchers must engage in rigorous processes and procedures, such as data editing, coding, and screening, before utilizing a data set for meaningful analysis. These steps are crucial to minimize any potential errors that may be present in the data set. The absence of missing values in the data set may be attributed to the use of a Google form during data collection. This form required respondents to answer each question before being able to move to the subsequent question.

Ethical consideration

The inclusion of ethical considerations in research is very pertinent and indispensable for both the researcher and the participants involved in the study. The inclusion of ethical processes is a fundamental aspect of performing reputable research and guaranteeing the production of reliable data for analysis (Creswell & Creswell, 2017; Cohen et al., 2017; Blumberg, Cooper & Schindler, 2014; Zikmund et al., 2013). Saunders, Lewis, and Thornhill (2009) suggest that ethical research entails the delicate equilibrium

between the imperative of scientific advancement and the imperative of respecting the privacy of individuals, hence avoiding interference. The aforementioned process is accomplished by the active pursuit of permission from participants, as well as the implementation of measures to guarantee both anonymity and confidentiality.

The ethical considerations of confidentiality and informed consent have significant importance in the context of survey research. The preservation of confidentiality rights and the assurance of anonymity were emphasized throughout the development of the research instrument. To exemplify the researcher's dedication to adhering to the necessary ethical protocols, the researcher duly filed the requisite clearance paperwork to the Institutional Review Board (IRB) at the University of Cape Coast. The application for ethical approval was submitted on February 14, 2022, and was subsequently approved on May 23, 2022 (see Appendix 4).

Data Processing and Analysis

The data were analyzed using IBM Statistical Product and Service Solutions (SPSS) Version 22 and Smart PLS-SEM Version 4. Before data input, a thorough examination of the questionnaires was conducted to identify any non-response questions included in all relevant parts of the instrument. A comprehensive examination of the data was undertaken to provide a broad summary of the study results. In this study, categorical data was analyzed by generating frequencies, while numerical data was analyzed by computing measures such as the mean, median (in certain cases), standard deviation, skewness, and kurtosis.

Structural Equation Modelling (SEM)

The occurrence of structural equation modelling (SEM) in scholarly literature has seen a significant increase in the last twenty years, spanning several academic fields (Hair, Risher, Sarstedt, & Ringle, 2019; Li et al., 2018). The aforementioned dominance may be attributed to its capacity for analyzing many interrelationships across various constructs, hence providing more flexibility for the empirical testing of theories and models (Hair, Risher, Sarstedt, & Ringle, 2019). Structural equation modelling (SEM) is the preferred statistical technique when the study model incorporates latent components that cannot be directly measured. The present investigation involves eight constructs, including the dependent variables, which are latent variables that can only be measured indirectly via observable indicators (proxies). Consequently, structural equation modelling (SEM) approaches are appropriate for this research. Structural equation modelling (SEM) facilitates the analysis of intricate regression models by assessing the predicted interactions among several endogenous and exogenous variables, including potential mediation or moderation effects. Furthermore, it can simultaneously handle both first and second-order constructions.

According to Hair, Risher, Sarstedt, and Ringle (2019), the utilization of the Structural Equation Modeling (SEM) technique is advantageous when a study aims to address inquiries such as the extent to which the model accounts for variance in the dependent variables, the directionality of the effects of the independent variables on the dependent variables, and the magnitude and statistical significance of these effects. The proposed connections in this work

aim to address inquiries of this kind, therefore providing a rationale for using Structural Equation Modeling (SEM) in this investigation.

The PLS-SEM has notable strengths in its capacity to effectively analyze data with small sample sizes while still achieving a considerable level of statistical power (Hair et al., 2019). Furthermore, the Partial Least Squares Structural Equation Modeling (PLS-SEM) method is suitable for situations when the aim is to forecast and explain dependent variables or construct theories, rather than confirming existing theories (Hair et al., 2019). The chosen research methodology for this study is the Partial Least Squares Structural Equation Modeling (PLS-SEM) technique. This strategy is deemed suitable due to its ability to effectively forecast the impact of audit automation deployment, corporate culture, and technology training on audit quality, which aligns with the major objective of the research. The PLS-SEM technique employs the central limit theorem to convert non-normal data, hence obviating the need for data to conform to a normal distribution. The inclusion of this characteristic makes the PLS-SEM approach more suitable for social science research, as seen in the present work. According to Hair et al. (2019), it has been argued that the PLS-SEM is capable of effectively managing intricate and extensive structural models, while also demonstrating compatibility with reflective and formative measurement models.

Conceptual background of hierarchical component models

The research used higher-order constructs, specifically referred to as hierarchical component models within the framework of PLS-SEM, to represent the independent variables. These independent variables included individual factors, technical aspects, organisational factors, and environmental

factors. Higher-order constructs provide researchers with a structured approach to conceptualize a construct by breaking it down into more specific subdimensions, which are often known as lower-order components. Therefore, these constructs expand upon conventional conceptualizations that often depend on a solitary level of abstraction (Sarstedt, Hair, Cheah, Becker & Ringle, 2019).

Higher-order structures provide several favourable characteristics. As an example, the utilization of higher-order constructs has been shown to effectively decrease the quantity of route mode linkages, therefore leading to enhanced model parsimony (Sarstedt et al., 2019; Johnson, Rosen, & Chang, 2011). Instead of delineating the interactions between numerous independent and dependent constructs in a route model, researchers have the option to consolidate the independent constructs into a higher-order construct. This consolidation renders the linkages from the lower-order components to the dependent constructs in the model unnecessary. An additional benefit is that higher-order constructs can also address the bandwidth-fidelity dilemma, as suggested by Sarstedt et al. (2019) and Johnson, Rosen, and Chang (2011). This dilemma refers to the trade-off between the amount of information (bandwidth) and the depth of testing required to obtain more reliable information (fidelity). In conclusion, the use of higher-order constructs offers a strategy to mitigate collinearity issues across indicators. This is achieved by allowing for the rearrangement of indicators and/or constructs across distinct subdimensions of the overarching abstract construct (Hair et al., 2019).

When researchers incorporate higher-order constructs into their studies, they are faced with two crucial decisions. Firstly, they must determine

the measurement model specification for the lower-order components. Secondly, they need to establish the relationship between the higher-order components and their corresponding lower-order components. These decisions can be categorized as either reflective or formative (Sarstedt et al., 2019; Johnson, Rosen, & Chang, 2011; Jarvis, MacKenzie, & Podsakoff, 2003). According to Sarstedt et al. (2019), scholarly investigations have identified four distinct categories of higher-order constructs, namely reflective-reflective, reflective-formative, formative-reflective, and formative-formative.

The present investigation used the reflective-reflective higher-order model. The association between the lower-order conceptions and their indicators is reflective. The reflecting nature of the interaction exists between the lower-order constructions and the higher-order construct. The analysis was conducted using the Smart PLS program, specifically version 4.0. The research identified four overarching components derived from the UTAUT and TOE frameworks, including individual factors, technical factors, organisational factors, and environmental variables.

Specifying higher-order constructs

Multiple methodologies have been suggested by scholars to delineate and evaluate higher-order entities within the framework of Partial Least Squares Structural Equation Modeling (PLS-SEM). The two primary approaches that have gained significant attention in the literature are the extended repeated indicators method and the two-stage approach (Sarstedt et al., 2019). According to the assessment conducted by Becker, Klein, and Wetzel (2012), it was found that the (extended) repeated indicators technique

leads to reduced biases in estimating the measurement model of the higher-order construct.

On the other hand, the two-stage method demonstrates superior parameter recovery to routes that indicate (1) the flow from exogenous constructions to the higher-order construct, and (2) the flow from the higher-order construct to an endogenous construct in the path model. The selection of the fragmented two-stage technique was necessary. The discontinuous two-stage method only focuses on the lower-order components of the higher-order construct in the route model, excluding the higher-order component. These constructions are intrinsically interconnected with all other constructs that are theoretically associated with the higher-order construct. The research recorded and preserved the latent variable scores of the lower-order components. Subsequently, during the second stage, these scores were used to assess the higher-order structures.

Validating the constructs

The research used the analytical framework established by Hair et al. (2019), which consists of a two-step technique. The framework encompasses both the measuring model and the structural model. Hair et al. (2019) assert that measurement models are used to assess the associations between indicators and constructs. The measurement model has two distinct components: the evaluation of the measurement model for the lower-order constructs and the measurement model for the higher-order construct.

The present study utilised reflective-reflective higher-order constructs and evaluated the measurement model for both the lower-order and higher-order constructs. This evaluation involved analyzing the indicator loadings,

internal consistency reliability, convergent validity, and discriminant validity of the constructs (Hair, Risher, Sarstedt, & Ringle, 2019).

The structural model was then subjected to analysis. To assess the potential bias of the regression findings, the presence of collinearity was investigated by calculating the variance inflation factors (VIF). The estimation of the coefficient of determination (R^2), which quantifies the explanatory capacity of the model, was conducted.

Chapter Summary

The chapter provides an analysis of the research methodologies used in the empirical examination of the interconnections among various factors influencing audit quality. Specifically, it explores the linkages between audit quality drivers, the adoption of audit automation, corporate culture, technical training, and the resulting audit quality outcomes. The study primarily focused on several aspects, including the research philosophy, method, design, population, sampling technique, data collecting instrument, variable operationalization, data collection procedure, and instruments used in data processing and analysis. The techniques used for this study were meticulously picked to not only correspond with the research aims, but also to prevent the inclusion of unsuitable and inconsistent approaches.

CHAPTER FOUR

RESULTS AND DISCUSSION

Introduction

The objective of this research was to investigate the many elements that have an impact on audit quality. Additionally, the study aimed to explore the function of audit automation adoption as a mediator, as well as the moderating effects of corporate culture, technology training, and the audit quality of audit firms in Ghana. To conduct this study, six research goals were formulated and then translated into 18 hypotheses. This chapter provides a comprehensive presentation of the data analysis outcomes, following the approach outlined in the previous chapter.

The chapter provides an analysis of the demographic features of the respondents, accompanied by the presentation of descriptive data. The researchers used the structural equation modelling approach to examine and evaluate the proposed ideas. The statistical method applied to assess the measurement and structural models was Partial Least Squares (PLS), using SmartPLS version 4.0. According to Hair et al. (2019), the measurement model is used to determine the reliability and validity of both the lower-order constructs and the higher-order constructs. On the other hand, the structural model is employed to assess the significance of the hypothesized associations.

These are the objectives and hypotheses proposed for the study:

1. Assess the mediation effect of audit automation adoption on individual factors, technological factors, organisational factors, environmental factors and audit quality.

H1a: Audit automation adoption mediates the relationship between individual factors and audit quality.

H1b: Audit automation adoption mediates the relationship between technological factors and audit quality.

H1c: Audit automation adoption mediates the relationship between organisational factors and audit quality.

H1d: Audit automation adoption mediates the relationship between environmental factors and audit quality.

2. Examine the moderation effect of corporate culture on audit automation adoption and audit quality.

H2: Corporate culture moderates the relationship between audit automation adoption and audit quality.

3. Investigate the moderation effect of corporate culture on individual factors, technological factors, organisational factors, environmental factors and audit quality.

H3a: Corporate culture moderates the relationship between individual factors and audit quality.

H3b: Corporate culture moderates the relationship between technological factors and audit quality.

H3c: Corporate culture moderates the relationship between organisational factors and audit quality.

H3d: Corporate culture moderates the relationship between environmental factors and audit quality.

4. Assess the moderating effect of technological training on individual factors, technological factors, organisational factors, environmental factors and audit automation adoption;

H4a: Technological training moderates the relationship between individual factors and audit automation adoption.

H4b: Technological training moderates the relationship between technological factors and audit automation adoption.

H4c: Technological training moderates the relationship between organisational factors and audit automation adoption.

H4d: Technological training moderates the relationship between environmental factors and audit automation adoption.

5. Examine the moderation effect of technological training in the relationship between audit automation adoption and audit quality.

H5: Technological training moderates the relationship between audit automation adoption and audit quality.

6. Investigate the moderation effect of technological training on individual factors, technological factors, organisational factors, environmental factors and audit quality.

H6a: Technological training moderates the relationship between individual factors and audit quality.

H6b: Technological training moderates the relationship between technological factors and audit quality.

H6c: Technological training moderates the relationship between organisational factors and audit quality.

H6d: Technological training moderates the relationship between environmental factors and audit quality.

Response Rate

All 190 questionnaires that were provided to the audit companies yielded valid replies, resulting in a response rate of 100%. The obtained result is promising since it is well acknowledged that auditors, particularly those affiliated with audit companies, are highly occupied, making it challenging to elicit their participation in academic research endeavours (Awuah, Onumah & Duho, 2022). Furthermore, the selection of participants for this research was contingent upon their availability and level of interest.

Summary of Respondents' Demographics

This section provides an overview of the demographic characteristics of the participants. The factors included under this category consist of gender, age, educational attainment, professional credentials, and technical instruction. The demographic profile of the respondents is shown in Table 7. The ensuing paragraphs provide a summary of the analysis conducted on these demographic characteristics. While the inclusion of demographic data in this research does not directly impact the depth of analysis, its presentation provides a comprehensive picture of the study's participants.

Table 7: Summary of Respondents' Demographics

Variable		Frequency	Percentage
Gender	Male	161	84.7
	Female	29	15.3
Age	20-30	77	40.5
	31-40	66	34.7
	41-50	31	16.3
	51-60	12	6.3
	61 and above	4	2.1
Highest Educational Qualification	Diploma certificate	3	1.6
	Bachelor's degree	87	45.8
	Master's degree	94	49.5
	Doctorate	6	3.2
Professional Qualification	Chartered accountant	138	72.6
	Other professional qualification	4	2.1
	No professional qualification	48	25.3
Firm size	Big 4	4	2.1
	Non-big 4	186	97.9
Technological Training	Less than 1	94	49.5
	More than 1	96	50.5

Source: Field Survey (2022) N=190

Gender

The results of the demographic analysis indicated that the majority of participants were male, comprising 84.7% of the total sample, and females constituted 15.3% of the respondents. This observation illustrates the prevalence of male domination within the audit profession and reinforces the prevailing understanding that in many developing nations, such as Ghana, there is a disproportionate representation of males compared to women in paid work (Gyan, 2013).

Age

The age range of the participants spanned from under 20 years to over 61 years. Concerning age, the findings indicated that all participants were within the demographic of the active working population. The bulk of individuals, comprising around 41%, fell within the 20-30 age category. This

was followed by the 31-40 age group, which accounted for 34.7% of the total population. The 41-50 age group constituted 16.3% of the sample. According to many studies (Ramen, Jugurnath, & Ramhit, 2015; Curtis & Payne, 2008; Venkatesh et al., 2003), individuals within the age range of 20 to 30 exhibit a high level of confidence and demonstrate a willingness to embrace and use emerging technology.

Highest educational qualification

Similarly, all participants possess varying levels of educational attainment, ranging from a Doctor of Philosophy (PhD) as the greatest degree to a Diploma as the lowest qualification. Approximately half of the participants own a Master's degree, being the largest proportion, while a slightly smaller percentage have a Bachelor's degree (45.8%). The proportion of respondents holding a Doctorate degree was 3.2%, but those with a Diploma certificate constituted a mere 1.6%.

Professional qualification

More than half of the participants have a professional certification. Among the surveyed population, a majority of 72.8% have the esteemed designation of chartered accountants, while a smaller proportion of 2.1% possess other professional credentials. Approximately, a quarter (26%) of the participants lacked professional credentials.

Technological training

The research investigated the frequency at which technology training sessions were conducted inside different audit companies. A majority of the audit companies, namely 50.5% (96), conducted many training sessions in the field of information technology throughout the previous 12-month period.

Conversely, 49.5% (94) of the audit firms did not arrange any training sessions about information technology during the same time frame.

Descriptive Statistics of the Variables

This component of the study presents the descriptive analysis of the constructs and items used in the research, as shown in Table 8.

Table 8: Descriptive Statistics of Variables

Variables		Mean	Standard Deviation	Kurtosis	Skewness	Min	Max
Cost Benefit	CB	3.863	0.819	1.036	-0.927	1	5
Compatibility	CMP	3.595	0.823	0.122	-0.387	1	5
Relative Advantage	RA	3.929	0.858	1.500	-1.133	1	5
Observability	OB	3.514	0.896	-0.305	-0.464	1	5
Trialability	TRL	3.491	0.863	-0.337	-0.365	1	5
Top Management Support	TMS	3.685	0.938	0.837	-0.921	1	5
Technological Competence	TC	3.678	0.849	0.527	-0.770	1	5
Audit Standards	AS	3.747	0.914	0.509	-0.783	1	5
External Pressure	EXP	3.578	0.865	0.121	-0.593	1	5
Professional Body Support	PBS	3.681	0.916	0.425	-0.663	1	5
Accounting Information Systems	AIS	3.250	0.863	-0.421	-0.063	1	5
Performance Expectancy	PE	3.647	1.035	-0.145	-0.734	1	5
Effort Expectancy	EE	3.758	0.923	0.431	-0.772	1	5
Social Influence	SI	3.476	0.860	0.062	-0.479	1	5
Facilitating Conditions	FC	3.719	0.878	0.356	-0.747	1	5
Audit Automation Adoption	AAA	4.482	1.700	-0.630	-0.556	1	5
Corporate Culture	CC	4.776	1.508	-0.726	-0.501	1	5
Audit Quality	AQ	4.321	1.487	-0.269	-0.905	1	5

Source: Field data (2022)

In general, the mean values of the variables exceeded 2.5. The values observed for accounting information systems and corporate culture varied from 3.250 to 4.776, respectively. When using a five-point Likert scale to assess variables, with higher values indicating more positive, a score of 2.5 would be regarded as the mean or average. The range of standard deviation

values varied from 0.819 for cost-benefit to 1.035 for performance expectation.

The normality of the data was evaluated by examining the skewness and kurtosis values for each construct. The constructs included in the model exhibited a variety of absolute skewness values, with accounting information systems having a value of 0.063 and relative advantage having a value of 1.133. Similarly, the absolute kurtosis values varied among the constructs, with social influence having a value of 0.062 and relative advantage having a value of 1.5. Given that the skewness and kurtosis values for the constructs used in this research are below 3 and 10, respectively, it can be concluded that these constructs have satisfied the normalcy criterion.

Common Method Bias Assessment

Podsakoff, MacKenzie, Lee, and Podsakoff (2003) have identified common technique variation as a possible issue in behavioural research. This issue arises when the variability may be attributed to the measuring technique rather than the underlying components being measured. The word "method" pertains to how measurements are conducted, including several levels of abstraction including the exact content of items, the kind of scale used, the format of responses, and the overall contextual framework. At a higher level of abstraction, method effects may be understood as response biases, including halo effects, social desirability, acquiescence, leniency effects, and yea- and nay-saying. Method biases provide a significant concern as they represent a primary contributor to measurement inaccuracy. The presence of measurement error poses a significant risk to the validity of the findings drawn about the

associations between variables, therefore necessitating the implementation of strategies to reduce its impact.

Podsakoff, MacKenzie, Lee, and Podsakoff (2003) have identified two main approaches to mitigate method biases, namely, via the design of the study's processes and/or the use of statistical controls. Procedural remedies can mitigate, if not entirely mitigate, the possible impact of common technique variation on the study outcomes. Nevertheless, in some instances, individuals may have challenges in identifying a procedural solution that adequately fulfils all of their requirements. In such circumstances, individuals may find it advantageous to use one of the statistical interventions that are at their disposal. In the research literature, two often used statistical techniques for mitigating typical method biases are Harman's single-factor test and the Partial correlation approach. The current research used the single-factor test proposed by Harman and Harman (1976) to evaluate the presence of common method variance.

Harman's single-factor analysis

The one-factor (single-factor) test proposed by Harman and Harman (1976) is a commonly used approach in research to mitigate the problem of common method variation. Historically, scholars have used this methodology to include all the variables under investigation in an exploratory factor analysis. By scrutinizing the unrotated factor solution, researchers ascertain the requisite number of factors needed to explain the variability seen in the variables. The fundamental premise behind this methodology is that in the presence of a considerable degree of shared method variance, either (a) a singular factor will manifest via the process of factor analysis or (b) a

dominant general factor will explain the bulk of the covariation seen among the several measures.

Table 9: Harman's Single Factor Analysis Output (Total Variance Explained)

	Initial Eigenvalues			Extraction Sums of Squared Loadings		
Component	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	36.175	39.752	39.752	36.175	39.752	39.752
2	5.974	6.564	46.317			
3	5.270	5.791	52.108			
4	3.885	4.269	56.377			
5	2.979	3.273	59.650			
6	2.595	2.851	62.502			
7	2.031	2.231	64.733			
8	1.852	2.035	66.768			
9	1.755	1.929	68.697			
10	1.587	1.744	70.441			
11	1.432	1.573	72.014			
12	1.282	1.408	73.422			
13	1.118	1.228	74.651			
14	1.100	1.209	75.860			
15	1.022	1.123	76.983			
16	.914	1.005	77.988			
17	.897	.986	78.974			
18	.872	.958	79.932			
19	.805	.884	80.816			
20	.767	.842	81.659			
21	.732	.805	82.463			
22	.684	.752	83.215			
23	.674	.741	83.957			
24	.634	.697	84.653			
25	.620	.681	85.335			
26	.582	.639	85.974			
27	.571	.628	86.602			
28	.529	.581	87.183			
29	.512	.562	87.745			
30	.479	.526	88.271			
31	.473	.520	88.792			
32	.452	.497	89.288			
33	.436	.479	89.767			
34	.422	.464	90.232			
35	.406	.446	90.678			
36	.379	.416	91.094			
37	.373	.410	91.504			
38	.344	.378	91.882			
39	.336	.370	92.251			
40	.324	.356	92.607			
41	.316	.347	92.955			
42	.305	.335	93.290			

43	.287	.315	93.605
44	.280	.308	93.913
45	.276	.303	94.216
46	.263	.289	94.505
47	.253	.278	94.783
48	.243	.267	95.050
49	.241	.265	95.315
50	.219	.240	95.555
51	.205	.226	95.781
52	.197	.216	95.997
53	.195	.214	96.212
54	.182	.200	96.411
55	.179	.197	96.608
56	.178	.195	96.804
57	.170	.187	96.990
58	.163	.179	97.169
59	.153	.168	97.337
60	.144	.158	97.496
61	.140	.154	97.649
62	.135	.148	97.797
63	.131	.143	97.941
64	.129	.141	98.082
65	.122	.135	98.217
66	.117	.129	98.346
67	.112	.123	98.468
68	.105	.116	98.584
69	.102	.112	98.696
70	.097	.107	98.802
71	.092	.102	98.904
72	.085	.094	98.998
73	.084	.092	99.090
74	.078	.085	99.175
75	.073	.081	99.256
76	.068	.074	99.330
77	.063	.069	99.400
78	.062	.068	99.468
79	.058	.064	99.532
80	.053	.058	99.590
81	.051	.056	99.646
82	.047	.051	99.698
83	.045	.050	99.747
84	.039	.043	99.790
85	.038	.042	99.832
86	.036	.040	99.871
87	.031	.034	99.906
88	.028	.030	99.936
89	.023	.025	99.961
90	.019	.021	99.983
91	.016	.017	100.000

Extraction Method: Principal Component Analysis.
Source: Field data (2022)

The outcome of the exploratory factor analysis from SPSS is shown in Table 9. The used methodology included the utilization of Principal Component Analysis as the extraction approach. The components were not subjected to rotation, and all factors that accounted for the latent variables were likewise constrained to a singular construct. Harman and Harman (1976) suggest that the presence of common method bias may be inferred if the newly introduced common latent component accounts for more than 50% of the variation. According to the data shown in Table 9, the construct under investigation accounted for a mere 36.175% of the observed variance. This finding suggests that the presence of common technique variance is not evident.

Model Specification

The first stage in using Partial Least Squares Structural Equation Modeling (PLS-SEM) involves the specification of the model. The process consists of two sequential stages: firstly, the determination of the measurement model, and secondly, the specification of the structural model (Hair et al., 2019). The measurement model illustrates the association between the constructs and their corresponding indicators or measurements, while the structural model presents the proposed links among the constructs (Hair, et al., 2019). The next parts will address the measurement model and the structural model.

Measurement model specification (step one)

Hair et al. (2019) assert that measurement models are used to assess the associations between the indicators and the concept. The measuring model is bifurcated into two components due to the use of higher-order constructs in

the investigation. The research used the reflective-reflective higher-order structures. Consequently, the lower-order constructs were first assessed using a reflecting measurement model in stage one, which was then followed by the evaluation of the higher-order constructs using a reflective measurement model in stage two.

Reflective measurement model for the lower-order constructs (stage one)

The reflecting nature of the link between the indicator items and the lower-order components has been noted by Hair et al. (2019). The model included a total of 93 indicators to assess the 20 structures under investigation, as shown in Table 10. The theoretical framework was constructed by drawing upon insights from existing literature and incorporating elements from many theoretical perspectives, including the resource-based approach, the Unified Theory of Acceptance and Use of Technology (UTAUT) model, the Technology-Organization-Environment (TOE) model, and the task-technology fit theory.

Table 10: Constructs and Items

Constructs	Items
Performance Expectancy	PE1
	PE2
	PE3
	PE4
Effort Expectancy	EE1
	EE2
	EE3
	EE4
Social Influence	SI1
	SI2
	SI3
	SI4
Facilitating Conditions	FC1
	FC2
	FC3
	FC4
	FC5
Cost-Benefit	CB1

	CB2
	CB3
	CB4
	CB5
Compatibility	CMP1
	CMP2
	CMP3
	CMP4
Complexity	CPX1
	CPX2
	CPX3
	CPX4
Relative Advantage	RA1
	RA2
	RA3
	RA4
	RA5
Observability	OB1
	OB2
	OB3
Trialability	TRL1
	TRL2
	TRL3
Top Management Support	TMS1
	TMS2
	TMS3
	TMS4
	TMS5
Technological Competence	TC1
	TC2
	TC3
	TC4
	TC5
Audit Standards	AS1
	AS2
	AS3
External Pressure	EXP1
	EXP2
	EXP3
	EXP4
	EXP5
	EXP6
	EXP7
Professional Body Support	PBS1
	PBS2
	PBS3
	PBS4
	PBS5
Accounting Information System	AIS1
	AIS2

	AIS3
	AIS4
Audit Automation Adoption	AAA1
	AAA2
	AAA3
	AAA4
	AAA5
	AAA6
Corporate Culture	CC1
	CC2
	CC3
	CC4
	CC5
	CC6
	CC7
	CC8
Audit Quality	AQ1
	AQ2
	AQ3
	AQ4
	AQ5
	AQ6
	AQ7
Technological Training	Less than 1
	More than 1
Firm size	1=big 4, 0 = non-big 4

Source: Field data (2022)

Assessment of the measurement model for the lower-order constructs

The examination of the reflective measurement model in PLS-SEM involves examining the indicator loadings, internal consistency reliability, convergent validity, and discriminant validity of the lower-order components (Hair et al., 2019). The evaluation of internal consistency reliability is conducted by the use of Cronbach's alpha and composite reliability. The assessment of convergent validity involves the use of the Average Variance Extracted (AVE) as proposed by Hair et al. (2019). The assessment of discriminant validity involves the consideration of three primary criteria, namely the Fornell-Larcker criterion, cross-loadings, and the Heterotrait-Monotrait (HTMT) ratio criterion (Henseler, Ringle, & Sarstdt, 2015). The

subsequent sections will address the evaluations of reliability and validity on the lower-order notions.

Indicator loadings (LOC)

The first stage of evaluation for the reflective measurement approach entails the examination of indicator loadings, as outlined by Hair et al. (2019). To gauge the dependability of the indicator items that measure the variables, Hair et al. (2019) propose using the standardized loadings of such items. The outer model provides information on the loadings of the indicators that assess the constructs. Therefore, to establish the reliability of the indicator items in measuring a certain construct, the loadings must exhibit greater values. It is advisable to consider loadings that exceed 0.708 since they indicate that the construct accounts for over 50% of the variation in the indicator. Consequently, this level of loading ensures satisfactory item dependability. The aforementioned items were excluded from the analysis due to their reported loadings falling below the threshold of 0.708. These items include CB5, CMP3, RA4, TC1, TC2, EXP1 SI4, and AAA1. The indication loadings are shown in Table 11.

Table 11: Indicator Loadings (LOC)

Construct	Items	Loadings
Cost-benefit	CB1	0.917
	CB2	0.880
	CB3	0.831
	CB4	0.792
Compatibility	CMP1	0.709
	CMP2	0.839
	CMP4	0.762
Complexity	CPX1	0.905
	CPX2	0.837
	CPX3	0.845
	CPX4	0.860
Relative Advantage	RA1	0.808
	RA2	0.744
	RA3	0.827
	RA5	0.901

Observability	OB1	0.895
	OB2	0.856
	OB3	0.761
Trialability	TRL1	0.890
	TRL2	0.902
	TRL3	0.719
Top Management Support	TMS1	0.758
	TMS2	0.793
	TMS3	0.791
	TMS4	0.837
	TMS5	0.851
Technological Competence	TC3	0.885
	TC4	0.804
	TC5	0.900
Audit Standards	AS1	0.883
	AS2	0.909
	AS3	0.876
External pressure/ competitive pressure	EXP2	0.842
	EXP3	0.786
	EXP4	0.754
	EXP5	0.736
	EXP6	0.875
	EXP7	0.832
Professional Body Support	PBS1	0.796
	PBS2	0.873
	PBS3	0.834
	PBS4	0.814
	PBS5	0.810
Accounting Information System	AIS1	0.801
	AIS2	0.845
	AIS3	0.876
	AIS4	0.859
Performance expectancy	PE1	0.809
	PE2	0.900
	PE3	0.881
	PE4	0.827
Effort expectancy	EE1	0.842
	EE2	0.878
	EE3	0.870
	EE4	0.838
Social Influence	SI1	0.927
	SI2	0.821
	SI3	0.919
Facilitating condition	FC1	0.779
	FC2	0.874
	FC3	0.882
	FC4	0.751
	FC5	0.880
Audit Automation Adoption	AAA2	0.835
	AAA3	0.867
	AAA4	0.861
	AAA5	0.821

	AAA6	0.828
Corporate culture	CC1	0.843
	CC2	0.903
	CC3	0.881
	CC4	0.939
	CC5	0.928
	CC6	0.900
	CC7	0.920
Audit Quality	AQ1	0.763
	AQ2	0.800
	AQ3	0.886
	AQ4	0.892
	AQ5	0.864
	AQ6	0.898
	AQ7	0.861
Technology Training	TT	1.000
Firm size	FS	1.000

Source: Field data (2022)

Internal consistency reliability assessment

The subsequent stage involves evaluating the trustworthiness of internal consistency. Reliability, as defined by Saunders, Lewis, and Thornhill (2009), refers to the degree of stability and consistency shown by a measurement device. The fundamental characteristic of dependability is in its capacity for repetition. If an instrument is repeatedly delivered, will it provide consistent outcomes? Hence, the dependability of an indicator refers to the extent to which the variation of the indicator can be accounted for by the underlying latent variable.

Cronbach Alpha and Composite Reliability (CR) are the two prevailing techniques often used to assess and determine the reliability of a measurement instrument. Cronbach's alpha is often regarded as the minimum threshold for assessing internal consistency reliability, while composite reliability is regarded as the maximum threshold for evaluating internal consistency reliability. Cronbach's alpha is often regarded as the minimum value since it is influenced by the number of indicators inside a scale and typically results in

an underestimation of the dependability of internal consistency (Hair et al., 2019). This finding suggests that a minimum of 50% of the variation in a given variable may be accounted for by the associated hidden variable.

According to previous research (Hair et al., 2019), it is generally recommended that reliability scores fall between the range of 0.70 to 0.90. However, it is important to note that exceeding a maximum score of 0.95 may result in indicator redundancy, which might potentially affect the content validity of the measure. Table 12 displays the findings for both the Cronbach alpha and composite reliability measures.

Table 12: Reliability and Convergent Validity

Constructs	Items	Cronbach's alpha	Composite reliability (rho_c)	Average variance extracted (AVE)
Audit Automation Adoption	AAA	0.898	0.924	0.710
Accounting Information Systems	AIS	0.870	0.909	0.715
Audit Quality	AQ	0.938	0.949	0.728
Audit Standards	AS	0.868	0.919	0.791
Cost-Benefit	CB	0.878	0.916	0.733
Corporate Culture	CC	0.962	0.968	0.814
Compatibility	CMP	0.667	0.815	0.596
Complexity	CPX	0.890	0.921	0.744
Effort Expectancy	EE	0.880	0.917	0.735
External Pressure	EXP	0.891	0.917	0.649
Facilitating Condition	FC	0.892	0.920	0.697
Observability	OB	0.800	0.876	0.704
Professional Body Support	PBS	0.883	0.914	0.682
Performance Expectancy	PE	0.877	0.916	0.731
Relative Advantage	RA	0.849	0.892	0.675
Social Influence	SI	0.874	0.920	0.793
Technological Competence	TC	0.840	0.898	0.747
Top Management Support	TMS	0.865	0.903	0.651
Trialability	TRL	0.791	0.878	0.707

Source: Field data (2022)

The Cronbach alpha coefficients varied from 0.791 for Trialability to 0.962 for corporate culture. In a similar vein, the composite reliability statistics exhibited a variety of values, with compatibility showing a reliability coefficient of 0.815, while corporate culture had a higher coefficient of 0.968.

Both measures of dependability exhibit reliability statistics that are above the minimum requirement of 0.70, as stated by Hair et al. (2019). Therefore, the establishment of construct dependability is evident. Given that all the results above the minimal criterion of 0.70, it can be concluded that the model exhibits internal consistency dependability.

Construct validity

Statistically, when using PLS-SEM, construct validity is established when there is convergent validity and discriminant validity.

Convergent validity

Convergent validity refers to the degree to which a concept effectively explains the variability seen in its constituent elements (Hair et al., 2019). Multiple efforts to measure the same notion exhibit agreement. According to Jarvis, MacKenzie, and Podsakoff (2003), the notion suggests that if two or more measurements of the same phenomenon are accurate, they should have a strong positive relationship. The average variance extracted (AVE) is the measure used to assess the convergent validity of a construct, calculated by determining the average variance extracted from all items associated with the construct. To determine the Average Variance Extracted (AVE), it is necessary to square the loading coefficient of each indicator on a construct and thereafter calculate the average value. According to Hair et al. (2019), reflective measurement models are considered appropriate when the average variance extracted (AVE) is 0.50 or higher. This indicates that the construct under study explains at least 50 per cent of the variation seen in its constituent components. The findings shown in Table 11 indicate that all the constructs

used in this investigation have strong convergent validity, as evidenced by their average variance extracted (AVE) scores above the threshold of 0.50.

Discriminant validity

Discriminant validity refers to the degree to which a particular concept is empirically distinguishable from other constructs within the structural model, as stated by Hair et al. (2019). According to Jarvis, MacKenzie, and Podsakoff (2003), it is argued that if many ideas are distinct, then it is expected that legitimate assessments of each concept should not have a significant level of correlation. To assess the discriminant validity of the variables, several methods were used, including cross-loadings, the Fornell-Lacker criteria, and the Heterotrait-monotrait (HTMT) ratio. These techniques were chosen to address the constraints inherent in each approach and provide a comprehensive evaluation of discriminant validity.

Cross loading criterion

According to Sarstedt et al. (2019) and Hair et al. (2019), the cross-loading criteria posits that an indicator's loading on its designated construct should exceed its loadings on all other constructs. The findings from the cross-loadings analysis indicate that the indicator items exhibit higher loadings on their intended variables compared to their loadings on other variables, thereby suggesting satisfactory discriminant validity.

Fornell-Lacker criterion

The Fornell-Lacker criteria is a method used to evaluate the discriminant validity of a construct. It involves comparing the square root of the average variance extracted (AVE) score of the construct with its association with other constructs (Fornell & Lacker, 1981). To ascertain

discriminant validity, it is necessary for the square root of a construct's average variance extracted (AVE) to be greater than the construct's correlation with other constructs, as stated by Hair et al. (2019). The findings indicate that the variables meet the Fornell-Lacker criteria for discriminant validity, thereby confirming the establishment of discriminant validity.

Heterotrait-monotrait (HTMT)

The HTMT is operationalized as the average correlation across items across constructs, normalized by the geometric mean of the average correlations for the items that measure the same construct (Henseler et al., 2015). Discriminant validity issues arise when the values of the heterotrait-monotrait ratio of correlations (HTMT) are high. In their study, Henseler et al. (2015) put up the suggestion of using a threshold value of 0.90 for structural models that include notions that possess a high degree of conceptual similarity. In the aforementioned context, an HTMT score over 0.90 would indicate the presence of discriminant validity. However, in cases where constructs exhibit more differentiation, it is recommended to choose a lower, more cautious threshold value, such as 0.85, as proposed by Henseler et al. (2015). The findings indicate that the HTMT values for all constructs were below the threshold of 0.90, hence confirming the presence of discriminant validity.

Based on the preceding discourse, it can be inferred that the three assessment criteria, namely the cross-loadings, the Fornell-Larcker criterion, and the HTMT ratio, together validate the attainment of discriminant validity for all components included in the model. In summary, the findings from the measurement model analysis provide evidence in favour of the requirements

of Partial Least Squares Structural Equation Modeling (PLS-SEM) in terms of internal consistency, convergent validity, and discriminant validity.

Reflective Measurement Model for the Higher-Order Constructs (Stage two)

The research used a discontinuous two-stage methodology for defining the higher-order structures. During the first phase, the estimation of the lower-order construct was conducted. During the second step, the latent variable scores of the lower-order constructs were used to estimate the higher-order models inside the route model, specifically without the inclusion of the higher-order component. These constructions are intrinsically interconnected with all other constructs that are theoretically associated with the higher-order construct. The estimation of the other components in the route model is conducted using their normal multi-item measures, as previously described in stage one.

Higher-order construct conceptualisation and specification

When researchers incorporate higher-order constructs into their studies, they are faced with two key decisions. Firstly, they must determine the measurement model specification for the lower-order components. Secondly, they must establish the relationship between the higher-order components and their corresponding lower-order components. These relationships can be either reflective or formative, as discussed by Jarvis et al. (2003). According to Sarstedt et al. (2019), research has put forward four distinct categories of higher-order constructs, namely reflective-reflective, reflective-formative, formative-reflective, and formative-formative.

The present investigation used the reflective-reflective higher-order model. The connection between the lower-order constructions and the higher-order construct is characterized by reflection. The research identified four overarching components derived from the UTAUT and TOE frameworks, including Individual factors (IF), Technological factors (TF), Organisational factors (OF), and Environmental factors (EF). The link between the higher-order and lower-order constructs is shown in Table 13.

Table 13: Relationship between Higher-Order and Lower-Order Construct

Higher-order constructs	Lower-order constructs
Technological factors (TF)	Cost-benefit (CB)
	Compatibility (CMP)
	Complexity (CPX)
	Relative Advantage (RA)
	Observability (OB)
	Trialability (TRL)
Organisational factors (OF)	Top Management Support (TMS)
	Technological Competence (TC)
Environmental factors (EF)	Audit Standards (AS)
	External pressure (EXP)
	Professional Body Support (PBS)
	Accounting Information System (AIS)
Individual factors (PF)	Performance Expectancy (PE)
	Effort Expectancy (EE)
	Social Influence (SI)
	Facilitating Condition (FC)

Source: Field study (2022)

Specifying higher-order constructs

One of the most notable methodologies for defining and evaluating higher-order constructs in Partial Least Squares Structural Equation Modeling (PLS-SEM) includes the extended repeated indicators technique and the two-stage approach, as proposed by Ringle, Sarstedt, and Straub in 2012. Becker et al. (2012) have shown that the use of the extended repeated indicators strategy leads to reduced biases in estimating the measurement model of a higher-order construct. On the other hand, the two-stage strategy demonstrates superior

parameter recovery in the routes leading from the exogenous constructions to the higher-order construct, as well as from the higher-order construct to an endogenous construct inside the path model. Both methodologies provide comparable outcomes (Sarstedt et al., 2019).

The research used the disjoint two-stage technique, a variant of the two-stage approach as described by Becker et al. (2012) and Sarstedt et al. (2019). The discontinuous two-stage technique involves the exclusion of the higher-order component in the route model during the first stage, focusing only on the lower-order components of the higher-order construct. These constructions are intrinsically interconnected with all other constructs that the higher-order construct is theoretically associated with. The construct scores of the lower-order components were preserved throughout the implementation of the disjoint two-stage technique. During the second step, the latent variable scores were then used to assess the higher-order construct.

Validating higher-order constructs

Partial Least Squares Structural Equation Modeling (PLS-SEM) is the recommended methodology for including reflecting structures into the structural model, as suggested by Hair et al. (2019). The evaluation of reflective measurement models encompasses many key aspects, including indicator loadings, internal consistency reliability, convergent validity, and discriminant validity, as outlined by Hair et al. (2019). All the indicators had factor loadings over the minimum acceptable threshold of 0.70, except complexity. Complexity showed a negative loading of -0.099 and was consequently excluded from the analysis. The information is shown in Table 14.

Table 14: Indicator Loadings (HOC)

Constructs		Loadings
Technological factors	CB	0.784
	CMP	0.759
	CPX	0.751
	RA	0.825
	OB	0.746
	TRL	0.756
Organisational factors	TMS	0.955
	TC	0.976
Environmental factors	AS	0.939
	EXP	0.914
	PBS	0.909
	AIS	0.861
Individual factors	PE	0.817
	EE	0.717
	SI	0.844
	FC	0.749
Audit automation adoption	AAA2	0.809
	AAA3	0.926
	AAA4	0.914
	AAA5	0.878
	AAA6	0.913
Corporate culture	CC1	0.756
	CC2	0.877
	CC3	0.854
	CC4	0.895
	CC5	0.858
	CC6	0.867
	CC7	0.878
Audit quality	AQ1	0.848
	AQ2	0.744
	AQ3	0.721
	AQ5	0.855
	AQ6	0.884
	AQ7	0.851
Technology training	TT	1.000
Firm size	FS	1.000

Source: Field data (2022)

(Note: AAA=Audit automation adoption, AIS=Accounting information systems, AQ=Audit quality, AS=Audit standards, CB=Cost benefit, CC=Corporate culture, CMP=Compatibility, CPX=Complexity, EXP=External pressure, EE=Effort expectancy, FC=Facilitation condition, FS=Firm size, OB=Observability, PBS=Professional body support, PE=Performance expectancy, RA=Relative advantage, SI=Social influence, TC=Technological competence, TMS=Top management support, TRL=Trialability, TT=Technological training)

The assessment of reliability was conducted with Cronbach's alpha and composite reliability. The statistics for both constructs are above the required threshold of 0.70, as shown in Table 14. This suggests that the dependability of the higher-order constructs is strong, according to Henseler et al. (2015). The convergent validity of the higher-order construct was deemed acceptable as shown by the fact that the average variance extracted (AVE) is above the minimum value of 0.50, as shown in Table 15.

Table 15: Reliability and Convergent Validity

Constructs	Cronbach's alpha	Composite reliability (rho_a)	Composite reliability (rho_c)	Average variance extracted (AVE)
AAA	0.933	0.942	0.949	0.790
AQ	0.842	0.962	0.866	0.524
CC	0.928	0.954	0.940	0.695
EF	0.927	0.940	0.948	0.821
TF	0.886	0.923	0.911	0.786
IF	0.729	0.777	0.825	0.545
OF	0.930	0.998	0.965	0.933

Source: Field data (2022)
(Note: AAA=Audit automation adoption, AQ=Audit quality, CC=Corporate culture, EF=Environmental factors, IF=Individual factors, OF=Organisational factors, TF=Technological factors)

In addition to evaluating reliability and validity, the evaluation also includes an examination of the discriminant validity of the higher-order components. To evaluate the discriminant validity of the higher-order constructs, we performed calculations for the cross-loadings, Fornell and Larcker (1981) criteria, and the HTMT ratio. The cross-loading findings (Table 16) indicate that the factor loadings of all the items exhibit greater strength on the underlying constructs to which they are associated, as opposed to the other constructs examined in the research. The findings from Fornell and Larcker's (1981) criteria indicate that the square root of the average variance extracted (AVE) for the construct surpasses its correlation with all

other constructs, as shown in Table 17. Additionally, the heterotrait-monotrait ratio of correlations (HTMT) is below the threshold of 0.90, as shown in Table 18.

Table 16: Cross loadings (HOC)

	AAA	AQ	CC	EF	FS	IF	OF	TF	TT
AAA2	0.809	0.246	0.294	0.249	-0.015	0.180	0.319	0.174	0.050
AAA3	0.926	0.314	0.442	0.365	0.004	0.335	0.427	0.308	0.074
AAA4	0.914	0.326	0.476	0.341	-0.032	0.308	0.421	0.268	0.123
AAA5	0.878	0.281	0.276	0.238	-0.020	0.208	0.429	0.210	0.085
AAA6	0.913	0.361	0.344	0.261	0.022	0.236	0.340	0.218	0.128
AIS	0.243	0.110	0.175	0.861	-0.071	0.469	0.350	0.579	-0.016
AQ1	0.134	0.585	0.081	-0.088	-0.093	-0.011	-0.038	0.053	0.037
AQ2	0.131	0.644	0.101	0.011	-0.081	0.013	-0.068	0.106	-0.004
AQ3	0.063	0.672	0.117	-0.017	-0.060	0.019	-0.085	0.041	-0.058
AQ5	0.116	0.655	0.077	-0.040	-0.007	-0.024	-0.094	-0.028	0.039
AQ6	0.368	0.884	0.369	0.253	-0.012	0.137	0.082	0.255	0.034
AQ7	0.377	0.851	0.331	0.263	0.018	0.171	0.129	0.245	0.089
AS	0.334	0.164	0.173	0.939	-0.013	0.464	0.338	0.534	0.005
CB	0.067	-0.040	-0.081	0.273	0.104	0.592	0.141	0.078	0.090
CC1	0.713	0.391	0.556	0.343	-0.086	0.273	0.271	0.325	0.141
CC2	0.254	0.252	0.877	0.123	-0.065	0.098	0.059	0.289	0.042
CC3	0.233	0.239	0.854	0.161	-0.027	0.116	0.014	0.346	0.015
CC4	0.192	0.158	0.895	0.118	0.002	0.089	0.010	0.236	0.055
CC5	0.132	0.154	0.858	0.081	-0.019	0.032	-0.009	0.202	0.036
CC6	0.184	0.218	0.867	0.123	-0.016	0.138	0.013	0.243	0.045
CC7	0.224	0.191	0.878	0.124	0.002	0.100	0.012	0.275	0.031
CMP	0.107	0.066	-0.033	0.322	0.057	0.620	0.189	0.359	0.086
CPX	0.008	-0.093	-0.183	0.166	0.081	0.475	0.195	-0.151	0.006
EE	0.206	0.045	0.007	0.318	0.025	0.617	0.241	0.224	0.090
EXP	0.323	0.138	0.216	0.914	0.020	0.487	0.340	0.585	0.070
FC	0.112	0.033	-0.033	0.263	-0.007	0.649	0.234	0.242	0.142
FS	-0.009	-0.030	-0.049	-0.003	1.000	0.007	0.003	-0.025	-0.011
OB	0.076	0.002	-0.046	0.298	0.033	0.650	0.278	0.175	0.162
PBS	0.288	0.234	0.243	0.909	0.037	0.449	0.330	0.592	-0.023
PE	0.210	0.083	0.248	0.374	0.041	0.817	0.330	0.398	0.105
RA	0.171	0.022	0.152	0.362	0.038	0.732	0.391	0.425	0.162
SI	0.276	0.145	0.202	0.493	-0.030	0.844	0.467	0.382	0.194
TC	0.475	0.085	0.116	0.412	0.003	0.461	0.976	0.286	0.132
TMS	0.355	-0.016	0.075	0.290	0.002	0.416	0.955	0.247	0.136
TRL	0.242	0.117	0.253	0.731	0.025	0.442	0.296	0.756	0.033
TT	0.105	0.049	0.078	0.011	-0.011	0.183	0.138	0.095	1.000

Source: Field data (2022)

(Note: AAA=Audit automation adoption, AIS=Accounting information systems, AQ=Audit quality, AS=Audit standards, CB=Cost benefit, CC=Corporate culture, CMP=Compatibility, CPX=Complexity, EXP=External pressure, EE=Effort expectancy, FC=Facilitation condition, FS=Firm size, OB=Observability, PBS=Professional body support, PE=Performance expectancy, RA=Relative advantage, SI=Social influence, TC=Technological competence, TMS=Top management support, TRL=Trialability, TT=Technological training)

Table 17: Fornell and Larcker (1981) Criterion (HOC)

	AAA	AQ	CC	EF	TF	FS	IF	OF	TT
AAA	0.889								
AQ	0.346	0.724							
CC	0.418	0.319	0.834						
EF	0.331	0.182	0.224	0.906					
TF	-0.551	0.111	0.388	0.033	0.819				
FS	-0.009	-0.030	-0.049	-0.003	0.035	1.000			
IF	0.290	0.118	0.179	0.514	0.166	0.007	0.738		
OF	0.439	0.044	0.102	0.372	0.215	0.003	0.456	0.966	
TT	0.105	0.049	0.078	0.011	0.090	-0.011	0.183	0.138	1.000

Source: Field data (2022)

(Note: AAA=Audit automation adoption, AQ=Audit quality, CC=Corporate culture, EF=Environmental factors, FS=Firm size, IF=Individual factors, OF=Organisational factors, TF=Technological factors, TT=Technological training)

Table 18: HTMT (HOC)

Construct	AAA	AQ	CC	EF	FS	IF	OF	TF	TT
AAA									
AQ	0.297								
CC	0.349	0.233							
EF	0.349	0.193	0.197						
FS	0.022	0.066	0.039	0.040					
IF	0.322	0.101	0.213	0.596	0.041				
OF	0.458	0.126	0.069	0.393	0.003	0.517			
TF	0.355	0.054	0.115	0.165	0.015	0.350	0.651		
TT	0.107	0.063	0.065	0.033	0.011	0.209	0.144	0.785	

Source: Field data (2022)

(Note: AAA=Audit automation adoption, AQ=Audit quality, CC=Corporate culture, EF=Environmental factors, FS=Firm size, IF=Individual factors, OF=Organisational factors, TF=Technological factors, TT=Technological training)

Structural Model Assessment

The evaluation of the structural model was conducted after the establishment of the measuring model for both the lower and higher-order components. The structural model assesses the associations between the constructs that are considered independent variables and those that are considered dependent variables. According to Becker, Klein, and Wetzels (2012), the structural model encompasses the statistical tests and hypothesized connections that are used to quantify the associations between the independent and dependent variables. According to Hair et al. (2019), it is important to

consider the standard assessment criteria when evaluating a structural model. These criteria include examining the presence of collinearity issues in the structural model, evaluating the significance and relevance of the relationships within the model, analyzing the coefficient of determination (R^2), and assessing the statistical significance and relevance of the path coefficients (f^2). Therefore, to ensure clarity and maintain consistency, the analysis of findings is structured following the aforementioned methodology.

Collinearity assessment

According to Hair et al. (2019), it is necessary to evaluate collinearity before examining the structural correlations to mitigate any potential bias that may arise in the regression findings. According to Hair et al. (2019), predictor constructs with Variance Inflation Factor (VIF) values over 10 are likely to exhibit collinearity concerns. The Variance Inflation Factor (VIF) values for all the constructs are below the established threshold, indicating the lack of multicollinearity among the exogenous constructs. According to the data shown in Table 19, it can be seen that there are no instances of multicollinearity among the constructs.

Table 19: Collinearity Diagnostics

	AQ
AAA	2.058
CC	1.535
EF	2.089
FS	1.065
IF	1.806
OF	1.927
TF	1.920
TT	1.133

Source: Field data (2022)

(Note: AAA=Audit automation adoption, AQ=Audit quality, CC=Corporate culture, EF=Environmental factors, FS=Firm size, IF=Individual factors, OF=Organisational factors, TF=Technological factors, TT=Technological training)

Coefficient of determination (R square)

The coefficient of determination, denoted as R square, quantifies the proportion of variation in the endogenous constructs that is accounted for by the model. As such, it serves as an indicator of the model's ability to explain and predict outcomes within the sample (Becker, Klein, & Wetzels, 2012). The R^2, also known as the coefficient of determination, quantifies the proportion of variability in the response variable that can be explained by the predictor variables. The coefficient of determination, denoted as R^2, is a statistical measure that varies between 0 and 1. Higher values of R^2 indicate a stronger ability to explain the variability in the data. According to Henseler et al. (2015) and Hair et al. (2019), R^2 values of 0.75, 0.50, and 0.25 may be classified as considerable, moderate, and weak, respectively. Based on the findings of Hair et al. (2019) and Sarstedt et al. (2019), it has been established that a coefficient of determination value of at least 10% is deemed appropriate.

The findings presented in Table 20 demonstrate an R^2 coefficient of determination of 0.593. This suggests that around 59.3% of the variability in audit quality may be ascribed to external components. The model's explanatory capacity might be characterized as modest. Given that the calculated value exceeds the established threshold of 0.1, it can be concluded that the structural model satisfies the criterion of possessing predictive capability.

Table 20: Coefficient of Determination (R-square)

	R-square	R-square adjusted
AAA	0.729	0.712
AQ	0.593	0.518

Source: Field data (2022)

(Note: AAA=Audit automation adoption, AQ=Audit quality)

Effect size (f^2) assessment

Previous studies (Hair et al., 2019; Henseler et al., 2015) have shown that relying only on the coefficient of determination for model selection is not suitable. Hence, advocates of Partial Least Squares Structural Equation Modeling (PLS-SEM) propose the inclusion of further examinations, such as evaluating the magnitude of the impact and the predictive significance of the structural model.

The f^2 effect size is used to evaluate the contribution of each external construct to the R^2 value of the endogenous construct. The effect size, denoted as f^2, quantifies the magnitude of change in the coefficient of determination that occurs when a designated independent variable is eliminated from the model. According to Hair et al. (2017), this metric assesses the extent to which the removal of a certain variable has a significant impact on the dependent variable. The F^2 statistic quantifies the extent to which the independent constructs are associated with the endogenous constructs. According to Cohen (1992), when evaluating the impact size, values of f^2 equal to 0.02, 0.15, and 0.35 are indicative of weak, medium, and high effects, respectively.

The impact sizes of the several exogenous constructions are shown in Table 21. The adoption of audit automation, corporate culture, environmental variables, and organisational factors exhibited moderate impact sizes, while firm size, individual factors, and technological training showed medium effect sizes. The impact of technological elements shows a significant effect size.

Table 21: Effect Sizes (f^2)

	AQ
AAA	0.065
CC	0.026
EF	0.038
FS	0.167
IF	0.232
OF	0.028
TF	0.638
TT	0.151

Source: Field data (2022)

(Note: AAA=Audit automation adoption, AQ=Audit quality, CC=Corporate culture, EF=Environmental factors, FS=Firm size, IF=Individual factors, OF=Organisational factors, TF=Technological factors, TT=Technological training)

Model fit statistics

While SmartPLS software now offers fit indices for evaluating model fit in PLS, it is important to note that Hair et al. (2019) have advised care in interpreting these fit indices. They highlight that the crucial thresholds for these fit indices are not yet completely established and understood, and so should be used judiciously. The model fit is evaluated using many indices, including the Standardised Root Mean Square Residual (SRMR), the Normed fit index (NFI), and the Chi-square. The calculation of the SRMR involves the conversion of both the sample covariance matrix and the predicted covariance matrix into correlation matrices. The disparity lies in the contrasting correlation matrix derived from observations and the correlation matrix derived from the model. Therefore, this enables the evaluation of the average extent of differences between actual and predicted correlations as an absolute indicator of the criteria for evaluating the fit of the model. According to Hair et al. (2019), the indices indicate that the model's Standardised Root Mean Square Residual (SRMR) should be within the range of 0.01 to 0.08. The standardized root mean square residual (SRMR) is a metric used to assess the

absolute fit of a model. According to Hair et al. (2019), an SRMR value of zero implies a perfect fit. Normed fit index (NFI) values over 0.8 are seen to be somewhat acceptable, and values beyond 0.9 indicate an excellent match. The chi-square of the model, determined by dividing the estimated chi-square value by the degrees of freedom, should ideally be below 3.

According to the data shown in Table 22, it can be seen that the SRMR value of the model is 0.063. This value is above the threshold of 0.08 but remains below the maximum threshold of 0.10. Consequently, based on the SRMR criterion, it can be concluded that the model exhibits a satisfactory level of fit. Furthermore, given that the model's NFI score of 0.827 is above the minimal threshold of 0.80, it may be concluded that the model exhibits a marginal level of fit.

Table 22: SmartPLS Model Fit Summary

	Saturated model	Estimated model
SRMR	0.063	0.275
d_ULS	1.172	22.623
d_G	0.549	n/a
Chi-square	620.013	n/a
NFI	0.827	n/a

Source: Field data (2022)

Path Analysis Assessment

Following an evaluation of the structural model, a path analysis was performed to derive t-statistics to determine the significance of the hypothesized associations. There are three criteria for assessing the importance of path coefficients, namely a t statistic larger than or equal to 1.65 (with corresponding p-values less than or equal to 10%), 1.95 (with corresponding p-values less than or equal to 5%), and 2.57 (with corresponding p-values less than or equal to 1%). The investigation revealed a statistically significant amount of findings. The research used t-values of 1.95, considering a p-value

of less than or equal to 5% as statistically significant. The investigation examined a total of 18 theories. The structural route coefficients have been arranged following the study aims and assumptions, taking into consideration their magnitude and relevance.

Hypotheses Testing

Mediation analysis

To create mediation, it is necessary for the following requirements to be met, as outlined by Baron and Kenny (1986). Firstly, the levels of the independent variable have a significant impact on the variations observed in the presumed mediator. This implies that the independent variable has an effect on the mediator (path a). Secondly, the variations in the mediator significantly explain the variations observed in the dependent variable. This suggests that the mediator has an effect on the dependent variable (path b). Lastly, when both paths a and b are taken into account, the previously observed significant relationship between the independent and dependent variables becomes non-significant. This indicates that the independent variable must be demonstrated to have an effect on the dependent variable, with the strongest evidence of mediation occurring when path c is equal to zero.

Baron and Kenny (1986) argue that the support for mediation is most robust when there exists an indirect impact without a concurrent direct effect, which is sometimes referred to as "full or complete mediation." When a situation has both indirect and direct impacts, it may be referred to as "partial mediation." On the other, in cases when the indirect impact is shown to be statistically negligible, it might be concluded that there is no evidence of mediation.

In contrast, Zhao, Lynch, and Chen (2010) argue that the establishment of mediation may be achieved with a single criterion, namely the significance of the indirect impact. The authors categorised mediation into four distinct types: complementary mediation, competitive mediation, indirect-only mediation, and direct-only mediation. The following paragraphs provide an overview of the findings derived from the six objectives and eighteen hypotheses.

Objective one

The first objective of this research was to assess the mediating effect of the audit automation adoption (AAA) on individual factors, technological factors, organisational factors, environmental factors (IF, TF, OF, EF), and audit quality (AQ). The present study examined the goal by formulating four hypotheses. The resultant outcomes of the study demonstrate that audit automation adoption did not have a mediation effect on individual factors, technological factors, organisational factors, environmental factors and audit quality. The results of the hypotheses are as follows.

The mediation effect of audit automation adoption on individual factors and audit quality

The Hypothesis 1a was to investigate the mediating effect of audit automation adoption on individual factors (IF) and audit quality (AQ). The findings from Table 23 indicate that the total effect of IF on AQ was statistically significant ($\beta = 0.272$, $t = 1.993$, $p = 0.046$). Furthermore, even after accounting for the mediator, the direct effect remained statistically significant, as shown in Table 24 ($\beta = 0.271$, $t = 1.988$, $p = 0.047$). The observed association between the variables IF, AAA, and AQ was found to be

positive, however it did not reach statistical significance (β = 0.001, t = 0.048, p = 0.962). Therefore, the use of audit automation does not have a mediating influence on individual variables and audit quality. The findings are succinctly presented in the structural model shown in Figure 2.

Table 23: Total and Direct Effect

Total effect (IF -> AQ)			Direct effect (IF -> AQ)		
Coefficient	t-value	p-value	Coefficient	t-value	p-value
0.272	1.993	0.046	0.271	1.988	0.047

Source: Field data (2022)

Table 24: Indirect Effect

Relationship	Coefficient	t-value	p-values
H1a: IF ->AAA -> AQ	0.001	0.048	0.962

Source: Field data (2022)

This implies that individual characteristics, including performance expectation, effort expectancy, facilitating conditions, and social influence, have a favourable and statistically significant impact on audit quality. Therefore, it may be inferred that individual factors contribute to the improvement of audit quality. This discovery provides evidence supporting the applicability of the resource-based view (RBV) in elucidating the impact of individual factors on audit quality. Consequently, it can be concluded that individual factors play a significant role in determining audit quality. This conclusion provides support for the existing body of research (Suyono, 2012; Zahmatkesh & Rezazadeh, 2017; Zainudin, Aswar, Lastiningsih, Sumardjo & Taufik 2021; Owino & Musuva, 2021).

The findings from Table 24 suggest that the indirect effect is positive and insignificant. In the context of performance expectation, the auditor expressed a desire for the use of audit automation to improve the implementation of analytical processes, hence facilitating the exercise of

informed auditor judgment. However, the findings suggest that this is not the situation. This implies that audit quality may be influenced by individual factors, even in the absence of adopting audit automation. This suggests that the automation used may have been ill-suited for the audit procedures, resulting in its failure to meet the anticipated standards of audit quality. This conclusion provides support for the research conducted by Mardian and Avianti (2019), which concluded that the adoption of Computer-Assisted Audit Techniques (CAATs) did not have a statistically significant impact on audit quality. This conclusion contradicts the task technology fit theory, which posits that technology has the potential to improve outcomes, such as audit quality.

The mediation effect of audit automation adoption on technological factors and audit quality

Hypothesis 1b examined the mediation effect of audit automation adoption (AAA) on technological factors (TF) and audit quality (AQ). The results (Table 25) revealed that the total effect of TF on AQ was significant (β = 0.307, t = 2.343, p = 0.019), with the inclusion of the mediator, the direct effect became insignificant (β = 0.258, t = 1.910, p = 0.056). The indirect relationship (Table 26) TF -> AAA -> AQ was positive but not significant (β = 0.049, t = 1.910, p = 0.380). Hence, audit automation does not mediate the relationship between technological factors and audit quality. The results are summarised in the structural model in Figure 2.

Table 25: Total and Direct Effect

Total effect (TF -> AQ)			Direct effect (TF -> AQ)		
Coefficient	t-value	p-value	Coefficient	t-value	p-value
0.307	2.343	0.019	0.258	1.910	0.056

Source: Field data (2022)

Table 26: Indirect Effect

Relationship	Coefficient β	t-value	p-values
TF ->AAA -> AQ	0.049	0.878	0.380

Source: Field data (2022)

The result (Table 25) indicates that the direct effect of the relationship between technological factors and audit quality is positive but insignificant. This implies that the use of TF does not contribute to the improvement of audit quality. This discovery provides more evidence in line with other scholarly research (Kimunguyi, 2020; Lee, Su, Tsai, Lu, & Dong, 2016). This suggests that if the implementation of audit automation is not aligned with the firm's established values and beliefs, it will hinder the auditors' ability to exercise sound judgment throughout the audit process and produce the necessary audit report. The findings of Ghanem and Hamid (2021) and Noor et al. (2022) provide a contrasting perspective, since they indicate a statistically significant negative association between technical elements and the performance of small and medium-sized enterprises (SMEs). This finding provides more evidence supporting the notion that the improvement in audit quality, as explicated by the Technology-Organization-Environment (TOE) architecture, may be attributed to technology.

The indirect effect (Table 26) was positive but insignificant. This suggests that audit automation adoption does not mediate the relationship between technological factors and audit quality. The use of technological factors has the potential to improve audit quality even in the absence of adopting audit automation. This conclusion provides support for the research conducted by Mardian and Avianti (2019), which concluded that the adoption of Computer-Assisted Audit Techniques (CAATs) did not have a statistically significant impact on audit quality. This discovery is in opposition to the

outcomes documented in previous scholarly works (Chong & Lim, 2022; Ghanem & Hamid, 2021).

This discovery contradicts the anticipated outcome based on the task technology fit theory. According to this theoretical framework, the implementation of audit automation adoption is expected to improve audit quality. However, the findings of the study indicate otherwise, since the results were not statistically significant. According to the research conducted by Ghanem and Hamid (2021), their findings suggest that the adoption of social media plays a crucial role in mediating the connection between technical elements and the performance of small and medium-sized enterprises (SMEs).

The mediation effect of audit automation adoption on organisational factors and audit quality

The study investigated the potential mediating effect of audit automation implementation on the association between organisational factors (OF) and audit quality (AQ), as outlined in Hypothesis 1c. The findings from Table 27 indicate that there was a significant overall effect of organisational factors on audit quality (β = -0.302, t = 2.343, p = 0.019). However, when considering the mediator, the direct effect was found to be insignificant (β = 0.007, t = 0.057, p = 0.955). The connection between OF and AQ, mediated by AAA, was found to be negative and statistically insignificant (β = -0.039, t = 0.881, p = 0.378), as shown in Table 28. Therefore, the implementation of audit automation does not operate as a mediator in the relationship between organisational factors and audit quality. The findings are succinctly presented in the structural model shown in Figure 2.

Table 27: Total and Direct Effect

Total effect (OF -> AQ)			Direct effect (OF -> AQ)		
Coefficient	t-value	p-value	Coefficient	t-value	p-value
-0.032	0.256	0.798	0.007	0.057	0.955

Source: Field data (2022)

Table 28: Indirect Effect

Relationship	Coefficient β	t-value	p-values
OF ->AAA -> AQ	-0.039	0.881	0.378

Source: Field data (2022)

The findings from Table 27 suggest that there is a positive but statistically insignificant direct relationship between organisational factors and audit quality. This implies that organisational factors do not have any effect on audit quality. This finding supports the research conducted by Ghanem and Hamid (2021), which revealed a favourable although statistically insignificant correlation between organisational characteristics and the performance of small and medium-sized enterprises (SMEs). This finding provides further evidence that organisational factors are not a sufficient explanation for the observed increase in audit quality. This finding contradicts the anticipated outcome of the TOE paradigm, which posited that organisational characteristics would have a positive impact on audit quality.

According to the findings shown in Table 28, it can be seen that the indirect impact exhibits a negative and statistically insignificant relationship. This suggests that the use of audit automation does not have a moderating impact on organisational characteristics and audit quality. This phenomenon might perhaps be attributed to the intricate nature of automation systems. This presents challenges in terms of implementation. It is necessary for management to develop a plan for acquiring and implementing audit

automation in order to maximise its use and effectively address any potential opposition from auditors.

This conclusion provides support for the research conducted by Mardian and Avianti (2019), which concluded that the use of Computer-Assisted Audit Techniques (CAATs) did not have a statistically significant impact on audit quality. This discovery presents a contradiction to previous research conducted by Yeboah-Boateng and Essandoh (2014), Ghanem and Hamid (2021), and Chong and Lim (2022). Ghanem and Hamid (2021) conducted research that shown a positive and substantial mediating effect of social media adoption on the link between organisational characteristics and small and medium-sized enterprise (SME) performance. Furthermore, this discovery is incongruent with the task technology fit idea, which asserts that the integration of technology would augment audit quality.

Audit automation adoption mediates the relationship between environmental factors and audit quality

Hypothesis 1d examined the mediation effect of audit automation adoption in the relationship between environmental factors (EF) and audit quality (AQ). The results (Table 29) revealed that the total effect of EF on AQ was insignificant (β = -0.042, t = 0.419, p = 0.675), with the inclusion of the mediator, the direct effect was still insignificant (β = -0.022, t = 0.220, p = 0.826). The indirect relationship (Table 30) TF -> AAA -> AQ was negative and insignificant (β = -0.020, t = 0.751, p = 0.453). Hence, audit automation adoption does not mediate the relationship between environmental factors and audit quality. The results are summarised in the structural model in Figure 2.

Table 29: Total and Direct effect

Total effect (EF -> AQ)			Direct effect (EF -> AQ)		
Coefficient	t-value	p-value	Coefficient	t-value	p-value
-0.042	0.419	0.675	-0.022	0.220	0.826

Source: Field data (2022)

Table 30: Indirect effect

Relationship	Coefficient β	t-value	p-values
EF ->AAA->AQ	-0.020	0.751	0.453

Source: Field data (2022)

The result (Table 29) indicates that the direct effect of the relationship between environmental factors and audit quality is negative and insignificant. This means that environmental factors (audit standards, competitive pressure, perceived professional body support, clients' accounting information system) do not have any effect on audit quality. On the contrary, it has the potential to adversely influence audit quality. This further suggests that environmental factors do not explain the improvement in audit quality. This is contrary to the expectation of the TOE framework where it was expected that environmental factors will enhance audit quality. This finding is contrary to prior studies (Alawaqleh, 2020; Ghanem & Hamid, 2021). A study by Ghanem and Hamid (2021) indicates a positive but insignificant relationship between environmental factors and SME performance while Alawaqleh (2020) concluded that accounting information systems (AIS) significantly and positively impact internal audit quality.

The result (Table 30) indicates that the indirect effect is negative and insignificant. This indicates that audit automation adoption does not have any effect on the relationship between environmental factors and audit quality. This finding corroborates the study of Mardian and Avianti (2019) where it was found that CAAT adoption does not have any significant effect on audit

quality. This finding is contrary to prior studies (Yeboah-Boateng & Essandoh, 2014; Ghanem & Hamid, 2021; Chong & Lim, 2022). A study by Chong and Lim (2022) where data analytics mediated the relationship between environmental factors and operational performance indicated a positive and significant relationship. The study of Ghanem and Hamid (2021) indicated that social media adoption positively and significantly mediates the relationship between environmental factors and SME performance. In addition, this finding does not agree with the task technology fit theory which posits that the adoption of technology will enhance audit quality.

Moderation analysis

Moderation analysis was carried out for objectives two to six. Baron and Kenny (1986) define a moderator as a variable that has an influence on the direction and/or magnitude of the association between an independent variable and a dependent variable. The hypothesis on the role of the moderator is considered to be validated when there is a substantial interaction, as proposed by Baron and Kenny (1986). The following paragraphs provide a discussion of the outcomes of the moderating process.

Objective two

The second objective of the study was to examine the moderation role of corporate culture in the relationship between audit automation adoption (AAA) and audit quality (AQ). The discussion of the result of the hypothesis is as follows.

The moderation effect of corporate culture on audit automation adoption and audit quality

Hypothesis 2 examined the moderating effect of corporate culture on audit automation adoption and audit quality. Moderation analysis was performed to evaluate the role of the corporate culture (CC) in the relationship between audit automation adoption (AAA) and audit quality (AQ). The PLS-SEM results displayed in Table 31 revealed that audit automation adoption has a negative and insignificant effect on audit quality (β = -0.075, t = 0.977, p = 0.329). When the moderator variable (corporate culture) was introduced, the results (Table 32) remained negative and insignificant (β = -0.030, t = 0.545, p = 0.586). This indicates that corporate culture does not moderate the relationship between audit automation adoption and audit quality. The results are summarised in the structural model in figure 2.

Table 31: Path coefficient

Relationship	Coefficient β	t-statistics	p-values
AAA -> AQ	-0.075	0.977	0.329

Source: Field data (2022)

Table 32: Moderation analysis

Relationship	Coefficient β	T statistics	P values
CC * AAA -> AQ	-0.030	0.545	0.586

Source: Field data (2022)

The result (Table 31) indicates a negative and insignificant relationship between audit automation adoption and audit quality. This finding corroborates with previous studies (Noor, Sanusi, Johari, Al-Dhubaibi, Hudayati, & Razak, 2022; Ghanem & Hamid, 2021; Owino & Musuva. 2021). Furthermore, this outcome is incongruent with the Technology Task Fit Theory, which asserts that the integration of technology would augment audit quality. The findings of this study are in opposition to the existing body of

research (Almasria, Airout, Samara, Saadat & Jrairah, 2021; Li et al., 2018; Appelbaum, Kogan, Vasarhelyi, & Yan, 2017; Mahzan & Lymer, 2014; Al-Jabri & Sohail, 2012; Venkatesh & Davis, 2003; Braun & Davis, 2003).

The results of the study indicate that the impact of corporate culture on both the adoption of audit automation and audit quality was found to be statistically insignificant. This finding is in agreement with prior literature (Manita, Elommal, Baudier, & Hikkerova, 2020; Kwarteng & Aveh, 2018; Okaro & Okafor, 2015). The research conducted by Okaro and Okafor (2015) reveals a statistically significant and inverse association between cultural characteristics and audit quality. According to Alawaqleh's (2020) findings, there is evidence to suggest that organisational culture plays a partly mediating role in the link between AIS and internal audit quality. Furthermore, Dasgupta and Gupta (2012) assert that the adoption of internet technologies is influenced by organisational culture.

Objective three

The third objective of the study was to investigate the moderation effect of corporate culture on individual factors, technological factors, organisational factors, environmental factors and audit quality. This objective was analysed into four hypotheses. The results of the hypotheses are as follows.

The moderation effect of corporate culture individual factors and audit quality

The study investigated the potential moderating effect of corporate culture (CC) on the relationship between individual factors (IF) and audit quality (AQ), as outlined in Hypotheses 3a. The findings of the Partial Least

Squares Structural Equation Modeling (PLS-SEM) analysis, as shown in Table 33, indicate a statistically significant positive connection between the independent variable (IF) and the dependent variable (AQ) ($\beta = 0.271$, $t = 1.988$, $p = 0.047$, $p < 0.05$). Upon the introduction of the moderator variable, namely the corporate culture, the obtained findings from Table 34 exhibited a lack of statistical significance ($\beta = 0.148$, $t = 1.714$, $p = 0.087$). This finding suggests that the influence of individual variables on audit quality is not moderated by organisational culture. The findings are succinctly presented in the structural model shown in Figure 2.

Table 33: Relationship between IF and AQ

Relationship	Coefficient β	T statistics	P values
IF -> AQ	0.271	1.988	0.047

Source: Field data (2022)

Table 34: Moderation analysis

Relationship	Coefficient β	T statistics	P values
CC * IF -> AQ	0.148	1.714	0.087

Source: Field data (2022)

The result (Table 33) indicates a positive and significant relationship between individual factors and audit quality. This means that individual factors (performance expectancy, effort expectancy, facilitating conditions and social influence) promote high audit quality. This is explained by the resource-based view which asserts that individual factor promotes high audit quality. This finding corroborates with prior literature (Owino & Musuva, 2021; Zainudin, Aswar, Lastiningsih, Sumardjo & Taufik 2021; Zahmatkesh & Rezazadeh, 2017; Mahzan & Lymer, 2014; Suyono, 2012).

The results indicate that the moderation role of corporate culture in the relationship between individual factors and audit quality is insignificant (Table 34). This finding supports previous literature (Alberti, Bedard, Bik &

Vanstraelen, 2022; Diya, 2022; Ramezani, Azinfar, Roshan, & Fallah, 2022; Alawaqleh, 2021; Ballestero, 2023; Dasgupta & Gupta, 2019; Amali, Hadjaratie & Suhada, 2018; Salehzadeh, Pool, Mohseni & Tahani, 2017; Tam & Oliveira, 2017; Ahmed & Shafiq, 2014).

The moderation effect of corporate culture on technological factors and audit quality

Hypothesis 3b investigated the potential moderating influence of corporate culture on the relationship between technological factors (TF) and audit quality (AQ). The PLS-SEM results displayed in Table 35 revealed that the relationship between TF and AQ was positive and insignificant ($\beta = 0.258$, $t = 1.910$, $p = 0.056$). When the moderator variable (corporate culture) was introduced, the results (Table 36) became negative and significant ($\beta = -0.501$, $t = 4.273$, $p < 0.001$). This shows that the relationship between technological factors and audit quality is weakened in the presence of corporate culture. This indicates that corporate culture moderates the relationship between technological factors and audit quality. The results are summarised in the structural model in Figure 2.

Table 35: Relationship between TF and AQ

Relationship	Coefficient β	T statistics	P values
TF -> AQ	0.258	1.910	0.056

Source: Field data (2022)

Table 36: Moderation analysis

Relationship	Coefficient β	T statistics	P values
CC * TF -> AQ	-0.501	4.273	0.000

Source: Field data (2022)

The result (Table 35) indicates a positive and insignificant relationship between technological factors and audit quality. A possible reason could be

that when auditors do not have input into decisions that affect them such as management's decision to acquire new technology, they will not be motivated to implement the automation adopted. In addition, auditors will not be willing to undertake the training that will earn them the skills to effectively use the new automation by the firm. Additionally, the incompatibility of audit automation with existing structures and systems has the potential to weaken audit quality. This finding corroborates with prior literature (Kimunguyi, 2020; Hassani, Okar, Talea, & Ouiddad, 2019; Lee et al., 2016).

The results indicate that corporate culture moderates the effect of technological factors on audit quality. Precisely, the result revealed that the relationship between technological factors and audit quality is weakened in the presence of corporate culture (Table 36). A possible reason could be over familiarity with the audit automation usage leads to negative outcomes. In addition, a culture where clients' comments and recommendations often lead to changes in the organisation can make it difficult for management to adopt particular audit automation. Again, which clients' recommendation is the audit firm going to adopt? It also has the potential to be counter-productive since the audit client is the one being audited and it's the same one making the recommendation to the audit firm as to the type of automation to use. This can result in a waste of time in the adoption of audit automation which will eventually delay the efficiency that it hopes to achieve. This result is in agreement with prior studies (Ballestero, 2023; Dasgupta & Gupta, 2019; Amali, Hadjaratie & Suhada, 2018; Zhao et al., 2018; Tam & Oliveira, 2017; Ahmed & Shafiq, 2014; Kustinah, 2013).

The moderation effect of corporate culture on organisational factors and audit quality

The study investigated the potential moderating effect of corporate culture (CC) on the association between organisational factors (OF) and audit quality (AQ), as outlined in Hypotheses 3c. The findings of the partial least squares structural equation modeling (PLS-SEM) analysis, as shown in Table 37, indicated that the association between OF and AQ exhibited a positive but statistically insignificant link (β = 0.007, t = 0.057, p = 0.955). Upon the introduction of the moderator variable, namely corporate culture, the findings shown in Table 38 continued to exhibit insignificance (β = 0.220, t = 1.817, p = 0.069). This finding suggests that the influence of corporate culture on the connection between organisational characteristics and audit quality is not significant. The findings are succinctly presented in the structural model shown in Figure 2.

Table 37: Relationship between OF and AQ

Relationship	Coefficient β	T statistics	P values
OF -> AQ	0.007	0.057	0.955

Source: Field data (2022)

Table 38: Moderation analysis

Relationship	Coefficient β	T statistics	P values
CC * OF -> AQ	0.220	1.817	0.069

Source: Field data (2022)

The result (Table 37) indicates a positive but insignificant relationship between organisational factors and audit quality. This means that top management support and technical competence don't have any influence on audit quality. This finding is contrary to prior literature (Chong & Lim, 2022; Ghanem & Hamid, 2021; Younus & Raju, 2021; Yeboah-Boateng & Essandoh, 2014).

The introduction of the moderator corporate culture in the relationship between organisational factors and audit quality was not insignificant (Table 38). This implies that corporate culture does not moderate the relationship between organisational factors and audit quality. This corroborates the prior literature (Alberti, Bedard, Bik & Vanstraelen, 2022; Ballestero, 2023; Dasgupta & Gupta, 2019; Amali, Hadjaratie & Suhada, 2018; Zhao et al., 2018; Tam & Oliveira, 2017; Ahmed & Shafiq, 2014; Kustinah, 2013).

The moderation effect of corporate culture on environmental factors and audit quality

Hypothesis 3d investigated the potential moderating influence of company culture on the relationship between environmental factors (EF) and audit quality (AQ). The findings of the partial least squares structural equation modeling (PLS-SEM) analysis, as shown in Table 39, indicate that the association between EF and AQ was found to be negative and statistically non-significant (β = -0.022, t = 0.220, p = 0.826). Upon the introduction of the moderator variable, namely corporate culture, the findings shown in Table 40 exhibited a positive but statistically insignificant relationship (β = 0.046, t = 0.538, p = 0.591). This finding suggests that the influence of company culture on the association between environmental characteristics and audit quality is not significant. The findings are succinctly presented in the structural model shown in Figure 2.

Table 39: Relationship between OF and AQ

Relationship	Coefficient β	T statistics	P values
EF -> AQ	-0.022	0.220	0.826

Source: Field data (2022)

Table 40: Moderation analysis

Relationship	Coefficient β	T statistics	P values
CC * EF -> AQ	0.046	0.538	0.591

Source: Field data (2022)

The result (Table 39) indicates a negative and insignificant relationship between environmental factors and audit quality. This means that environmental factors, audit standards, competitive pressure, perceived level of professional body support, and the client's accounting information system, do not affect audit quality. This finding is contrary to prior studies (Ghanem & Hamid, 2021; Alawaqleh, 2020). The introduction of the moderator variable corporate culture did not have any effect on the relationship between environmental factors and audit quality (Table 40). The result confirms prior literature (Kwarteng & Aveh, 2018; Alawaqleh, 2020).

Objective four

The fourth goal of the study examined the potential moderating influence of TT on person variables, technological factors, organisational factors, environmental factors, and the adoption of audit automation. The present study examined the goal by formulating four hypotheses. The findings pertaining to the hypotheses are presented as follows.

The moderation effect of technological training on individual factors and audit automation adoption

The study investigated the potential moderating role of technology training (TT) in the association between individual factors (IF) and the adoption of audit automation (AAA), as outlined in Hypotheses 4a. The findings of the partial least squares structural equation modeling (PLS-SEM) analysis, as shown in Table 41, indicate that the association between independent variable (IF) and dependent variable (AAA) was found to be

negative and statistically insignificant (β = -0.014, t = 0.075, p = 0.940). Upon the introduction of the moderator variable, namely technical training, the findings shown in Table 42 exhibited a statistically significant and positive relationship (p < 0.05, β = 0.562, t = 2.468, p = 0.014). This finding suggests that the association between an individual's adoption of audit automation and their level of technical training is enhanced. This finding suggests that the impact of individual characteristics on the adoption of audit automation is influenced by the level of technical training. The findings are succinctly presented in the structural model shown in Figure 2.

Table 41: Relationship between IF and AAA

Relationship	Coefficient β	T statistics	P values
IF -> AAA	-0.014	0.075	0.940

Source: Field data (2022)

Table 42: Moderation analysis

Relationship	Coefficient β	T statistics	P values
TT * IF -> AAA	0.562	2.468	0.014

Source: Field data (2022)

The results (Table 41) indicate that there is a negative and insignificant relationship between individual factors (performance expectancy, effort expectancy, facilitating conditions and social influence) and audit automation adoption. This result is to some extent contrary to prior research (Pedrosa, Costa, & Aparicio, 2020; Liebenberg, Benade, & Ellis, 2018; Ramen, Jugurnath, & Ramhit, 2015; Attuquayefio & Addo, 2014; Bierstaker et al., 2014; Janvrin et al., 2008; Curtis & Payne, 2008; Mahzan & Lymer, 2008; Rosli et al., 2012; Venkatesh et al., 2003).

The introduction of the moderator variable technological training in the relationship between individual factors and audit automation adoption made the relationship positive and significant (Table 42). This means that

technological training as a moderator positively and significantly enhances the relationship between individual factors (performance expectancy, effort expectancy, facilitating conditions, and social influence) and audit automation adoption. This finding is in agreement with prior literature (Payne & Curtis, 2017; Al-Ansi, Ismail & Al-Swidi, 2013; Janvrin, Bierstaker, & Lowe, 2008). This means that developing training programmes on the usage of audit automation will increase its usage. A possible explanation for this positive and significant relationship is that auditors' desire for frequent technological training will boost their usage confidence level to be more satisfied in performing their job. This finding is explained by the UTAUT framework and the resource-based view.

Technological training moderates the relationship between technological factors and audit automation adoption

Hypotheses 4b examined the moderation role of technological training (TT) in the relationship between technological factors (IF) and audit automation adoption (AAA). The PLS-SEM results displayed in Table 43 revealed that the relationship between TF and AAA was negative and significant (β = -0.649, t = 3.332, p = 0.001). When the moderator variable (technological training) was introduced, the results (Table 44) became positive and significant $p < 0.05$ (β = 0.555, t = 2.182, p = 0.029). This shows that the relationship between technological factors and audit automation adoption is improved by technological training. This indicates that technological training moderates the relationship between technological factors and audit automation adoption. The results are summarised in the structural model in figure 2.

Table 43: Relationship between TF and AAA

Relationship	Coefficient β	T statistics	P values
TF -> AAA	-0.649	3.332	0.001

Source: Field data (2022)

Table 44: Moderation Analysis

Relationship	Coefficient β	T statistics	P values
TT * TF -> AAA	0.555	2.182	0.029

Source: Field data (2022)

The relationship between technological factors and audit automation adoption was negative and significant. This means that technological factors (cost-benefit, compatibility, complexity, relative advantage, observability and trialability) have an inverse relationship with audit automation adoption. This result agrees with prior literature (Romney & Steinbart, 2006). This could imply that implementing audit automation could be risky as the firm may face computer threats and vulnerabilities which lead to dissatisfaction in use. The result is contrary to prior literature (Chong & Lim, 2022; Ghanem & Hamid, 2021; Widuri, Ferdiansyah, Kongchan, 2020). Chong and Lim (2022) found that technological context influences innovation adoption. The study of Ghanem and Hamid (2021) showed a positive and significant relationship between technological factors and social media adoption. Widuri, Ferdiansyah and Kongchan (2020) indicate that technological factors positively and significantly influence CAAT adoption. This finding is contrary to TOE where it was expected that technological factors will have a positive effect on audit automation adoption.

The introduction of technological training as a moderator positively and significantly enhanced the relationship between technological factors and audit automation adoption. Specifically, the result (Table 44) revealed that the

relationship between technological factors and audit automation adoption is improved by technological training. This means that organising regular training on how to use audit technologies will positively and significantly enhance the relationship between technological factors (cost-benefit, compatibility, complexity, relative advantage, observability and trialability) and audit automation adoption. In addition, developers of audit automation must ensure that the audit application designs are user-friendly and easily integrated with systems that are commonly used by industry players. Moreover, the solution providers can provide trial versions to new adopters to promote automation adoption and usage. In essence, as audit firms assess multiple technological criteria when deciding on audit automation adoption, system trialability would allow firms to conduct necessary system evaluation, which is vital to avoid postadoption incompatibility. The TOE framework supports this finding. This finding further agrees with prior literature (Siew, Rosli, & Yeow, 2022; Payne & Curtis, 2017; Al-Ansi, Ismail & Al-Swidi, 2013; Tan, Teo & Lai, 2011; Janvrin, Bierstaker & Lowe, 2008).

The moderation effect of technological training on organisational factors and audit automation adoption

Hypotheses 4c examined the moderation role of technological training (TT) in the relationship between organisational factors (OF) and audit automation adoption (AAA). The PLS-SEM results displayed in Table 45 revealed that the relationship between OF and AAA was positive and significant ($\beta = 0.519$, $t = 3.386$, $p = 0.001$). When the moderator variable (technological training) was introduced, the results (Table 46) became negative and insignificant ($\beta = -0.414$, $t = 1.658$, $p = 0.097$). This indicates

that technological training does not moderate the relationship between organisational factors and audit automation adoption. The results are summarised in the structural model in figure 2.

Table 45: Relationship between OF and AAA

Relationship	Coefficient β	T statistics	P values
OF -> AAA	0.519	3.386	0.001

Source: Field data (2022)

Table 46: Moderation analysis

Relationship	Coefficient β	T statistics	P values
TT * OF -> AAA	-0.414	1.658	0.097

Source: Field data (2022)

Hypotheses 4c examined the moderation role of technological training (TT) in the relationship between organisational factors (OF) and audit automation adoption (AAA). The result of the relationship between organisational factors and audit automation adoption was positive and significant (Table 45). This finding agrees with the UTAUT framework. This means that organisational factors (top management support and technological competence) have a positive and significant effect on audit automation adoption. Previous studies identified technological competence as a determinant of audit automation adoption. Top management support and technological competence are vital to audit automation adoption.

Top management support plays a central role in managing the changes in norms, values, and cultures and facilitating firm members to accept innovation fully. For instance, auditors tend to use new audit automation when they know that the firm's managing partner is supporting the automation deployment in the firm. In addition, auditors tend to adopt new audit automation when they know that the firm's longer-term financial plan and longer evaluation periods of audit automation also affect auditors' decision on

whether or not to use audit automation. This result agrees with prior studies (Chong & Lim, 2022; Ghanem & Hamid, 2021; Siew et al., 2020; Widuri, Ferdiansyah, & Kongchan, 2021; Li et al., 2018; Pedrosa et al., 2015; Rosli et al., 2012; Curtis & Payne, 2008; Venkatesh et al., 2003; Rogers, 1995). This finding corroborates with the TOE framework.

On the other hand, the introduction of technological training as a moderator of the relationship between organisational factors and audit automation adoption was negative and insignificant (Table 46). This finding is contrary to prior literature (Siew, Rosli & Yeow, 2020; Ramen, Jugurnath, & Ramhit, 2015; Bierstaker et al., 2014; Curtis & Payne, 2014; Al-Jabri & Sohail, 2012; Rogers, 1995).

The moderation effect of technological training on environmental factors and audit automation adoption

Hypotheses 4d examined the moderation effect of technological training (TT) in the relationship between environmental factors (EF) and audit automation adoption (AAA). The PLS-SEM results displayed in Table 47 revealed that the relationship between EF and AAA was positive and insignificant ($\beta = 0.267$, $t = 1.724$, $p = 0.085$). When the moderator variable (technological training) was introduced, the results (Table 48) became negative but significant $p < 0.05$ ($\beta = -0.536$, $t = 2.118$, $p = 0.034$). This shows that technological training weakens the effect of environmental factors on audit automation adoption. The results are summarised in the structural model in figure 2.

Table 47: Relationship between EF and AAA

Relationship	Coefficient β	T statistics	P values
EF -> AAA	0.267	1.724	0.085

Source: Field data (2022)

Table 48: Moderation analysis

Relationship	Coefficient β	T statistics	P values
TT * EF -> AAA	-0.536	2.118	0.034

Source: Field data (2022)

The results (Table 47) reveal that environmental factors (audit standards, external/competitive pressure, perceived level of professional body support and client's accounting information systems) did not have a significant influence on audit automation adoption. This result corroborates with prior literature (Awuah, Onumah, & Duho, 2021; Widuri, Ferdiansyah, & Kongchan, 2020; Siew, Rosli, & Yeow, 2020; Curtis & Payne, 2008) and the TOE framework.

The introduction of technological training as a moderator of the relationship between environmental factors and audit automation adoption made the relationship negative and significant (Table 48). The results indicate that technological training moderates the relationship between environmental factors and audit automation adoption. Precisely, the result revealed that technological training weakens the effect of environmental factors on audit automation adoption. This finding contrasts the TOE framework. The finding agrees with prior literature (Ramen, Jugurnath, & Ramhit, 2015; Rosli, Yeow, & Siew, 2012; Venkatesh & Davis, 2000; Al-Jabri & Sohail, 2012; Bierstaker et al., 2014; Curtis & Payne, 2014; Rogers, 1995).

Objective five

The fifth objective of the study was to examine the moderation role of technology training (TT) in the relationship between audit automation adoption (AAA) and audit quality (AQ). This objective was analysed using one hypothesis. The result of the hypothesis is as follows.

The moderation effect of technological training on audit automation adoption and audit quality

Hypothesis 5 examined the moderating role of technological training (TT) in the relationship between audit automation adoption and audit quality. The PLS-SEM results displayed in Table 49 revealed that the relationship between AAA and AQ was negative and insignificant (β = -0.075, t = 0.977, p = 0.329). When the moderator variable factor (technological training) was introduced, the results (Table 50) remained negative and insignificant (β = -0.092, t = 0.902, p = 0.367). This indicates that technological training does not moderate the relationship between audit automation adoption and audit quality. The results are summarised in the structural model in figure 2.

Table 49: Relationship between AAA and AQ

Relationship	Coefficient β	T statistics	P values
AAA -> AQ	-0.075	0.977	0.329

Source: Field data (2022)

Table 50: Moderation analysis

Relationship	Coefficient β	T statistics	P values
TT * AAA -> AQ	-0.092	0.902	0.367

Source: Field data (2022)

The result (Table 49) revealed that the relationship between audit automation adoption and audit quality is not significant. The result agrees with Noor, Sanusi, Johari, Al-Dhubaibi, Hudayati, and Razak (2022) which indicated an insignificant relationship between audit technology and audit job performance. This result is contrary to prior literature (Ghanem & Hamid, 2021; Goodhue & Thompson, 1995).

The result (Table 50) revealed that technological training did not moderate the relationship between audit automation adoption and audit quality. This finding is contrary to prior literature (Manita, Elommal, Baudier,

& Hikkerova, 2020; Alfzal & Masood, 2016) where it was discovered that improving the skills of auditors through training will enhance innovation palatability and make them feel comfortable with innovation tools.

Objective six

The sixth objective of the study was to investigate the moderation effect of technological training on individual factors, technological factors, organisational factors, environmental factors and audit quality. This objective was analysed into four hypotheses. The resultant outcomes of the study demonstrate that technological training does not moderate these relationships. The results of the hypotheses are as follows.

The moderation effect of technological training on individual factors and audit quality

Hypothesis 6a examined the moderation role of technological training (TT) in the relationship between individual factors (IF) and audit quality (AQ). The PLS-SEM results displayed in Table 51 revealed that the relationship between IF and AQ was positive and significant (β = 0.271, t = 0.988, p = 0.047). When the moderator variable factor (technological training) was introduced, the results (Table 52) became negative and insignificant (β = -0.188, t = 0.951, p = 0.342). This indicates that technological factors do not moderate the relationship between individual factors and audit quality. The results are summarised in the structural model in figure 2.

Table 51: Relationship between IF and AQ

Relationship	Coefficient β	T statistics	P values
IF -> AQ	0.271	0.988	0.047

Source: Field data (2022)

Table 52: Moderation analysis

Relationship	Coefficient β	T statistics	P values
TT * IF -> AQ	-0.188	0.951	0.342

Source: Field data (2022)

The result (Table 51) indicates a positive and significant relationship between individual factors and audit quality. This means that performance expectancy, effort expectancy, facilitating conditions and social influence promote high audit quality. The reason is that if auditors believe that the benefits gained from using audit automation will increase audit quality, they will be more willing to use those automation tools. This finding corroborates with prior literature (Owino & Musuva, 2021; Zainudin, Aswar, Lastiningsih, Sumardjo & Taufik 2021; Al Fatlawi, 2019; Zahmatkesh & Rezazadeh, 2017; Mahzan & Lymer, 2014). The results indicate that technological training did not moderate the relationship between individual factors and audit quality (Table 52). This finding is contrary to the RBV.

The moderation effect of technological training on technological factors and audit quality

Hypothesis 6b examined the moderation effect of technological training (TT) in the relationship between technological factors (TF) and audit quality (AQ). The PLS-SEM results displayed in Table 53 revealed that the relationship between TF and AQ was positive but insignificant $p < 0.05$ ($\beta = 0.258$, $t = 1.910$, $p = 0.056$). When the moderator variable (technology training) was introduced, the results (Table 54) remained positive and insignificant ($\beta = 0.117$, $t = 0.623$, $p = 0.533$). This indicates that technological training does not moderate the relationship between technological factors and audit quality. The results are summarised in the structural model in figure 2.

Table 53: Relationship between TF and AQ

Relationship	Coefficient β	T statistics	P values
TF -> AQ	0.258	1.910	0.056

Source: Field data (2022)

Table 54: Moderation analysis

Relationship	Coefficient β	T statistics	P values
TT * TF -> AQ	0.117	0.623	0.533

Source: Field data (2022)

The findings from Table 53 demonstrate a statistically non-significant but favorable correlation between technology elements and audit quality. This implies that audit quality is not influenced by technology considerations, such as cost-benefit analysis, compatibility, complexity, relative advantage, observability, and trialability. Furthermore, the findings suggest that the presence of technology training did not have a moderating effect on the association between technological characteristics and audit quality, as shown by the data presented in Table 54. This discovery contradicts the Resource-Based View (RBV). This discovery contradicts the existing body of literature (Manita et al., 2020; Halbouni et al., 2016; Al-Ansi, Ismail & Al-Swidi, 2013; Curtis et al., 2009; Janvrin et al., 2008; Bedard et al., 2003).

The moderation effect of technological training on organisational factors and audit quality

Hypotheses 6c examined the moderation role of technological training (TT) in the relationship between organisational factors (OF) and audit quality (AQ). The PLS-SEM results displayed in Table 55 revealed that the relationship between OF and AQ was positive and insignificant (β = 0.007, t = 0.057, p = 0.955). When the moderator variable (technology training) was introduced, the results (Table 56) became negative and insignificant (β = -0.211, t = 1.229, p = 0.219). This shows that technological training does not

moderate the relationship between organisational factors and audit quality. The results are summarised in the structural model in figure 2.

Table 55: Relationship between OF and AQ

Relationship	Coefficient β	T statistics	P values
OF -> AQ	0.007	0.057	0.955

Source: Field data (2022)

Table 56: Moderation analysis

Relationship	Coefficient β	T statistics	P values
TT * OF -> AQ	-0.211	1.229	0.219

Source: Field data (2022)

The result (Table 55) indicates a positive but insignificant relationship between organisational factors and audit quality. This means that organisational factors as explained by top management support and technological competence did not have any influence on audit quality. The introduction of the moderator variable technological training did not have any effect on the relationship between organisational factors and audit quality (Table 56). This finding is contrary to prior literature (Manita et al., 2020; Halbouni et al., 2016; Al-Ansi, Ismail & Al-Swidi, 2013; Curtis et al., 2009; Janvrin et al., 2008; Bedard et al., 2003).

The moderation effect of technological training on environmental factors and audit quality

Hypotheses 6d examined the moderation role of technological training (TT) in the relationship between environmental factors (EF) and audit quality (AQ). The PLS-SEM results displayed in Table 57 revealed that the relationship between EF and AQ was negative and insignificant (β = -0.022, t = 0.220, p = 0.826). When the moderator variable (technological training) was introduced, the results (Table 58) became positive and insignificant (β = 0.268, t = 1.800, p = 0.072). This shows that technological training did not

moderate the relationship between environmental factors and audit quality. The results are summarised in the structural model in figure 2.

Table 57: Relationship between EF and AQ

Relationship	Coefficient β	T statistics	P values
EF -> AQ	-0.022	0.220	0.826

Source: Field data (2022)

Table 58: Moderation analysis

Relationship	Coefficient β	T statistics	P values
TT * EF -> AQ	0.268	1.800	0.072

Source: Field data (2022)

From the results in Table 57, the relationship between environmental factors and audit quality was negative and insignificant. This finding is contrary to the resource-based view theory and prior literature (Gao & Zhang, 2019).

The introduction of technological training as a moderator of the relationship between environmental factors and audit quality was positive and insignificant. This indicates that technological training did not have any effect on the relationship between environmental factors and audit quality. This finding is contrary to the RSV.

In other words, the results reveal that environmental factors, audit standards, external/competitive pressure, perceived level of professional body support and client's accounting information system did not have any effect on audit quality even when technological training is carried out for auditors. This finding is contrary to prior literature (Manita et al., 2020; Halbouni et al., 2016; Al-Ansi, Ismail & Al-Swidi, 2013; Curtis et al., 2009; Janvrin et al., 2008; Bedard et al., 2003).

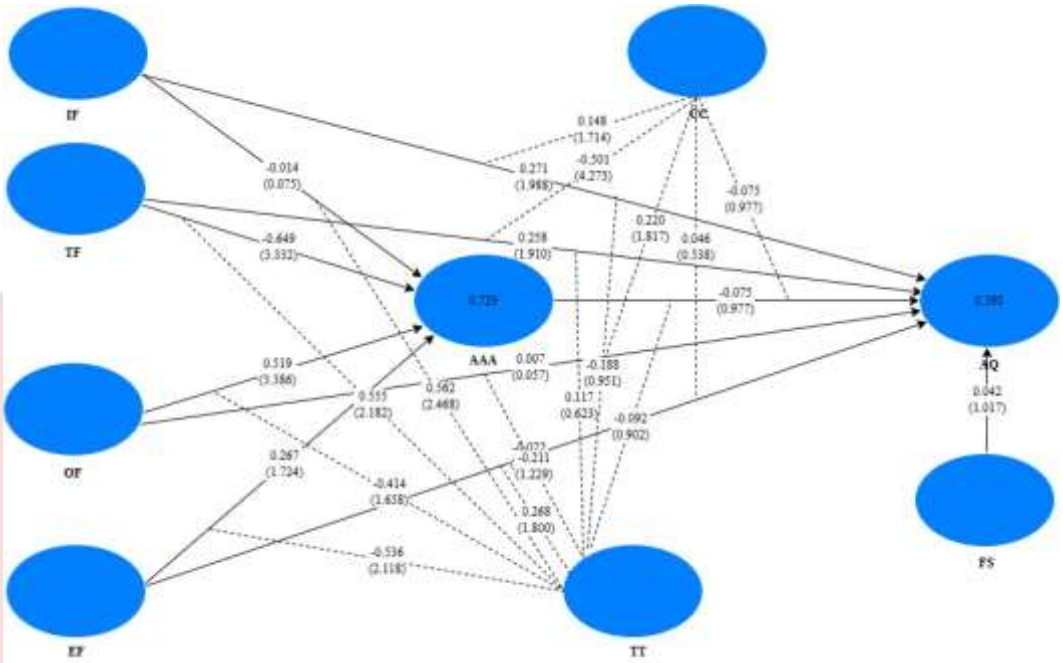

Figure 2: Structural model
Source: Field data (2022)

Decision on Hypotheses

The study examined 18 hypotheses. Table 59 presents the summary of the results and decisions on the hypotheses that were tested in the study.

Table 59: Results and Decisions of the Research Hypotheses

Hypotheses	Structural path	B	P values	Results
H1a	IF -> AAA -> AQ	0.001	0.962	Not Supported
H1b	TF -> AAA -> AQ	0.049	0.380	Not Supported
H1c	OF -> AAA -> AQ	-0.039	0.378	Not Supported
H1d	EF -> AAA -> AQ	-0.020	0.453	Not Supported
H2	CC x AAA -> AQ	-0.030	0.586	Not Supported
H3a	CC x IF -> AQ	0.148	0.087	Not Supported
H3b	CC x TF -> AQ	-0.501	0.000	Supported
H3c	CC x OF -> AQ	0.220	0.069	Not Supported
H3d	CC x EF -> AQ	0.046	0.591	Not Supported
H4a	TT x IF -> AAA	0.562	0.014	Supported
H4b	TT x TF -> AAA	0.555	0.029	Supported
H4c	TT x OF -> AAA	-0.414	0.097	Not Supported
H4d	TT x EF -> AAA	-0.536	0.034	Supported
H5	TT x AAA -> AQ	-0.092	0.367	Not Supported
H6a	TT x IF -> AQ	-0.188	0.342	Not Supported
H6b	TT x TF -> AQ	0.117	0.533	Not Supported
H6c	TT x OF -> AQ	-0.211	0.219	Not Supported
H6d	TT x EF -> AQ	0.268	0.072	Not Supported

Source: Field data (2022)

Chapter Summary

The findings of the research were provided in the chapter. The research conducted an analysis of six goals and 18 hypotheses. The first phase of the research was the presentation of the demographic information of the participants, which was then followed by the provision of descriptive data pertaining to the constructs under investigation. The assessment of common method variance was conducted in order to ascertain that the observed variation was attributable to the underlying constructs being measured, rather than being influenced by the specific measurement technique used. None of the constructs explained more than 50% of the variation.

The specification of the measurement model was conducted for both the lower-order constructs and the higher-order constructs. The researchers used Smart PLS-SEM version 4 to evaluate the indicator loadings, internal consistency reliability, convergent validity, and discriminant validity of both the lower-order constructs and higher-order constructs (Hair et al., 2019). The assessment of internal consistency reliability involves the use of Cronbach's alpha and composite reliability. The evaluation of convergent validity involves the use of the Average Variance Extracted (AVE) component, as outlined by Hair et al. (2019). The assessment of discriminant validity involves the consideration of three primary criteria: the Fornell-Larcker criterion, cross-loadings, and the Heterotrait-Monotrait (HTMT) ratio criterion (Henseler, Ringle, & Sarstdt, 2015).

Following that, the structural model was evaluated. According to Hair et al. (2019), it is important to evaluate many standard evaluation criteria when evaluating a structural model. These criteria include reviewing the presence of

collinearity concerns in the structural model, assessing the importance and relevance of the relationships within the model, and analysing the coefficient of determination (R^2). The 18 hypotheses of the research were further examined. All four hypotheses were supported and then approved based on the obtained data. However, the findings of 14 hypotheses did not get support and were therefore dismissed.

CHAPTER FIVE

SUMMARY, CONCLUSIONS AND RECOMMENDATIONS

Introduction

The preceding chapter provided an exposition of the findings and deliberations of the investigation. This chapter provides an overview of the study strategy and highlights the primary conclusions derived from the analysis of the data. It places particular emphasis on addressing the significant concerns presented in the problem statement. Following the analysis, the research presents its findings and offers suggestions about the fundamental concepts used. The chapter culminates with an examination of recommendations for further study.

Summary of the Study

The primary aim of this thesis was to examine the factors influencing the adoption of audit automation and its impact on audit quality conducted by enterprises in Ghana. Specifically, the assessment focused on the impact of company culture and technological training on this connection. The motivation for conducting this research stemmed from the observed subpar quality of audits and the potential for improving audit quality via the examination of factors that influence the adoption of audit automation. The study's issue was evaluated via the development of six goals.

The analysis of these six goals included the examination of eighteen hypotheses. The resource-based view, unified theory of acceptance and use of technology, technology-organisation-environment framework, and the task technology fit theory underpinned the study. The research used the positivist research paradigm, using a quantitative technique and an explanatory research

design. The researchers used a basic random sampling method to choose a sample size of 190 participants. The survey instrument was disseminated to the participants using an internet platform known as Google Forms. The researchers used the structural equation modelling approach in order to evaluate the proposed hypotheses. The statistical method applied to assess the measurement and structural models was Partial Least Squares (PLS), using SmartPLS version 4.0.

Summary of Key Findings

This section presents a concise overview of the main discoveries derived from the thesis. The study issue was assessed via the use of six goals, which were afterwards scrutinised in eighteen hypotheses. Among the total of eighteen hypotheses proposed for the research, four were found to be supported and afterwards approved, while the other 14 hypotheses were not supported and hence dismissed.

Hypothesis 1a sought to examine the mediation effect of audit automation adoption on individual factors and audit quality. The result was not significant. This means audit automation adoption did not mediate the relationship between individual factors and audit quality. This hypothesis was therefore not supported and the decision was to reject it.

Hypothesis 1b analysed the mediation effect of audit automation adoption on technological factors and audit quality. The result was not significant. This implies that audit automation adoption did not moderate the relationship between technological factors and audit quality. Therefore, this hypothesis was not supported and the decision was to reject it.

Hypothesis 1c investigated whether audit automation adoption mediates the relationship between organisational factors and audit quality. The result was not significant. This suggests that the relationship between organisational factors and audit quality is not mediated by audit automation adoption. This hypothesis, therefore, was not supported and it was subsequently rejected.

Hypothesis 1d examined the mediating role of audit automation adoption in the relationship between organisational factors and audit quality. The resultant outcome of the study demonstrates that audit automation adoption does not mediate the relationship between environmental factors and audit quality. Therefore, the decision was to reject it because the hypothesis was not supported.

Objective two examined the moderation role of corporate culture in the relationship between audit automation adoption and audit quality. This second objective was hypothesised as corporate culture moderates the relationship between audit automation adoption and audit quality. The result was not significant and unsupported; therefore, it was rejected.

Objective three analysed the moderation effect of corporate culture on individual factors, technological factors, organisational factors, environmental factors and audit quality. This objective was analysed into four hypotheses. The results of the hypotheses are as follows:

Hypothesis 3a investigated the moderation effect of corporate culture on individual factors and audit quality. The result indicated that corporate culture did not have a significant moderating effect on the relationship

between individual factors and audit quality. Therefore, the decision was to reject it because the hypothesis was not supported.

Hypothesis 3b examined the moderation effect of corporate culture on technological factors and audit quality. The result showed that corporate culture had a negative significant moderating effect on the relationship between technological factors and audit quality. Therefore, the decision was to accept this hypothesis because it was supported.

Hypothesis 3c proposed that the relationship between organisational factors and audit quality is moderated by corporate culture. The outcome suggested that corporate culture did not significantly moderate the relationship between organisational factors and audit quality. Therefore, this proposition was rejected since it was not supported.

Hypothesis 3d suggested that corporate culture moderates the relationship between environmental factors and audit quality. The result indicated that corporate culture did not significantly moderate the relationship between environmental factors and audit quality. This supposition was subsequently rejected because it was not supported.

Objective four examined the moderating effect of technological training on individual factors, technological factors, organisational factors, environmental factors and audit automation adoption. This objective had four hypotheses. The results of the hypotheses are as follows:

Hypothesis 4a analysed the moderating effect of technological training on the relationship between individual factors and audit automation adoption. The outcome suggests that technological training has a positive and significant

effect on the relationship between individual factors and audit automation. Since this proposition was supported, it was subsequently accepted.

Hypothesis 4b proposed that technological training moderates the relationship between technological factors and audit automation adoption. The results showed that technological training significantly moderates the relationship between technological factors and audit automation adoption. This supposition was therefore accepted as it was supported.

Hypothesis 4c sought to investigate the moderating effect of technological training in the relationship between organisational factors and audit automation adoption. The outcome suggests technological training does not moderate the relationship between organisational factors and audit automation adoption. The hypothesis was therefore rejected because it was not supported.

Hypothesis 4d analysed the moderating role of technological training in the relationship between environmental factors and audit automation adoption. The outcome suggests that technological training has a negative but significant role in the relationship between environmental factors and audit automation. The proposition was accepted because it was supported.

Objective five examined the moderation role of technological training in the relationship between audit automation adoption and audit quality. The result of the hypothesised objective revealed that technological training does not moderate the relationship between audit automation adoption and audit quality.

Objective six investigated the moderating effect of technological training on individual factors, technological factors, organisational factors,

environmental factors and audit quality. Four hypotheses analysed this objective. The outcomes are presented as follows:

Hypothesis 6a analysed the moderation effect of technological training in the relationship between individual factors and audit quality. The result indicated technology training did not have a moderating effect on individual factors and audit quality. This hypothesis was rejected because of the insignificant and unsupported outcome.

Hypothesis 6b suggested that technological training moderates the relationship between technological factors and audit quality. The result indicated that technological training did not have a moderating effect on technological factors and audit quality. Therefore, the hypothesis was rejected since it was not supported.

Hypothesis 6c analysed the moderation effect of technological training on the relationship between organisational factors and audit quality. The result indicated that technological training did not have a moderating effect on the relationship between organisational factors and audit quality. The study rejected this hypothesis since the outcome was insignificant and unsupported.

Hypothesis 6d proposed that technological training moderates the relationship between environmental factors and audit quality. The results indicated that technological training did not have a significant effect on the relationship between environmental factors and audit quality. The hypothesis was therefore rejected since it was not supported.

Conclusions

The study revealed that corporate culture weakens the effect of technological factors on audit quality. A weak or negative corporate culture

can undermine the potential benefits of technological factors. Corporate cultures that resist change, lack support, or hinder communication and collaboration, can weaken the impact of technological factors on audit quality. This can lead to compromised audit quality, eroded investor confidence, and potentially severe consequences for both the company and its stakeholders. Conversely, a corporate culture that ensures collaboration and involvement can amplify the positive effects of technological factors on audit quality. Such a culture fosters an environment where technology is used responsibly to enhance audit processes, improve accuracy, and bolster transparency. It encourages auditors to leverage digital tools to their full potential while upholding the highest standards of professionalism and integrity.

The study also showed that technological training enhances the effect of individual factors on audit automation adoption. The successful integration of advanced technology in the audit profession relies not only on the availability of cutting-edge tools but also on the preparedness and willingness of auditors to embrace these innovations. Individual factors, such as performance expectancy, effort expectancy, facilitating conditions and surrounding circumstances are fundamental drivers in the adoption of audit automation. However, without the proper training and support mechanisms, even the most motivated auditors may struggle to harness the full potential of these technological advancements. Technological training equips auditors with the necessary expertise and confidence to navigate complex automation systems, interpret data analytics, and effectively utilize artificial intelligence tools in their audit procedures. Moreover, it instils a culture of continuous learning and adaptability, which are vital traits in a rapidly evolving digital

landscape. In essence, technological training is the linchpin that strengthens the effect of individual factors, creating a harmonious environment where auditors are not just open to automation but actively embrace it, ultimately enhancing the audit process and delivering more value to stakeholders.

The study revealed that the effect of technological factors on audit automation adoption is strengthened by the provision of training on the use of these technologies. Thus, the study underscores the symbiotic relationship between technological factors, technological training, and audit automation adoption. Organizations that recognize the significance of providing adequate training to their audit teams are better positioned to leverage technology effectively, thereby optimizing their audit processes and ultimately enhancing their financial reporting and risk management capabilities in an ever-evolving technological landscape.

Finally, the study shed light on how technological training initiatives can significantly weaken the influence of environmental factors on the pace and extent of automation adoption within auditing firms. Comprehensive technological training can be expensive, especially for smaller auditing firms or organizations with limited budgets. This cost may deter some organizations from investing in training, which can slow down or hinder the adoption of audit automation. Resistance from auditors who are comfortable with traditional audit methods, generic training programmes, and an over-emphasis on technological training to the detriment of other important auditing skills can harm audit automation adoption.

Policy Recommendations

This section presents the recommendations of the study based on the findings. Based on the key findings and conclusions of the study, the following recommendations are made:

Audit firms must recognise the intertwined relationship between corporate culture and technological factors in the context of audit quality. To truly harness the transformative potential of technology, audit firms must first cultivate a culture that values integrity, professionalism, collaboration, involvement and the fundamental principles of auditing. Only then can they fully capitalize on technological advancements to enhance audit quality and maintain trust in the financial reporting process.

By investing in comprehensive technological training programs, audit firms can empower their workforce to bridge the gap between individual readiness and successful automation adoption. This synergy between individual factors and technological training not only accelerates the uptake of audit automation but also ensures that auditors can leverage these tools effectively to enhance audit quality, efficiency, and overall performance.

Furthermore, the moderating role of technological training emphasizes the importance of continuous learning and upskilling in the auditing profession. As audit firms increasingly rely on automation to streamline their audit processes, investing in ongoing training and development for audit professionals becomes imperative. This not only ensures a smoother transition to automated audit procedures but also enhances the overall quality and effectiveness of audits.

Through comprehensive training programs, auditors are equipped with the skills and knowledge necessary to harness the full potential of advanced technological tools and systems. This, in turn, enables them to adapt to changing technological environments, make informed decisions about automation adoption, and effectively navigate the complexities of automated audit procedures.

To mitigate these challenges posed by environmental factors on audit automation adoption, it is important to ensure a balanced approach to training. The training provided should ensure understanding, and provide hands-on experience, and collaboration between management and the auditors, coupled with a well-thought-out strategy for automation adoption, is essential.

Contribution to Theory/Literature

The literature on audit quality within the context of external auditing is skewed towards advanced country experiences. Therefore, the study contributes to both theoretical and empirical literature on the audit quality of external audit firms in Ghana.

Firstly, the conceptual framework of the study could serve as a guide to future studies on audit quality. It also adds to the development and validation of the measurement items (individual, technological, organizational, environmental factors and audit quality).

The study identifies corporate culture and technological training as vital resources according to the resource-based view theory as factors which facilitate audit automation adoption and audit quality. The study therefore extends the Unified theory of acceptance and use of technology model and the technology-organization-environment framework by using hierarchical

component modelling technique and reflective constructs to predict audit automation adoption and audit quality.

Corporate culture should be managed effectively to ensure successful audit automation adoption and audit quality. In addition, the manner and training organized by audit firms to sharpen the skills of auditors in the use of automation should also be given great consideration.

The study confirms that culture matters in Information Systems and that the notion of cultural fit is an essential concept in the IS adoption literature. The concept of fit is that the level of agreement between the general values of a particular group or organisation and the technology adopted determines how the organisation perceives and ultimately uses them. A lack of a cultural fit will lead to negative perceptions and behaviours regarding the system, while a cultural fit will lead to more favourable responses. The study confirms the importance of a cultural fit in the context of technology adoption.

Suggestions for Further Research

The present investigation used a quantitative explanatory research approach. Subsequent investigations may include doing a qualitative analysis of the study or using a combination of qualitative and quantitative research methodologies.

The research exclusively identified a set of audit automation technologies within its scope, including generalized audit software, electronic audit working papers software, embedded audit modules, database SQL search and retrieve, parallel simulation software, and test data. There are more technologies that need further investigation.

REFERENCES

Abu Kwaik, N., Sweis, R., Allan, B., & Sweis, G. (2023). Factors Affecting Risk Management in Industrial Companies in Jordan. *Administrative Sciences*, *13*(5), 132.

Adam, A. M. (2020). Sample size determination in survey research. *Journal of Scientific Research and Reports*, *26*(5), 90-97.

Afroze, D., & Aulad, A. (2020). Perception of professional accountants about the application of artificial intelligence (AI) in auditing industry of Bangladesh. *Journal of Social Economics Research*, *7*(2), 51-61.

Ahmed, M., & Shafiq, S. (2014). The impact of organisational culture on organisational performance: A case study of telecom sector. *Global Journal of Management and Business Research*, *14*(3), 21-30.

Ahmi, A., & Kent, S. (2012). The utilisation of generalized audit software (GAS) by external auditors. *Managerial Auditing Journal*, *28*(2), 88-113.

Aikins, S. K. (2020). An Examination of the Relationships Between Audit Automation and Performance Measurement Implementation in Government Internal Audits. *Journal of Accounting and Finance*, *20*(8), 85-98.

Akwam, P. O., & Yua, H. (2021). Effect of Financial Products on the Performance of Selected Deposit Money Banks in Nigeria: 2005-2019. *European Journal of Accounting, Auditing and Finance Research*, *9*(1), 124-143.

Al-Ansi, A. A., Ismail, N. A. B., & Al-Swidi, A. K. (2013). The effect of IT knowledge and IT training on the IT utilization among external auditors: Evidence from Yemen. *Asian Social Science*, *9*(10), 307.

Alawaqleh, Q. A. (2021). Impact of accounting information system on internal audit quality: Mediating role of organisational culture. *International Journal of Financial Research*, *12*(1), 205-213.

Alberti, C. T., Bedard, J. C., Bik, O., & Vanstraelen, A. (2022). Audit firm culture: Recent developments and trends in the literature. *European Accounting Review*, *31*(1), 59-109.

Al-Hiyari, A., Al Said, N., & Hattab, E. (2019). Factors that influence the use of computer-assisted audit techniques (CAATs) by internal auditors in Jordan. *Academy of Accounting and Financial Studies Journal*, *23*(3), 1-15.

Al-Khasawneh, R. O. (2022). Challenges facing external auditors while auditing banking accounting systems in the light of the use of digital technologies of the fourth industrial revolution in Jordan. *American Journal of Industrial and Business Management*, *12*(4), 672-698.

Almasria, N., Airout, R. M., Samara, A. I., Saadat, M., & Jrairah, T. S. (2021). The role of accounting information systems in enhancing the quality of external audit procedures. *Journal of Management Information and Decision Sciences*, *24*(7), 1-23.

Amali, L. N., Hadjaratie, L., & Suhada, S. (2018). The Influence of Organisational Culture in Application of Information Technology Governance. *Journal of Information Systems Engineering and Business Intelligence*, *4*(1), 1-10.

Appelbaum, D. A., Kogan, A., & Vasarhelyi, M. A. (2018). Analytical procedures in external auditing: A comprehensive literature survey and framework for external audit analytics. *Journal of Accounting Literature, 40*(1), 83-101.

Appelbaum, D., Budnik, S., & Vasarhelyi, M. (2020). Auditing and accounting during and after the COVID-19 crisis. *The CPA Journal, 90*(6), 14-19.

Appelbaum, D., Kogan, A., Vasarhelyi, M., & Yan, Z. (2017). Impact of business analytics and enterprise systems on managerial accounting. *International Journal of Accounting Information Systems, 25*, 29-44. https://doi.org/10.1016/j.accinf.2017.03.003

Attuquayefio, S., & Addo, H. (2014). Using the UTAUT model to analyze students' ICT adoption. *International Journal of Education and Development using ICT, 10*(3). ISSN 1814-0556

Awuah, B., Onumah, J. M., & Duho, K. C. T. (2022). Determinants of adoption of computer-assisted audit tools and techniques among internal audit units in Ghana. *The Electronic Journal of Information Systems in Developing Countries, 88*(2), e12203.

Axelsen, M., Green, P., & Ridley, G. (2017). Explaining the information systems auditor's role in the public sector financial audit. *International Journal of Accounting Information Systems, 24*, 15-31. https://doi.org/10.1016/j.accinf.2016.12.003

Ballestero, R. C. (2023). *The importance of organisational culture in achieving audit quality: evidence from the adoption of equalized parental leave* (Doctoral dissertation). Kent State University

Banahene, K. O. (2018). Ghana banking system failure: the need for restoration of public trust and confidence. *International Journal of Business and Social Research*, *8*(10), 1-5.

Barney, J. (1991). Firm resources and sustained competitive advantage. *Journal of Management*, *17*(1), 99-120.

Barney, J. B. (2001). Resource-based theories of competitive advantage: A ten-year retrospective on the resource-based view. *Journal of Management*, *27*(6), 643-650.

Baron, R. M., & Kenny, D. A. (1986). The moderator–mediator variable distinction in social psychological research: Conceptual, strategic, and statistical considerations. *Journal of personality and social psychology*, *51*(6), 1173.

Becker, J. M., Klein, K., & Wetzels, M. (2012). Hierarchical latent variable models in PLS-SEM: guidelines for using reflective-formative type models. *Long range planning*, *45*(5-6), 359-394.

Bedard, J. C., Jackson, C., Ettredge, M. L., & Johnstone, K. M. (2003). The effect of training on auditors' acceptance of an electronic work system. *International Journal of Accounting Information Systems*, *4*(4), 227-250.

Benson, E. (2019). *Bank Failure in Ghana: What Accounted for the Collapse of Unibank?* (Doctoral dissertation, University of Ghana).

Bharadwaj, A. S. (2000). A resource-based perspective on information technology capability and firm performance: an empirical investigation. *MIS Quarterly*, *24*(1)169-196.

Bierstaker, J., Janvrin, D., & Lowe, D. J. (2014). What factors influence auditors' use of computer-assisted audit techniques? *Advances in Accounting*, *30*(1), 67-74.

Blumberg, B., Cooper, D., & Schindler, P. (2014). *EBOOK: Business research methods*. McGraw Hill.

Braun, R. L., & Davis, H. E. (2003). Computer-assisted audit tools and techniques: analysis and perspectives. *Managerial Auditing Journal*, *18*(9), 725-731.

Broberg, P. (2013). *The auditor at work: A study of auditor practice in Big 4 audit firms* (Doctoral dissertation, Department of Business Administration, School of Economics and Management, Lund University).

Byrnes, P. E., Al-Awadhi, A., Gullvist, B., Brown-Liburd, H., Teeter, R., Warren, J. D., & Vasarhelyi, M. (2018). Evolution of Auditing: From the Traditional Approach to the Future Audit. In Continuous Auditing. *Emerald Publishing Limited*. 285-297 https://doi.org/10.1108/978-1-78743-413-420181014

Centre for Audit Quality [CAQ] (2022). Our Mission. *Centre of Audit Quality* from https://www.thecaq.org/about-us/

Chen, H., Francis, B. B., Hasan, T., & Wu, Q. (2022). Does corporate culture impact audit pricing? Evidence from textual analysis. *Journal of Business Finance & Accounting*, *49*(5-6), 778-806.

Chen, H., Liu, S., Liu, X., & Wang, J. (2023). Do socially responsible audit firms provide higher audit quality? An investigation of corporate social responsibility activity in audit firms. *Managerial Auditing Journal*, *38*(2), 206-240.

Chong, L. Y. Q., & Lim, T. S. (2022). Pull and Push Factors of Data Analytics Adoption and Its Mediating Role on Operational Performance. *Sustainability*, *14*(12), 7316.

Ciger, A. (2020). Audit quality: A bibliometric analysis (1981-2020). *Scientific Annals of Economics and Business*, *67*(4), 473-494.

Claver, E., Llopis, J., Reyes González, M., & Gascó, J. L. (2001). The performance of information systems through organisational culture. *Information Technology & People*, *14*(3), 247-260.

Coffie, W., Bedi, I., & Amidu, M. (2018). The effects of audit quality on the costs of capital of firms in Ghana. *Journal of Financial Reporting and Accounting*, *16*(4), 639-659.

Cohen, L., Manion, L., & Morrison, K. (2017). Action research. In *Research methods in education* (pp. 440-456). Routledge.

Cohen, M., & Rozario, A. (2019). Exploring the use of robotic process automation (RPA) in substantive audit procedures. *The CPA Journal*, *89*(7), 49-53.

Companies Act 2019 (Act 992)

Creswell, J. W., & Creswell, J. D. (2017). *Research design: Qualitative, quantitative, and mixed methods approach*. Sage Publications.

Curtis, M. B., & Payne, E. A. (2008). An examination of contextual factors and individual characteristics affecting technology implementation decisions in auditing. *International Journal of Accounting Information Systems*, *9*(2), 104-121.

Curtis, M. B., & Payne, E. A. (2014). Modeling voluntary CAAT utilization decisions in auditing. *Managerial Auditing Journal*, *29*(4), 304-326.

Curtis, M. B., Jenkins, J. G., Bedard, J. C., & Deis, D. R. (2009). Auditors' training and proficiency in information systems: A research synthesis. *Journal of Information Systems*, *23*(1), 79-96.

Dai, J., & Vasarhelyi, M. A. (2016). Imagineering Audit 4.0. *Journal of Emerging Technologies in Accounting*, *13*(1), 1-15.

Daniel, K. Q., Hussein, S., Karim, F., & Nicholas, A. M. (2021). Factors affecting the internal audit effectiveness in local government institutions in Ghana. *Journal of Accounting and Taxation*, *13*(4), 255-269.

Dasgupta, S., & Gupta, B. (2019). Espoused organisational culture values as antecedents of internet technology adoption in an emerging economy. *Information & Management*, *56*(6), 103142.

DeAngelo, L. E. (1981). Auditor size and audit quality. *Journal of Accounting and Economics*, *3*(3), 183-199.

Debreceny, R., Lee, S. L., Neo, W., & Toh, J. S. (2005). Employing generalized audit software in the financial services sector: Challenges and opportunities. *Managerial Auditing Journal*, *20*(6), 605-618.

Deloitte (2016). Audit quality report. Driving innovation, advancing quality, and shaping the profession. https://www2.deloitte.com/content/dam/Deloitte/ca/Documents/audit/ca-audit-2017-16-4331T-AU-D-Institute-AU-inno-and-quality-brochure-EN-final.pdf

Denison, D. R., & Mishra, A. K. (1995). Toward a theory of organisational culture and effectiveness. *Organization Science*, *6*(2), 204-223.

Dickins, D., Johnson-Snyder, A. J., & Reisch, J. T. (2018). Selecting an auditor for Bradco using indicators of audit quality. *Journal of Accounting Education*, *45*, 32-44.

Diya, L. (2022). The Impact of Audit Culture and Internal Control Systems on Audit Quality: The Case of Lebanese Banks. *European Journal of Business and Management Research*, *7*(5), 255-261.

Doğanay, D. (2019). *Identifying factors affecting auditors' adoption of computer-assisted audit tools and techniques (caatts): an empirical investigation* (Master's thesis, Middle East Technical University).

Fotoh, L. E., & Lorentzon, J. I. (2023). Audit digitalization and its consequences on the audit expectation gap: A critical perspective. *Accounting Horizons*, *37*(1), 43-69.

Elommal, N., & Manita, R. (2022). How Blockchain Innovation could affect the Audit Profession: A Qualitative Study. *Journal of Innovation Economics Management*, *37*(1), 37-63.

Emett, S. A., Kaplan, S. E., Mauldin, E. G., & Pickerd, J. S. (2021). Auditing with data and analytics: External reviewers' judgments of audit quality and effort. *Contemporary Accounting Research*. *Available at SSRN 3544973. https://doi.org/10.1111/1911-3846.12894*

Erumban, A. A., & De Jong, S. B. (2006). Cross-country differences in ICT adoption: A consequence of Culture? *Journal of World Business, 41*(4), 302-314.

Financial Reporting Council [FRC] (2015). https://www.ifac.org/system/files/meetings/files/3769.pdf

Fornell, C., & Larcker, D. F. (1981). Evaluating structural equation models with unobservable variables and measurement error. *Journal of Marketing Research*, *18*(1), 39-50.

Francis, J. R. (2023). What exactly do we mean by audit quality? *Accounting in Europe*, 1-11. https://doi.org/10.1080/17449480.2023.2247410

Gao, P., & Zhang, G. (2019). Auditing standards, professional judgment, and audit quality. *The Accounting Review*, *94*(6), 201-225.

Ghanem, S. K. R., & Hamid, N. A. A. (2021). Factors Influencing SME Performance: The Mediating and Moderating Role of Social Media Adoption and Organisational Culture. In *Proceedings of the Second Asia Pacific International Conference on Industrial Engineering and Operations Management September 14* (16). 4365-4376.

Gierbl, A. S. (2021). *Data analytics in external auditing.* (Doctoral dissertation, University of St. Gallen).

Gonzalez, G. C., Sharma, P. N., & Galletta, D. F. (2012). The antecedents of the use of continuous auditing in the internal auditing context. *International Journal of Accounting Information Systems*, *13*(3), 248-262.

Goodhue, D. L., & Thompson, R. L. (1995). Task-technology fit and individual performance. *MIS Quarterly, 19* (2), 213-236.

Graham, J. R., Grennan, J., Harvey, C. R., & Rajgopal, S. (2022). Corporate culture: Evidence from the field. *Journal of Financial Economics*, *146*(2), 552-593.

Grant, R. M. (1991). The resource-based theory of competitive advantage: implications for strategy formulation. *California Management Review*, *33*(3), 114-135.

Gyan, C. (2013). The effects of teenage pregnancy on the educational attainment of girls at Chorkor, a suburb of Accra. *Journal of Educational and Social Research*, *3*(3), 53.

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.

Halbouni, S. S., Obeid, N., & Garbou, A. (2016). Corporate governance and information technology in fraud prevention and detection: Evidence from the UAE. *Managerial Auditing Journal*, *31*(6/7), 589-628.

Handoko, B. L., Lindawati, A. S. L., & Mustapha, M. (2020). Application of computer-assisted audit techniques in public accounting firm. *International Journal of Management*, *11*(5), 222-229.

Harman, H. H., & Harman, H. H. (1976). *Modern factor analysis*. University of Chicago Press.

Hassani, I. B, Chroqui, R., Okar, C., Talea, M., & Ouiddad, A. (2020). Impact of hedonic motivation and corporate culture on the adoption of an information system. *Kybernetes*, *49*(5), 1561-1578.

Hategan, C. D., Pitorac, R. I., & Crucean, A. C. (2022). Impact of COVID-19 pandemic on auditors' responsibility: evidence from European listed companies on key audit matters. *Managerial Auditing Journal*, *37*(7), 886-907.

Henseler, J., Ringle, C. M., & Sarstedt, M. (2015). A new criterion for assessing discriminant validity in variance-based structural equation modelling. *Journal of the Academy of Marketing Science*, *43*(1), 115-135.

Herda, D. N., Cannon, N. H., & Young, R. F. (2019). Workplace mindfulness and its effect on staff auditors' audit quality-threatening behaviour. *Behavioural Research in Accounting*, *31*(1), 55-64.

Hofstede, G. (1984). Cultural dimensions in management and planning. *Asia Pacific Journal of Management*, *1*(2), 81-99.

Huang, F., & Vasarhelyi, M. A. (2019). Applying robotic process automation (RPA) in auditing: A framework. *International Journal of Accounting Information Systems*, *35*, 100433. https://doi.org/10.1016/j.accinf.2019.100433

Institute of Chartered Accountants England and Wales. (2018). Artificial Intelligence and the Future of Accountancy. [PDF]. Avalable via: https://www.icaew.com/media/corporate/files/technical/informationtechnology/technology/artificial-intelligence-report.ashx?la=en.

Institute of Chartered Accountants, Ghana [ICAG] (2022). https://icagh.org/list-of-licensed-firms/

Institute of Chartered Accountants, Ghana ICAG] (2019). https://icagh.org/publications/

International Auditing and Assurance Standards Board [IAASB) (2022). About IAASB. *International Auditing and Assurance Standards Board*. https://www.iaasb.org/about-iaasb

International Auditing and Assurance Standards Board [IAASB] (2014). A framework for audit quality. Key elements that create an environment for audit quality. https://www.ifac.org/system/files/publications/files/A-Framework-for-Audit-Quality-Key-Elements-that-Create-an-Environment-for-Audit-Quality-2.pdf

International Federation of Accountants [IFAC] (2016). https://www.ifac.org/system/files/publications/files/internal-controls-a-revie.pdf

International Federation of Accountants [IFAC] (2009). https://www.ifac.org/system/files/downloads/a022-2010-iaasb-handbook-isa-500.pdf

International Federation of Accountants [IFAC] (2020). https://www.iaasb.org/publications/2020-handbook-international-quality-control-auditing-review-other-assurance-and-related-services

International Federation of Accountants [IFAC] (2022). https://www.ifac.org/

Islam, S., & Stafford, T. (2022). Factors associated with the adoption of data analytics by internal audit function. *Managerial Auditing Journal*, *37*(2), 193-223.

Ismael, H. R., & Kamel, H. (2021). Internal audit quality and earnings management: evidence from the UK. *Managerial Auditing Journal*, *36*(7), 951-978.

Ismail, I. H. M. (2023). The Big Data Analysis Role in the Financial Auditing. *International Journal of Computing and Digital Systems*, *14*(1), 1-xx. https://dx.doi.org/10.12785/ijcds/XXXXXX

Jacky, Y., & Sulaiman, N. A. (2022). Factors Affecting the Use of Data Analytics in External Auditing. *Management & Accounting Review*, *21*(2).

Janvrin, D., Bierstaker, J., & Lowe, D. J. (2008). An examination of audit information technology use and perceived importance. *Accounting Horizons*, *22*(1), 1-21.

Jarvis, C. B., MacKenzie, S. B., & Podsakoff, P. M. (2003). A critical review of construct indicators and measurement model misspecification in marketing and consumer research. *Journal of Consumer Research*, *30*(2), 199-218.

Jenkins, J. G., Deis, D. R., Bedard, J. C., & Curtis, M. B. (2008). Accounting firm culture and governance: A research synthesis. *Behavioral Research in Accounting*, *20*(1), 45-74.

Johnson, R. E., Rosen, C. C., & Chang, C. H. (2011). To aggregate or not to aggregate: Steps for developing and validating higher-order multidimensional constructs. *Journal of Business and Psychology*, *26*(3), 241-248.

Kamil, I. (2020). The effect of audit fee, audit tenure, and audit company size of audit quality in goods consumer companies listed in the Indonesia stock exchange (bei) in 2016-2019. *Int. J. Manag. Stud. Soc. Sci. Res*, *2*(4), 170-182.

Kang, Y. J., & Piercey, M. D. (2020). Would an Audit Judgment Rule Improve Audit Committee Oversight and Audit Quality? *Current Issues in Auditing*, *14*(1), 16-25.

Kend, M., & Nguyen, L. A. (2020). Big data analytics and other emerging technologies: the impact on the Australian audit and assurance profession. *Australian Accounting Review*, *30*(4), 269-282.

Kimunguyi, S. (2020). Effect of Technological Innovations on Audit Evidence in Kenya. *African Organisation of Supreme Audit Institutions. URL: https://afrosai.org/wp-content/uploads/2022/04/En_2020-AFROSAI-SCIENTIFIC-COMPETITION-Joint-2nd-article-SAMMY-KIMUNGUNYI-SAI-Kenya. pdf*.

Knechel, W. R. (2021). The Future of Assurance in Capital Markets: Reclaiming the Economic Imperative of the Auditing Profession. *Accounting Horizons*, *35*(1), 133-151.

Kneusel, R. T. (2018). *Random numbers and computers* (Vol. 239). Cham (CH): Springer.

KPMG, (2017). KPMG and automation anywhere form alliance to deliver robotic process automation solutions to clients. https://www.prnewswire.com/news-releases/kpmg-and-automation-anywhere-form-alliance-to-deliver-robotic-process-automation-solutions-to-clients-300508497.html.

Krasodomska, J., Simnett, R., & Street, D. L. (2021). Extended external reporting assurance: Current practices and challenges. *Journal of International Financial Management & Accounting*, *32*(1), 104-142.

Kuhn, T. S. (1970). *Criticism and the growth of knowledge: Volume 4: Proceedings of the International Colloquium in the Philosophy of Science, London, 1965* (Vol. 4). Cambridge University Press.

Kustinah, S. (2013). The influence of dysfunctional behaviour and individual culture on audit quality. *International Journal of Scientific & Technology Research*, *2*(5), 118-125.

Kwarteng, A., & Aveh, F. (2018). Empirical examination of organisational culture on accounting information system and corporate performance: Evidence from a developing country perspective. *Meditari Accountancy Research*, *26*(4), 675-698.

Lee, S. C., Su, J. M., Tsai, S. B., Lu, T. L., & Dong, W. (2016). A comprehensive survey of government auditors' self-efficacy and professional Development for improving audit quality. *SpringerPlus*, *5*(1), 1-25.

Li, H., Dai, J., Gershberg, T., & Vasarhelyi, M. A. (2018). Understanding usage and value of audit analytics for internal auditors: An organisational approach. *International Journal of Accounting Information Systems*, *28*, 59-76. https://doi.org/10.1016/j.accinf.2017.12.005

Liebenberg, J., Benade, T., & Ellis, S. (2018). Acceptance of ICT: Applicability of the unified theory of acceptance and use of technology (UTAUT) to South African students. *The African Journal of Information Systems*, *10*(3), 1.

Lowe, D. J., Bierstaker, J. L., Janvrin, D. J., & Jenkins, J. G. (2018). Information technology in an audit context: Have the Big 4 lost their advantage? *Journal of Information Systems*, *32*(1), 87-107.

Mahzan, N., & Lymer, A. (2014). Examining the adoption of computer-assisted audit tools and techniques: Cases of generalized audit software use by internal auditors. *Managerial Auditing Journal*, *29*(4), 327-349.

Manita, R., Elommal, N., Baudier, P., & Hikkerova, L. (2020). The digital transformation of external audit and its impact on corporate governance. *Technological Forecasting and Social Change*, *150*, 119751. https://doi.org/10.1016/j.techfore.2019.119751

Manson, S., McCartney, S., Sherer, M., & Wallace, W. A. (1998). Audit automation in the UK and the US: A comparative study. *International Journal of Auditing*, *2*(3), 233-246.

Manyika, J., Chui, M., Miremadi, M., Bughin, J., George, K., Willmott, P., & Dewhurst, M. (2017). Harnessing automation for a future that works. *McKinsey Global Institute*, 2-4.

Mardian, S., & Avianti, I. (2019). Improving Audit Quality: Adopting Technology and Risk Management. *International Journal of Innovation, Creativity and Change*, *8*(3).

Masood, A., & Afzal, M. (2016). Determinants of audit quality in Pakistan. *Journal of Quality and Technology Management*, *13*(II), 25-49.

Masood, A., & Lodhi, R. N. (2015). Factors affecting the success of government audits: A case study of Pakistan. *Universal Journal of Management*, *3*(2), 52-62.

Ministry of Finance (2022). https://mofep.gov.gh/news-and-events/2018-08-01/press-statement-by-the-minister-for-finance-ken-ofori-atta-in-relation-to-government-support-for-strengthening-ghana-banking-sector

Moffitt, K. C., Rozario, A. M., & Vasarhelyi, M. A. (2018). Robotic process automation for auditing. *Journal of emerging technologies in accounting*, *15*(1), 1-10.

Mohd Noor, N. F., Mohd Sanusi, Z., Johari, R. J., Saad Al-Dhubaibi, A. A., Hudayati, A., & Abdul Razak, N. (2022). An examination of the utilization of audit technology in influencing audit job performance. *Asian-Pacific Management Accounting Journal*, *17*(1), 283-309.

Montenegro, T. M., & Bras, F. A. (2015). Audit Quality Resource-Based Perspective. *Caspian Journal of Applied Sciences Research*, *4*, 19-46.

Montero, A. G., & Le Blanc, D. (2019). The role of external audits in enhancing transparency and accountability for sustainable development goals.https://www.un.org/sites/un2.un.org/files/2020/08/1597341825.2797.pdf

Moore, G. C., & Benbasat, I. (1991). Development of an instrument to measure the perceptions of adopting an information technology innovation. *Information Systems Research*, *2*(3), 192-222.

Myers, M. D., & Tan, F. B. (2002). Beyond models of national culture in information systems research. In *Human factors in information systems* (pp. 1-19). IGI Global.

Nandi, M. L., Nandi, S., Moya, H., & Kaynak, H. (2020). Blockchain technology-enabled supply chain systems and supply chain performance: a resource-based view. *Supply Chain Management: An International Journal*, *25*(6), 841-862.

Ndemewah, S. R., & Hiebl, M. R. (2022). Management accounting research on Africa. *European Accounting Review*, *31*(4), 1029-1057.

Noor, N. F., Sanusi, Z., Johari, R. J., Al-Dhubaibi, A. A., Hudayati, A., & Abdul Razak, N. (2022). An examination of the utilization of audit technology in influencing audit job performance. *Asian-Pacific Management Accounting Journal*, *17*(1), 283-309.

Nsor-Ambala, R. (2023). Understanding the cultural underpinnings of managerial performance reporting (MPR) in Ghana. *Journal of Accounting & Organisational Change*, *19*(1), 1-23.

Nunes, T., Leite, J., & Pedrosa, I. (2020, June). Intelligent process automation: an overview over the future of auditing. In *2020 15th Iberian Conference on Information Systems and Technologies (CISTI)* (pp. 1-5). IEEE.

Nwibere, B. M. (2013). The influence of corporate culture on managerial leadership style: the Nigerian experience. *International Journal of Business & Public Administration*, *10*(2).

Nyamori, R. O., Abdul-Rahaman, A. S., & Samkin, G. (2017). Accounting, auditing and accountability research in Africa: Recent governance developments and future directions. *Accounting, Auditing & Accountability Journal*, *30*(6), 1206-1229.

Nyandongo, K. M., & Pillay, S. S. (2022, June). The Use of Fourth Industrial Revolution Technologies to Improve the Information Technology Auditor's Job Function. In *2022 IEEE 28th International Conference on Engineering, Technology and Innovation (ICE/ITMC) & 31st International Association for Management of Technology (IAMOT) Joint Conference* (pp. 1-6). IEEE.

Ocak, M., Ozkan, S., & Can, G. (2022). Continuing professional education and audit quality: evidence from an emerging market. *Asian Review of Accounting*, *30*(4), 432-464.

Okab, R. (2013). The Expert Systems and Their Role in Developing External Auditor's Performance and Improving Audit Service Quality in Information Technology Environment in Audit Offices Located in the Hashemite Kingdom of Jordan. *International Journal of Business and Management*, *8*(17), 129.

Okaro, S. C., & Okafor, G. O. (2015). Cultural Factors and Audit Quality. Evidence from Nigeria. *International Journal of Academic Research in Accounting, Finance and Management Sciences*, *5*(2), 17-22.

Osei, A. A., Yusheng, K., Caesar, A. E., Tawiah, V. K., & Angelina, T. K. (2019). Collapse of big banks in Ghana: Lessons on its corporate governance. *International Institute for Science, Technology and Education*, *10*(10). DOI: 10.7176/RJFA

Owino, B., & Musuva, P. (2021). Empirical Assessment of Improved Audit Quality Factors Using Computer-Assisted Audit Tools and Techniques (Caatts). *Journal of Language, Technology & Entrepreneurship in Africa*, *12*(2), 147-171.

Pallant, J. (2020). *SPSS survival manual: A step-by-step guide to data analysis using IBM SPSS*. McGraw-Hill Education (UK).

Park, N., Rhoads, M., Hou, J., & Lee, K. M. (2014). Understanding the acceptance of teleconferencing systems among employees: An extension of the technology acceptance model. *Computers in Human Behaviour*, *39*, 118-127. https://doi.org/10.1016/j.chb.2014.05.048

Pedrosa, I., Costa, C. J., & Aparicio, M. (2020). Determinants adoption of computer-assisted auditing tools (CAATs). *Cognition, Technology & Work*, *22*(3), 565-583.

Pierce, B., & Sweeney, B. (2004). Cost–quality conflict in audit firms: an empirical investigation. *European Accounting Review*, *13*(3), 415-441.

Pimentel, J. L. (2019). Some biases in Likert scaling usage and its correction. *International Journal of Science: Basic and Applied Research (IJSBAR)*, *45*(1), 183-191.

Podsakoff, P. M., MacKenzie, S. B., Lee, J. Y., & Podsakoff, N. P. (2003). Common method biases in behavioural research: a critical review of the literature and recommended remedies. *Journal of Applied Psychology*, *88*(5), 879.

Public Company Accounting Oversight Board (PCAOB). (2015, July 1). Concept release on audit quality indicators. https://pcaobus.org/ Rulemaking/Docket%20041/Release_2015_005.pdf

Raiszadeh, A., Mohseni, A., & Ghasemi, M. (2023). A review of studies related to audit quality by meta-analysis method. *Journal of Positive School Psychology*, *6*(12), 2160-2180.

Ramen, M., Jugurnath, B., & Ramhit, P. (2015). UTR-CTOE: A new paradigm explaining CAAT adoption. *Journal of Modern Accounting and Auditing*, *11*(12), 615-631.

Ramezani, H. R., Azinfar, K., Roshan, H. G., & Fallah, R. (2022). The Role of Culture in Auditors' Social Norms and Audit Quality in Iran's Environmental Conditions. *Health Technology Assessment in Action*, *6*(1). doi: 10.18502/htaa.v6i1.11134

Raphael, J. (2017). Rethinking the audit: Innovation is transforming how audits are conducted and even what it means to be an auditor. *Journal of Accountancy*, *223*(4), 28.

Rehman, A. A., & Alharthi, K. (2016). An introduction to research paradigms. *International Journal of Educational Investigations*, *3*(8), 51-59.

Ringle, C. M., Sarstedt, M., & Straub, D. W. (2012). Editor's comments: A critical look at the use of PLS-SEM in" MIS Quarterly". *MIS quarterly*, iii-xiv.

Rogers Everett, M. (1995). Diffusion of innovations. *New York*, *12*.

Romney, M. B., & Steinbart, P. J. (2006). Accounting Information Systems (International Edition). Pearson Education Inc. *New Jersey*.

Rosli, K., Yeow, P. H., & Siew, E. G. (2012). Factors influencing audit technology acceptance by audit firms: A new I-TOE adoption framework. *Journal of Accounting and Auditing*, *2012*, 1. DOI: 10.5171/2012.876814

Salehi, M., Fakhri Mahmoudi, M. R., & Daemi Gah, A. (2019). A meta-analysis approach for determinants of effective factors on audit quality: Evidence from emerging market. *Journal of Accounting in Emerging Economies*, *9*(2), 287-312.

Saliha, J. I., & Flayyihb, H. H. (2020). Impact of audit quality in reducing external audit profession risks. *International Journal of Innovation, Creativity and Change*, *13*(7), 176-197.

Sampet, J., Sarapaivanich, N., & Patterson, P. (2019). The role of client participation and psychological comfort in driving perceptions of audit quality: Evidence from an emerging economy. *Asian Review of Accounting*, *27*(2), 177-195.

Sarstedt, M., Hair Jr, J. F., Cheah, J. H., Becker, J. M., & Ringle, C. M. (2019). How to specify, estimate, and validate higher-order constructs in PLS-SEM. *Australasian Marketing Journal (AMJ)*, *27*(3), 197-211.

Saunders, M., Lewis, P., & Thornhill, A. (2009). Research methods. *Business Students* (4th edition). Pearson Education Limited, England.

Schwab, K. (2017). *The fourth industrial revolution*. New York (NY). Currency books.

Shahzad, F., Luqman, R. A., Khan, A. R., & Shabbir, L. (2012). Impact of organisational culture on organisational performance: An overview. *Interdisciplinary Journal of Contemporary Research in Business, 3(9), 975–985.*

Siew, E. G., Rosli, K., & Yeow, P. H. (2020). Organisational and environmental influences in the adoption of computer-assisted audit tools and techniques (CAATTs) by audit firms in Malaysia. *International Journal of Accounting Information Systems*, *36*, 100445.

Stoop, I. A. (2005). *The hunt for the last respondent: Nonresponse in sample surveys* (Vol. 200508). Sociaal en Cultureel Planbu.

Sulaiman, N. A. (2018). Attributes and Drivers of Audit Quality: The Perceptions of Quality Inspectors in the UK. *Asian Journal of Accounting & Governance*, *10*, 23-35.

Sulaiman, N. A. (2023). External audit quality: its meaning, representations and potential conflict in practice. *Accounting, Auditing & Accountability Journal*, *36*(5), 1417-1440.

Suyono, E. (2012). Determinant factors affecting the audit quality: An Indonesian perspective. *Global Review of Accounting and Finance*, *3*(2), 42-57.

Svanberg, J., & Öhman, P. (2013). Auditors' time pressure: Does ethical culture support audit quality? *Managerial Auditing Journal*, *28*(7), 572-591.

Tam, C., & Oliveira, T. (2017). Understanding mobile banking individual performance: The DeLone & McLean model and the moderating effects of individual culture. *Internet Research*, *27*(3), 538-562.

Tan, K. S., Teo, W. L., & Lai, K. P. (2011). The applicability of information technology governance in the Malaysian SMEs. *Journal of Innovation Management in Small and Medium Enterprises*, *2011*, 1-10.

Tan, M., & Teo, T. S. (2000). Factors influencing the adoption of Internet banking. *Journal of the Association for information Systems*, *1*(1), 5.

Tornatzky, L. G., Fleischer, M., & Chakrabarti, A. K. (1990). *Processes of technological innovation*. Lexington books.

Tran, M. D., Khairi, K. F., & Laili, N. H. (2019). A longitudinal study of audit quality differences among independent auditors. *Journal of Economics and Development*, *21*(2), 234-246.

United Nations (2022). *Sustainable Development Goal 16*. Retrieved December 1, 2022, from: https://sdgs.un.org/goals/goal16

Van Nhi, V., & Lam, P. T. (2019). The role of perceived usefulness in the relationship between task—technology fit and individual job performance in ERP implementation—evidence from Vietnam's enterprises. *Science & Technology Development Journal-Economics-Law and Management*, *3*(4), 451-461.

Vasarhelyi, A. M., & Romero, S. (2014). Technology in audit engagements: a case study. *Managerial Auditing Journal*, *29*(4), 350-365.

Venkatesh, V., & Bala, H. (2012). Adoption and impacts of inter-organisational business process standards: Role of partnering synergy. *Information Systems Research*, *23*(4), 1131-1157.

Venkatesh, V., & Davis, F. D. (2000). A theoretical extension of the technology acceptance model: Four longitudinal field studies. *Management Science*, *46*(2), 186-204.

Venkatesh, V., Morris, M. G., Davis, G. B., & Davis, F. D. (2003). User acceptance of information technology: Toward a unified view. *MIS Quarterly*, *27*(3), 425-478.

Volkoff, O. & Strong, D. M. (2010). Understanding Organization-Enterprise system fit: A path to theorizing the information technology artefact. *MIS Quarterly*, *34*(4), 731-756.

Vos, J. F., & Boonstra, A. (2022). The influence of cultural values on Enterprise System adoption, towards a culture–Enterprise System alignment theory. *International Journal of Information Management*, *63*, 102453. https://doi.org/10.1016/j.ijinfomgt.2021.102453

Widuri, R., Ferdiansyah, I., & Kongchan, P. (2021). The influence of culture, technology, organization and environment on the adoption of computer-assisted audit techniques. *PalArch's Journal of Archaeology of Egypt/Egyptology*, *18*(1), 494-504.

Widuri, R., Sari, N., Wicaksono, A., Sun, Y., & Sari, S. A. (2017, July). Perception of internal auditor on the use of Generalized Audit Software. In *2017 International Conference on Research and Innovation in Information Systems (ICRIIS)* (pp. 1-6). IEEE.

Witte, A. L., Earley, C. E., & Thibodeau, J. C. (2022). Big Fish, Small Pond: How In-Charge Auditors Engage with Technology-Based Audit Tools to Influence the Audit in Non-Global Network Firms. *Journal of Information Systems*, *36*(2), 141-160.

Wolf, K., & Frese, M. (2018). Why husbands matter: Review of spousal influence on women entrepreneurship in sub-Saharan Africa. *Africa Journal of Management*, *4*(1), 1-32.

Yang, M., Li, Y., Jin, D., Zeng, L., Wu, X., & Vasilakos, A. V. (2015). Software-defined and virtualized future mobile and wireless networks: A survey. *Mobile Networks and Applications*, *20*(1), 4-18.

Yeboah-Boateng, E. O., & Essandoh, K. A. (2014). Factors influencing the adoption of cloud computing by small and medium enterprises in developing economies. *International Journal of Emerging Science and Engineering*, *2*(4), 13-20.

Younus, A. M., & Raju, V. (2021). Resilient Features of Organisational Culture in Implementation of Smart Contract Technology Blockchain in Iraqi Gas and Oil Companies. *International Journal for Quality Research*, *15*(2), 435.

Zahmatkesh, S., & Rezazadeh, J. (2017). The effect of auditor features on audit quality. *Tékhne*, *15*(2), 79-87.

Zainudin, A. D. P. A., Aswar, K., Lastiningsih, N., Sumardjo, M., & Taufik, T. (2021). Analysis of potential factors influencing audit quality: The moderating effect of time budget pressure. *Problems and Perspectives in Management*, *19*(4), 519-529.

Zhang, C. A., Thomas, C., & Vasarhelyi, M. A. (2022). Attended Process Automation in Audit: A Framework and A Demonstration. *Journal of Information Systems*, *36*(2), 101-124.

Zhao, X., Lynch Jr, J. G., & Chen, Q. (2010). Reconsidering Baron and Kenny: Myths and truths about mediation analysis. *Journal of Consumer Research*, *37*(2), 197-206.

Zigurs, I., & Buckland, B. K. (1998). A theory of task/technology fit and group support systems effectiveness. *MIS Quarterly*, *22*(3), 313-334.

Zikmund, W. G., Babin, B. J., Carr, J. C., & Griffin, M. (2013). *Business research methods*. Cengage Learning.

APPENDICES

APPENDIX 1

UNIVERSITY OF CAPE COAST
COLLEGE OF HUMANITIES AND LEGAL STUDIES
SCHOOL OF BUSINESS
DEPARTMENT OF ACCOUNTING

SURVEY QUESTIONNAIRE

Topic
Factors influencing audit quality of audit firms in Ghana: The role of audit automation adoption, corporate culture, and technological training

Dear Respondent,

My name is Cornelius Adorm-Takyi, a PhD candidate at the Department of Accounting, School of Business, University of Cape Coast. This study forms part of the requirements for the award of PhD degree in Business Administration. The study seeks to investigate the moderating role of corporate culture and frequency of technology training in the relationship between audit automation adoption and audit quality in Ghana.

You are invited to participate in this survey because of your knowledge and experience as an auditor practising in Ghana. Your input will contribute to the representativeness of the sample, which increases the generalisability of the study to the selected unit of analysis. By completing this survey, you agree that the information you provide may be used for research purposes, including dissemination through peer-reviewed publications and conference proceedings.

It is anticipated that the information from this survey will help us to draw up recommendations for audit practice in Ghana. You are, however, under no obligation to complete the survey and you can withdraw from the study before submitting the survey. You do not need to share any information that you feel uncomfortable disclosing. The survey is developed to be anonymous, meaning that we will have no way of connecting the information that you provide to you personally. Because the research focuses on anonymous data, individual feedback will not be provided to participants. Your responses to the questionnaire items are captured anonymously and integrated into a group-based research report. Your responses can therefore not be traced to you as an individual. If you choose to participate in this survey, it will take not more than 25 – 30 minutes of your time.

You will not experience any negative consequences by completing the survey. The researcher undertakes to keep any information provided herein confidential, not to let it out of our possession and to report on the findings from the perspective of the participating group and not from the perspective of an individual. However, should you require further information or clarification on this questionnaire, its nature or its purpose, or you wish to be informed of

the results of the study, do not hesitate to contact me at *0243066424* or email: *ctakyi@ucc.edu.gh*. Thank you for your valuable time and input.

Section A: Background Information

Please TICK [√] the appropriate box/complete the entry where applicable/ that is true about you.

1. Gender

Male [ ]
Female [ ]

2. Age

20-30 [ ]
31-40 [ ]
41-50 [ ]
51-60 [ ]
61 and above [ ]

3. Highest educational qualification

Diploma certificate [ ]
Bachelor's degree [ ]
Master's degree [ ]
Doctorate [ ]

4. Professional qualification

Chartered accountant [ ]
Other professional qualification [ ]
No professional qualification [ ]

5. Indicate the number of audit automation training courses that have been organised in your firm in the past 12 months.

Less than one [ ]
More than one [ ]

6. Audit firm size

Big 4 [ ]
Non-Big 4 [ ]

Section B: Individual, technological, organisational and environmental factors

This section collects data on technological factors, organisational factors, environmental factors, and individual factors. *Please TICK [√] the appropriate box to indicate your level of agreement or disagreement with the following statements where 1 = Strongly disagree; 5= strongly agree.*

Technological factors (TF)

	Cost-benefit	1	2	3	4	5
CB1	The benefits of using audit automation outweigh its initial investment cost					
CB2	Audit automation will improve audit efficiency through reduced paperwork					
CB3	The benefits of using audit automation compensate for the cost of training staff					
CB4	Audit automation will provide accurate information for decision-making					
CB5	The benefits of audit automation outweigh its ongoing maintenance cost					
	Compatibility	1	2	3	4	5
CMP1	The changes introduced by audit automation are likely to be consistent with our firm's existing values/beliefs					
CMP2	Audit automation adoption will be compatible with existing information infrastructure					
CMP3	The changes introduced by automation will be consistent with prior practices and procedures					
CMP4	Audit automation adoption will be compatible with my firm's existing experiences with similar systems or technology					
	Complexity	1	2	3	4	5
CPX1	Audit automation tools are complex and complicated					
CPX2	Learning to use audit automation will take a longer time					
CPX3	It will likely be difficult to become skilful in audit automation usage					
CPX4	The audit firm believes that audit automation development will not be easy					
	Relative advantage	1	2	3	4	5
RA1	Audit process automation will improve audit quality					
RA2	Audit automation is likely to make audits easier					
RA3	Audit automation will improve audit efficiency through reduced paperwork					
RA4	Audit automation will help reduce the cost of the					

	audit process					
RA5	Audit automation will reduce the error rate in the audit process					
	Observability	1	2	3	4	5
OB1	I have seen how others use automation in the audit process					
OB2	It is easy to observe others using automation in their audit process					
OB3	There are several opportunities to see automation being used in the audit process					
	Trialability	1	2	3	4	5
TRL1	There is a great deal of opportunity to try various automation tools					
TRL2	Automation tools are available to adequately test-run the software					
TRL3	Before deciding whether to use automation, our firm was able to try it out					

Organisational factors (OF)

	Top Management Support	1	2	3	4	5
TMS1	Top management is likely to support the purchase and maintenance of audit software					
TMS2	Top management requires auditors to attend regular audit automation workshops and training					
TMS3	Top management is willing to support the use of audit automation					
TMS4	Management closely ties audit automation with the firm's competitive strategies					
TMS5	Top management is willing to take the risks involved in the adoption of audit automation					
	Technological competence	1	2	3	4	5
TC1	The technology infrastructure of the firm supports audit automation					
TC2	The firm is dedicated to ensuring that employees are familiar with audit automation-related software					
TC3	Employees of the firm have high-level audit technology-related knowledge					
TC4	The employees are IT literate					
TC5	The firm has at least one employee who is an expert in audit automation					

Environmental factors (EF)

	Audit Standards	1	2	3	4	5
AS1	Audit standards encourage the use of various analytical methods to detect misstatements					
AS2	Audit standards recommend the use of audit software in the audit function					
AS3	Audit standards recommend the use of advanced analytics to enhance the audit firm's functional reliability					
	External pressure/ competitive pressure	1	2	3	4	5
EXP1	The use of technology will differentiate the audit firm from others					
EXP2	There is competitive pressure to automate the audit process					
EXP3	The Institute of Chartered Accountants Ghana (ICAG) requires us to use audit automation					
EXP4	The firm would have been disadvantaged if audit automation had not been adopted					
EXP5	The firm's competitors have adopted audit automation to a high extent					
EXP6	The external auditors of the firm recommend the use of audit automation					
EXP7	External auditors are willing to provide support for the use of audit automation					
	Perceived level of professional body support	1	2	3	4	5
PBS1	Professional accounting bodies support audit automation adoption					
PBS2	Auditing standards that are set up by professional bodies support audit automation adoption					
PBS3	Professional accounting bodies highly recommend audit automation adoption					
PBS4	ICAG provides a guide for the implementation of audit automation					
PBS5	Professional accounting bodies provide incentives to implement audit automation					
	Clients Accounting Information System	1	2	3	4	5
AIS1	The majority of the firm's clients have complex accounting systems					
AIS2	Most of the firm's clients have highly computerised financial reporting systems					
AIS3	The majority of the firm's clients have complex business environments					
AIS4	It is difficult to access audit evidence from client's data manually					

Individual factors (IF)

	Performance expectancy	1	2	3	4	5
PE1	I use audit automation to obtain evidence on controls' efficacy					
PE2	I use audit automation to execute analytical procedures to aid auditor judgement					
PE3	Using audit automation increases my productivity					
PE4	Using audit automation would increase the quality of the audit					
	Effort expectancy	1	2	3	4	5
EE1	My interaction with audit automation is clear and understandable					
EE2	It is easy for me to become skilful at using audit automation					
EE3	I find audit automation easy to use					
EE4	Using audit automation may require a lot of my mental effort					
	Social influence	1	2	3	4	5
SI1	People who influence my behaviour think that I should use audit automation					
SI2	The senior management of this firm has been helpful in the use of audit automation					
SI3	People in my firm who use audit automation have more prestige than those who do not use it					
SI4	My peers' behaviour on audit technological innovation influences positively my future acceptance/usage					
	Facilitating conditions	1	2	3	4	5
FC1	I have the resources necessary to use audit automation					
	I have the necessary knowledge to use audit automation					
FC2	I have the support of a person or a group of persons to use audit automation					
FC3	Technical assistance is easily assessable when faced with challenges in the use of audit automation					
FC4	The system is compatible with other technological innovations I use					
FC5	Using audit automation fits well with the firm's audit philosophy					

Section C: Audit Automation Adoption (AAA)

Audit automation adoption is the application of technology to facilitate the audit process. The following questions seek to ascertain respondents' usage of audit automation in the audit process. Using a five-point Likert scale i.e., 0% (never use); 100% (extensively used), please TICK [√] the appropriate box to indicate the percentage of tasks conducted through these audit automation tools. Where 1=0% (never use); 2= 1-25%; 3= 26-50%; 4= 51-75%;5= 76-100%..

AAA1	Generalised audit software	1	2	3	4	5
AAA2	Electronic audit working papers software	1	2	3	4	5
AAA3	Embedded audit modules	1	2	3	4	5
AAA4	Database SQL search and retrieve	1	2	3	4	5
AAA5	Parallel simulation software	1	2	3	4	5
AAA6	Test data	1	2	3	4	5

Section D: Corporate Culture (CC)

Corporate culture refers to the beliefs and behaviours that determine how a company's employees and management interact and handle outside business transactions.

Please TICK [√] the appropriate box to indicate your level of agreement or disagreement with the following statements where 1 = Strongly disagree; 5= strongly agree.

Corporate culture

CC1	Most people in the company have input into decisions that affect them	1	2	3	4	5
CC2	Cooperation and collaboration across functional roles are actively encouraged	1	2	3	4	5
CC3	The approach to doing business is very consistent and predictable	1	2	3	4	5
CC4	There is a high level of agreement about the way business is done	1	2	3	4	5
CC5	Our firm is very responsive and changes easily in a fast-changing environment	1	2	3	4	5
CC6	Clients' comments and recommendations often lead to changes in our organisation	1	2	3	4	5
CC7	The company has a long-term purpose and direction	1	2	3	4	5
CC8	There is a shared vision of what this company will be like in the future	1	2	3	4	5

Section E: Audit Quality (AQ)

Audit quality is the joint probability that an existing misstatement is detected and reported by an auditor. Audit quality input factors, process factors and output factors are conditions when implemented will help improve audit quality. Please TICK [√] the appropriate box to indicate your level of agreement or disagreement with the following statements where 1 = Strongly disagree; 5= strongly agree.

Audit quality

AQ1	Using audit automation will enhance professional scepticism	1	2	3	4	5
AQ2	Audit automation will allow more time to focus on areas of significant judgement	1	2	3	4	5
AQ3	Audit automation will facilitate the focus of audit testing on the areas of highest risk through the stratification of large populations	1	2	3	4	5
AQ4	Using audit automation will help in performing tests on large or complex datasets where a manual approach would not be feasible	1	2	3	4	5
AQ5	Using audit automation will enable the independent reperformance of complex calculations and modelling	1	2	3	4	5
AQ6	Using audit automation will help identify instances of potential fraud	1	2	3	4	5
AQ7	Using automation tools and techniques will enable the analysis of entire populations which will reduce bias	1	2	3	4	5

Thank you.

Appendix 2: List of audit firms

List of licensed firms for 2022 that have fulfilled all the prescribed requirements of the Institute of Chartered Accountants, Ghana

The Licences are valid until 31 December 2022

NO.	NAME OF FIRM	PHYSICAL ADDRESS
1	A & A Associates (Chartered Accountants)	No. 12, Happy Home Street, ACP Estates Jnc. Pokuase, Accra
2	A.D. & Associates	No. 60 Mango Tree Avenue, Asylum Down, Accra
3	A.G. Neequaye Accounting Services	No. 7, Sal Valley Close, Kanda Estates, Near Kanda Post Office
4	A.I. Services	House No. 5, Bawa A. Yakubu Street, Bubuashie-Accra, Opposite Love Community Hospital
5	A.M.S & Associates Chartered Accountants & Management Consultants	Goodmark Building, Sunyani Branch Office-Ministries Block, PMB, Wa, XW-0021-9695
6	AA & K Chartered Accountants	9 Justice DF Annan By Pass, Tesano, Accra
7	AA Grand Consult	1st Floor, 57 Kwame Nkrumah Avenue, Adabraka, Accra
8	AADS Consult	5th Floor, Republic House, Accra
9	AB & Partners Chartered Accountants	No. F9 Expert Asi Plaza, New Ashongman, Off Atomic-Ashongman Est. Road
10	Abbew-Dadzie & Associates	Gicel Block A6/8, Mandela-Wejia, Accra
11	ABG Consult	Sika Plaza, Dome Pillar Two Road
12	ABI & Partners	Suite No. 10, First Floor, Swanzy Shopping Arcade, Accra Central
13	Abossey Alfsam & Associates	Hse No. B78/2, Miamonia Street, South Industrial Area, Accra
14	Abrokwa, Boateng & Associates	Plot No. 4/51, Pantang, Near Pantang P & T, Accra
15	Abstracus	8th Floor, One Airport Square, Airport City, Accra Branch Office, D11 Baba Yara Link, Tema, GPS Address GT-005-5957

16	ABU & Associates (Chartered Accountants)	Ghana Commercial Bank, Regional Office Building, Tamale, 2nd Floor, Room 1 & 2 Branch Office - Adjacent Bolga Gratis Foundation, 1st Floor, Bolgatanga
17	Accounting Associates	Rotary Avenue, Community 1, Near Fire Service, Tema
18	AccountingPlus	House No 2, Off Tetegu Road, Tetegu (Adjacent Tetegu Presby Church)
19	Accurate Professional Solutions	106 7th Avenue West, Dome-Kwabenya Road, Accra
20	Acumen Alliance	44 Pawpaw Street, East Legon, Accra
21	Adamah, Tachie & Associates	2nd Floor, Asafo SSNIT House, Asafo, Kumasi

NO.	NAME OF FIRM	PHYSICAL ADDRESS
22	Addayiredoribaaseamo (AYB)	Tamaha Plaza, Gumbihini, Tamale
23	Adjei, Ansah & Associates	No. 509, D7 Ayawaso Street, North Kaneshie Last Stop, Accra
24	Adjei, Atila & Co.	House No. 608/4, ARS Banana Lane, Close to The Institute of Local Government, Accra
25	Adom Boafo & Associates	L027/3, Mango Tree Avenue, Asylum Down, Accra
26	ADR Accounting & Consultancy Services	HNO. KM 25/9, Kae Mebre, Kasoa
27	Afare, Boateng & Partners	SCC, Weija DVLA, AT Waist & Power, Weija Accra
28	Agen Business Consult	Akoko Foto Road, Dansoman, 97 Dansoman Road, Accra
29	AGH Consult Chartered Accountants	House No. 23, Eseefoo Street, Asylum Down, Accra
30	Ahima-Adonteng & Associates	H/No.332, Achimota-Nsawam Highway, Achimota, Accra
31	Aikins-Hawkson & Associates	Top Floor, El's Place, Christian Village, West Lands
32	AKA & Partners Chartered Accountants	56D Lami Dwaahe Street, 1st Floor, Chateau Dieu, Adenta Housing Down Estate, Accra
33	Akonu & Partners Chartered Accountants	No. 10, Odaw Crescent, Kokomlemle, Accra
34	Alex Thompson & Associates	P.O.Box 9551, Atta Mills High Street

35	Allied Board Konsult	Hse No. 42, Pantang Road, Adenta Kente Avenue
36	Amarisa Chartered Accountants	House # 7, Tsotsoo Agbon Street, Behind Ghana Link Network, East Legon
37	AMK & Partners	House No. A/1/57, Pokuase Highway, Accra
38	Amoako Boateng & Associates	Room 18, JB Arthur Centre, St. Cyprian's Cathedral, Fante Newtown, Kumasi
39	Anane, Mantey & Co.	2nd Floor, Douha House, Near Tudu Standchart, Accra Branch Office, Kasoa
40	Anang, Ayi & Associates	Suite 401, Verostina House, Bae 2/21, Baatsonaa
41	AOB & Associates	No. 20 Nikoi Street, East Legon, Accra
42	Arday Boakye & Co.	56 Faanofa Street, Kokomlemle, Accra
43	ARG Chartered Accountant	AM Plaza, Off Century Roundabout, Teshie Tuibleoo
44	Aryeetey & Associates	Hse No 3, Almond Street, Tseaddo, Labadi
45	Asafu-Adjaye & Partners	88 Kwame Nkrumah Avenue, Near Roxy Cinema, Opp. Wiseway Cleaners, Adabraka Branch Office - Kumasi, Oduro 44, Ahenmoboano, Manhyia GPS Address AK-000-65-87
46	Asamoa Bonsu & Co.	No. 73 Orgle Raod, North Kaneshie, Accra Branch Office, 169 OTB, Adum, Kumasi, GPS AK-038-0355

NO.	NAME OF FIRM	PHYSICAL ADDRESS
47	Asante, Anarfi & Associates	Nii Sowa Ganu Street, East Adenta, Accra
48	Asemaku Consult	H/No B37/11, Near Mascot Hotel, North Kaneshie, Orgle Road, Accra
49	Ashong, Nkrumah & Associates	House No. So/B/903, Chop Bar, Off Santa Maria Sowutuom Main Road
50	ASKE Synergy Consult	A/3-30-31 Gicel Weija, Accra
51	ASL Consulting	House No. 262/18, Manhean Street,

		Abelemkpe, Accra
52	AssuranceHub Consult	House No. 704/14, 62 Forest Avenue, George Bush Motorway, North Dzorwulu
53	AT- Ernest Dawlah	3rd Floor, Diamond House, Kinbu Road, Accra
54	Atna Consultancy	15 Labone Crescent, North Labone, Osu
55	Audax Consult	House Number A982/1, Guggisberg Avenue, Opp Indafa Park
56	Audit Partners Africa	House No. 7, Coconut Close, Adenta Housing Down
57	A-YA Chartered Accountants	No. 2 Akoshie Crescent, Teshie-Demo, Accra
58	Ayew Agyeman & Co.	No. 25, Liberia Road, Total House, Accra
59	AYK Associates	162 Winneba Road, Odorkor Mallam Highway, Accra
60	B. Omane-Antwi Consult	10 Otswe Street, Osu, Ako Adjei, Accra
61	B.K. Deh Consult	Plot No. 36A, Galloway Traffic, Adweso Road, Koforidua
62	Back Consult	34 Independence Avenue, Ridge, Accra
63	Baffour Awuah & Associates	No. 1 Blohum Street, Dzorwulu Junction, Dzorwulu, Accra
64	BAFT Chartered Accountants	Meridian Heigth Building, 4th Floor, Kraku Rd. Community 1, Behind Ecobank Main, Tema
65	Baker Tilly Andah + Andah	C726/3, Nyanyo Lane, Asylum Down, Accra
66	BEA & Associates	Oyibi, Dodowa Road, Behind Kas Valley Estates, Accra
67	Bediako & Associates	3rd Floor, Room 316, Cocoa House, Sunyani
68	BEK & Y Associates	12 Abrantie Avenue, Adenta
69	Bentum Bentil Consult	Gilford Tetteh Street, Shiashie, East Legon, Accra
70	Bernida Consult	Atlantic Tower, Airport City, PLY 16, Accra
71	BETA & Associates	Unnumbered House, Spintex, Near Entrance Pharmaceutical

72	BGJ Consult	NN32/A, Airport Road, Sunyani
73	Bizexcel Partners	2nd Floor, Ga Presbytery Offices, Osu Kuku Hill
74	BLA & Associates	219/10, Boi Street, Kaneshie

NO.	NAME OF FIRM	PHYSICAL ADDRESS
75	Bloom Accountancy	202 Pawpaw Street, Community 6, Tema
76	BNA Chartered Accountants	Okukuseku Street, Korle Obuade Rd, 1st Crescent, Asylum Down, Accra
77	Boateng, Offei & Co.	7 Bissau Avenue, East Legon, Accra. Branch Office -#3 Master Cudjoe Street, Harbour Business Area, P O Box 0537, Takoradi.
78	Bolasadipe-Bartels Consulting	3rd Floor, Oswald House, SDA Junction, Adenta
79	Brave Consultancy Services	Hse No. Ae 46/10, Akweley Kasoa, Central Region
80	Brickwater Associates	Adjacent to the Ghana Police Regional Training Depot, Kumasi
81	Brio Chartered Accountants (Formerly Tanda & Associates Partners)	B195/10, Otinkorang Street, North Kaneshie
82	Brodaay & Partners	Adutwumwall Street, Kumasi
83	Brucet Associates	C151 Tabora Scorpion, Next To Kingdom Hall, Accra
84	BSA Audits	House Number 19B, Buade Avenue, Nungua, Accra
85	BSTS & Associates	No. 7 Oshimpa Lake, North Kaneshie, Accra
86	BT Associate	H/No. B775/18, Stelin House, Second Palace Link, North Industrial Area (Near Top Industries)
87	Bulley Audit & Accounting Services	C4-20B, Lakeside, Ashaley Botwe, Accra
88	Buzisols	5 Sam Nujoma Close, Ridge
89	BV & Co.	17 Volta Avenue, Kwabenya, Accra
90	Cardinal Consult	Hse # 24 Boi Ashong Drive, Tebibiiano, Teshie, Accra
91	CEB Consult	H/No. D623/1, 1st Brewery Road, Adabraka, Accra
92	CFA & Associates	Suite G.006, Ground Floor,

	(Formerly Christian Fosu & Associates)	Republic House Annex B, Accra
93	CFY Partners	13 Oshimpa Street, Swanlake Road, North Kaneshie
94	CHG & Associates	Switchback Road, Cantonments, Adjacent Kumoji Hospital
95	Cliftaas	Dansoman SSNIT Flat, Block 1, Ground Floor, Sankofa Avenue Street
96	Conrad Wilson Consults	3 Gbegbe Crescent, Mamprobi, Accra
97	Crowe Veritas	KV1, B.J. Da-Rocha LK No. 11 Adaman Loop, Tesano, Abeka Junction, Accra
98	D.D. Ofoe & Associates	House No 38, Homowo Street, Behind Joy FM, Kokomlemle, Behind Joy FM, Branch Office - House No. N.A 196, Maxwell Road, Asafo Kumasi, GPS AK-067-1873.
99	D.J Consulting Services	Hse No. PT 528/19 Obom Road, Behind Balloon Hotel, Peace Town, Kasoa
100	D.M. Tutu & Co	Near Mallam Atta Shell Filling Station, New Town Road, Accra New Town

NO.	NAME OF FIRM	PHYSICAL ADDRESS
101	Dahwin & MD	H/No. 20 Faanofa Street, Kokomlemle, Accra
102	David Amoah Consulting	Room B3, Time Tells Building, Comm. 5, School Street, Tema
103	Deb Inter Consult	BP 237, Mission Street, Osu
104	Dehands Chartered Accountants	9 Carrot Road, East Legon, Accra
105	Dekhab Associates	D586/4 South Liberia Road, Adabraka, Accra
106	Deloitte & Touche	The Deloitte Place, Plot No. 71, Off George Walker Bush Highway, North Dzorwulu
107	Delwin Chartered Accountants	Plot 203, Fuo-Temale, Northern Region
108	Deon & Noed International (DNI)	C1-69 London Street, Lakeside Estate, Accra. Branch Office, ECG CUA Office, Behind ECG, Ministry of Agric Street, Ho, Volta Region
109	Dew Harvest Consult	Chelsea House Annex, Happer Road, Adum, Kumasi

110	Diligence Consult	PEPS-C Satellite House, Wa Sombo, Wa Municipal, Upper West Region branch Offices - Oswald House, S.D.A Junction, Adenta Highway, Accra
111	DKF Professionals	Spintex Road, Frimpomaa Estates, Behind Glory Oil Filling Station, iHouse No. F.H.P B2
112	Dofac Services	New Gbawe, House No.9, Nai Street, Accra
113	Donaldy Associates	House Of Excellence Annex, Harper Road, Adum, Kumasi (OTA 78 & 79)
114	Double Entry Management Consult	Okukuseku Street, Asylum Down, Near the Round About
115	DQEM & Associates	Plot A, 48 Worship Curve, Spintex Road, Accra
116	D-Smith Consult	Reinzu House, H/No. 19, Mission Street Extension, Osu
117	DYZ Consult	Sombo, WA Municipal
118	E.K. Adjei & Associates	Mensah Kwao Osantro Road, Adenta Commandos
119	E.K. Boampong Consult	F 106/ 5, Woode Memorial Ville Court, 4th Soula Street, North Labone
120	E.K. Osei Consult Partnership	34B Shalom Shopping Mall, Achimota, Accra
121	E.O. Amoako & Associates	B25 CFC Street, Dome, Accra
122	EAK & Associates	Behind Bestpoint Savings and Loans Limited, Mile 7, Achimota
123	EAV & Associates	Gw-0926-6399, Ofankor-Kwashieman Street, Accra
124	EDD Chartered Accountants	No. 14 Koi Street, Osu Ako Adjei, Accra
125	Eddie Nikoi Accounting Consultancy	Kofi Aniefi Street, Behind Osu KFC (6th House on the Left) Branch Office - Kwei Street, Last Chance Area, Dozorwulu-Accra, GPS Address GA-157-2770
126	Egala & Associates	14 Abeka Road, Tesano, Accra
127	EGNL	H/No. 212, West Adenta, SDA Junction, Behind Mediclinic Oforiwa Plaza

NO.	NAME OF FIRM	PHYSICAL ADDRESS
128	Elixir Audits	4th Floor, Efua Halem Building, Tema Community One
129	Emeth Associates	Suite 1, First Floor, Festus Building, Pokuase, Achimota-Nsawam Road
130	EMMACCS (Emmanuel Clarke)	6 Park Avenue, Teshie-Nungua Estates, Accra
131	EMME Consult-Audit	108, Nadkan Plaza, Nyamekye Junction
132	ENM & Associates	House No SD1B, AN, DTD 001 Titanium Avenue, Vanguard Enclave, Amasaman
133	Ernst & Young Chartered Accountants	60 Rangoon Lane, Cantonment City, Accra, Ghana
134	Eureka B.A. Consult	Hse. No. 6, Nii Owu Street, West Legon.
135	Excelz Audit Services	Ablekuma Agape, Okineja Street
136	F. Koranteng Consulting	18/Mkt/Sm/Blk/B/24, Comm.18, Lashibi, Tema
137	Fesap Chartered Accountants	Lekma Hospital Road, Storey Building Opposite Universal Oil Station, First Floor, Nungua
138	Finance Ink Consult	No. A3/15 Gicel Estates, SCC, Weija, Accra
139	Finknack Advisory Services	Volta Estates, Spintex Road
140	Fin-Soft Accounting & Management Services	E264 Sloane Avenue, Burma Hills, Tse Addo, LA Accra.
141	Forbes ET	1B Lomoko Link, Tesano, Behind Chrystal Palm Hotel
142	France Norman & Associates	119 Windy Hills, Katapoe Road Pokuase, Accra
143	Frank Asante Consult	2nd Floor Evergreen House, Community 4, Tema
144	Frank Donkor & Associates	Post Office Building, Main Street, Sunyani
145	Frank Y. Gbadago Chartered Accountant & Tax Practitioner	PLT No. 1, Engen Service Station, Off Kumasi-Sunyani Trunk Road, Tanoso, Kumasi
146	FSI Chartered Accountants	Shell Signboard, Spintex Road
147	FT Cadmond & Associates	7th Floor, Ghana Heights (Gnat Heights), Independence Avenue, Accra

148	Gains Assurance	16 Nii Adjeifio Loop, Teshie Tsuibleoo
149	Gilcram Associates	3rd Floor, Diamond House, Tudu, Accra
150	Glan Consult	55, Rohi House, Kokomlemle
151	Global Auditors	2nd Floor, Glemin House, Junction Off 28th February Road And Amantra Road, Osu -La Road, Osu, Accra
152	Gogoe & Associates	N0. 32 Nii Laryea Street, Dansoman Road
153	Goldstreet Chartered Accountants	No. 29 New Ashongman Estates, Accra
154	Guideway Consult	BLK 37, Abeka Road, Tesano, Accra

NO.	NAME OF FIRM	PHYSICAL ADDRESS
155	Gyabaah & Partners	12 Boahene Korkor Chiraa Road, Sunyani Branch Office. H/No. NK74 Anomakrom, Nsuta, Wasa, Tarkwa
156	H & A Chartered Accountants	Saka Allotey Road, Mango Down, Banana Inn, Accra
157	H.T.K. Consult	Hse Number 266, Pure Water, Old Ashongman
158	HAB Consult	Puma Fuel Station Office Block, Christian Village, Achimota, Accra Branch office - Behind CEPS Office, Kumasi
159	Harry Richardson Consult	11 Tedzi Street, Wabco Estate, South Tesano
160	HDS & Associates	H/No. 413 Otinshi Street, East Legon
161	Hill Top Consult	Plot No. S11, Taifa, Near Taifa Community School
162	Howard & Anderson	Plot 37A, E. Akufo-Addo Rd, Kansaworado, Takoradi
163	Hoyte Consult	20 Skies Street, East Airport
164	IJK Associates	H/No. 100, Off Main Road, Agbogba, Accra
165	IAKO Consult	32 Samora Machel Street, Asylum Down, Accra
166	Iddris Consult	Kalpohini, Tamale Dagomba Road

167	IKERN Chartered Accountancy	Ikern House, H/No. 12, Right Off Agbogba Cemetery Junction, North Legon, Agbogba, Accra
168	Index Advisory	Plot 11, Block AB, Patasi West, Kumasi
169	Integrity Associates	2 Nii Opeku St. Sakaman
170	Intellisys	No. 2 Lardzeh Crescent, North Dzorwulu, Accra
171	Inter-Class Associates	2nd Floor, Tutuwaa House, Koforidua
172	Issifu Ali & Co.	House No.7, Sapele Loop, Opposite ATTC, Kokomlemle, Accra Adum Kumasi, Nana Ama Antwiwaa Hse, Near Central Prisons Round About, AK-018-6398
173	J. Mills Lamptey & Co.	No. E130/2, Kojo Thompson Road Opp. Ap Filling Station, Adabraka, Accra
174	J.A. Abrahams & Company	3 Gbegbe Crescent, Boi Addo Street, Mamprobi
175	J.K. Attobrah & Partners	Little Roses Junction, Ashaley Botwe, Old Town
176	J.S & Associates	The PJN Building. Hno 243. Atomic Road
177	J.S Morlu	H/No 9, Ghana-Canada Medical Centre Road, Ajirigano, Accra, Ghana
178	Jacob Arthur Accounting Services	BCB Legacy House, No.1 Nii Amugi Avenue, Adabraka, Accra

NO.	NAME OF FIRM	PHYSICAL ADDRESS
179	JAD & Associates	51 Mantse Okley Crescent Baatsonaa
180	James Quagraine Associates	Near Institute Of Local Government Studies, Madina, Accra
181	Jef-Amson Chartered Accountants	20 Cycas Street, Petroleum Estates, Dansoman, Accra
182	Jelorge Business Advisory Services	PWD Building, Room 3, Accra Central
183	John Allotey & Associates	12 Wawa Road, Kokomlemle, Accra. branch Office, 1st Floor, Prudential Plaza (Formerly Unicorn House), Adum, Kumasi
184	John Kay & Co.	1st Floor, BOA Building, Farrar Avenue, Adabraka

185	John Nipah & Associates	Opposite NTHC Estates, Community 14, First Floor, Glorex Plaza, Lashibi, Tema West
186	Jomani Consult	5 Abebrese Street (Near Lara Mart Supermarket), Osu
187	Jonad Associates	20 Mantse Ayiku Avenue, Baatsonaa, Accra Branch Office, Takoradi Market Square
188	JOP Consult	House No. 5, 32nd Avenue, Tantra Hill, Accra
189	Joseph Nelson Consult	321/3 Afutu Anang Street, Otinshie, East Legon, Accra
190	Josten & Associates	Serebour Peaks, Spintex Road, Near Paloma Hotel, Opp EV Filling Station, Spintex, Accra
191	JustQuist Consult	B156/18 Mango Lane Street, Bubiashie, Accra
192	K & A Accounting Services	49 Boundary Road, Baastona, Off Spintex Road
193	K Ackah & Co.	Barcadies Building, Community 4, Tema
194	K. Baah Consult	Plot A14, Klagon-Abattoir Road, Behind Meridian Gardens, Klagon, Community 18, Tema
195	K. Kye Accounting Services	72, Lame Dwashe Street, Housing Down, Adenta, Accra
196	K.E. Wood Arthur & Co.	Plot 4, Block 3, Dadeban Street, Kaneshie, North Industrial Area, Opp. Kasserdjan Industries Limited
197	Kalks Consult	Conca Engineering Buildings Behind Accra Girls Senior High Sch. Or Opp. Bank Of Africa
198	KAN Chartered Accountants	H/No. 7, Oroko Street, Kokonlemle, Accra
199	KAP Chartered Accountants (Formerly Dominion Financial Consulting)	254/1 Kanfla Close, Asylum Down, Accra
200	Karts Consult	PLT 8, Naa Oyoh Street, New Gbawe, Accra
201	Kaxton Ghana	First Floor, The Zurka Plaza, Ttetegu Junction, South East Weija, Off Kasoa Highway
202	KDA Accounting Services	2nd Floor, House Of Excellence, Harper Road, Adum (Unibank

		Building), Kumasi

NO.	NAME OF FIRM	PHYSICAL ADDRESS
229	MAB Consult Chartered Accountants	Prinia Street, Tesano, Accra
230	MAK Global Partners	Dokua Plaza, 2nd Floor, Achimota Christian Village Road, Accra
231	Masaada Consultants	Hse. No. 66/10-203, Opposit MTN Office, Haatso, Atomic Road, Accra
232	Massim Consult	Beauty Bank Building, 2nd Floor, No. 5 Anumansa Street, Osu-Re
233	Mazars Ghana	3rd Floor, One Airport Square, Airport, Accra Branch Office, No. 7&9 Nyame Adom Courts, LG DTD 20014, Adonai Lane, Adjiringanor
234	Menlars Consult	38 Teshie, Adjei Azaria Street, Accra
235	Mensah JB & Associates	14 Goodwill Street, Kokomlemle, Newtown Rd, Accra
236	MGI O.A.K Chartered Accountants	18 Airways Avenue, Airport Residential Area, Aiport, Accra
237	Miita Chartered Accountants	Madina Estate, Social Welfare Road, Adjacent JJ Washing Bay and Diagnostic Center
238	MKA Partners	5 Roman Road, South Ridge Road, Off Borstal Avenue, Roman Ridge, Accra
239	ML Consulting Chartered Accountant	Hse. No.C374/12, 64 Ashaladza Street, Kotobabi, Accra Branch Office - (C374/12), 162 Obuasi Gold St, Gausu, Obuasi
240	MOA Consult	26 Farrar Avenue Adabraka
241	Morrison & Associates	2nd Floor Trinity House, Ring Road East, Accra
242	Negosen Consultancy Services	House No. 2A/12 Beach Road, Near Old Queens Palace Hotel, Mesa Street, Takoradi
243	Nest Chartered Accountants	Hse. No. C352 Grace Plaza, Dome Accra
244	Nexia Debrah & Co.	BCB Legacy House, #1 Nii Amugi Street,

		East Adabraka, Osu Klotey, Behind Holy Spirit Cathedral, Accra
245	Nii Quaye-Mensah & Associates	House No. B715/10, Plot No. 1181, Awudome Crescent, Keneshie
246	Noble & Noble	1st Floor, Bantech Building, LA, Accra
247	Nyansa Audit	F182/6, Second Labone Link, Labone, Accra
248	O.H & Partners	119 Otumfuo Osei Tutu II Blvd, Kumasi
249	O2 & Associates	13 Anmeda Street, Roman Ridge
250	OAQ & Associates	No.9 Estod Building, Tema Community 12
251	OBS Accounting	Room 1 Prestige Plaza, Community 4 Tema
252	OLN Partners	Adjacent Achimota Melcom Shopping Mall
253	Opoku, Andoh & Company	H/No. SDA 8, Community 5, Tema

NO.	NAME OF FIRM	PHYSICAL ADDRESS
254	Osei Kwabena & Associates	Achimota, Behind Kantanka Showroom, Nii Okai Kwaku Street, Accra
255	Osei Owusu-Ansah & Associates	Cocobod Jubilee House, Near Asafo Interchange, 4th Floor, Kumasi
256	Osei-Afoakwa Consult	Bungalow No. 42 Government Hill, Tarkwa
257	OSM Associates	14A, Ameda Street, Roman Ridge, Accra
258	Owiredu-Yeboah Consult	No.12 Kofi Adotei Road, Sahara Dansoman, H/No.A 267/17
259	Owusu, Tsalah & Associates	40 Boundary Road, American House, East Legon Near American House Roundabout
260	PAD Consult Services	Madina Ritz Junction, Opposite Marina Supermarket
261	Parker Allotey Consult	Thorkey House, Room 303, Community 4, Tema.
262	Penielstephens Chartered Accountants	House No. 1 Adjei Commey Street,Adentan
263	PFC Auditing Services	Opposite Odorkor MTTD on the Kaneshie Odorkor Highway
264	Phimanuel & Associates	Hse No. Kv 56/1, Golgotha Bronybima, Elimina, Keea,

		Central Region
265	PJA & Partners	House No. 4, Emmanuel Street, Nii Okaiman, Accra
266	PKF	C454/2 Momotse Street, Farrar Avenue, Adabraka Tema, 3rd Floor, Ghana Commercial Bank Tema Main, P. O. Box 1627 Tema. GPS Address GT 057-5128 Kumasi, Plot No. 22, 3rd Close Daban Newsite, Last Stop, Patuda Extension; P. O. Box Ks 976 Kumasi, GPS Address Ak-796-9151
267	Planita Consulting	House No. 31 Samora Machel Road, Asylum Down, Accra Branches in Koforidua, Tamale and Takoradi
268	PMCT Accountants & Consultants	Hse # 110, Mandela, New Weija, Accra
269	Polley & Co.	New Achimota, Mile 7 Junction, House No. T20 (About 100 yards to Mile 7 Police Station, Opposite Rettchen Trucks and Cars Garage).

NO.	NAME OF FIRM	PHYSICAL ADDRESS
270	Prah, Ameyaw & Co.	J22/8 Walnut Avenue, Teshie-Nungua Estates, Accra
271	PricewaterhouseCoopers (PwC)	PwC Tower, A4 Rangoon Lane, Cantonments City, La Dade Kotopon, Accra Branch Office, No. 117 Jomo Kenyatta Road, Freetown, Sierra Leone
272	Primewells Consult	House No. B246, Lebanon Zone 3, Pamplo Street, Ashaimanz.
273	Probitas Partners	House No. 116, Cosway Down, Haatso
274	Pure 2A & Associates	6th Crescent Section 1 Atwima, Amanfrom, Kumasi Branch - House No. B457/12, Opp. Been-To Complex, Off The George Walker Bush Motorway. GPS GA-556-5359
275	PYD Accounting & Consulting Services	Unnumbered House, Ashalaja, Amasaman
276	Quao Consult	30 Paa Grant Street,

		Community 10 Commercial Area
277	RAAT Global Audit & Consultancy	Behind West Hills Mall, Weija Accra
278	RAK Chartered Accountants	Ho No. B318 /18 Oshimpa Avenue Primongwe St, Swanlake NorthKaneshie, Accra
279	R-Alliance Consults	No. 93 Dansoman Road, Asoredanho, Dansoman, Accra
280	RDK Consulting Services	Suite 301, Christman House No.2, Kofi Annan Street, Airport Residential Area
281	Reggieot & Associates	H/No. 37, Nii Klu Tsuru Street, North Teshie, Accra Branches in Techiman and Kumasi
282	Resolute Consult	No 42, Dr Isert Street, Opposite UMB Capital, North Ridge, Accra.
283	RGG Consult	Ho / No 47, Oak Villa Estates, Near Abokobi Clinic, Accra
284	Richard Owusu-Afriyie & Associates	House of Grace Building, Adum, Guggisberg / 99 Street, Adum, Kumasi
285	Robert Azu & Partners	La Wireless, Off Palm Wine Junction, Adjacent Grace Jones Hotel, Accra
286	Rockson, Adoe, Parry & Co.	House No. B5/10, Dzorshie Link, Near Kaneshie Presby Church, Accra
287	Ruyan Consult	H/No. 33, Kokomlemle, On Nsawam Circle Road, Adjacent to the Church of Christ, Accra
288	S & D Chartered Accountants	Hse. No. 16, Bayview Estate, Community 25, Tema
289	SKH & Associates	Altimate House, Koliko Junction, Agbogba
290	Samben & Associates	A1 Ayensu River Estates, Nmaidjorn, Near Zoomlion, Accra
291	Sammy Tsahey & Associates	Plot No. Inst/A/173, Community 12, Tema

NO.	NAME OF FIRM	PHYSICAL ADDRESS
292	Sappor & Agyekwena	Tamale office - Nyanshegu Ext. 169, Near The Kalphohini Health Centre, Tamale Accra Office, Hse. No. 2, Blankson Street, South Odorkor (Dansoman Asoredanho). GPS GA-542-9236

293	Sarsson Audit	C261/18 Manhean Loop, Abelemkpe, Accra
294	SBJ Accounting & Consulting Services	House No 7, South Ofanko
295	SCG Audit	8th Floor, Advantage Place, Mayor Road
296	Seac Partners Chartered Accountants	4th Floor Republic House, Kwame Nkrumah Avenue, Accra
297	Silver Glow Consult	FKS Motors Building, 6 Elimol Street, Community 11, Tema
298	SMA & Associates	Tema, Community 3, Site A
299	SMT Chartered Accountants	Oyarifa
300	SNG-Pedabo Associates	Suite 214/215, Christman House, 2 Kofi Annan, Street, Airport Residential Area, Accra
301	Softwind OA Consult	H/No. BII 74/10, Grace Dansoa House, Swanlake-Palace Street, North Kaneshie
302	SRA Chartered Accountant	Hse No. 1, 7th Close, Pisa Lane, South Odorkor
303	Sraha Consultancy Services	H/No. E29, Eagle Close, Community 11, Tema
304	Suglo & Associates	Diamond House, 3rd Floor, Rooms 2, 3 & 4, Kinbu, Accra Branch Office, First Floor, Stanbic Building, Wa
305	SW-CPA Consult	Glory House No. Ant / B 371 A, First Floor, Adjacent Achimota Melcom, Accra
306	Tabariyeng & Associates	2nd Floor, Kalypso House, Community 11, Tema
307	Takyi Ako & Associates	No. 7, 5th Western Lane, Dansoman, Sahara,Tunga
308	Taylor Folson & Associates	A41 Dantu Avenue, Awudome Estate, Accra
309	The Consult-Age	16, Fidelity Bank Building, Asafoatse Djannie Street, Now Blohum Road, Dzorwulu, Accra
310	Transcend Chartered Accountants	19 Kofi Annan Street, Airport Residential Area, Accra
311	Traugott & Associates	House No. E100/2, Boundary Road, Adjacent City Paints Premises,

		Tudu, Accra
312	TRC Consult	Glorex Plaza, Community 14/Mkt/A/35, Lashibi
313	Trust Alliance Associates	16 Akpaki Street

NO.	NAME OF FIRM	PHYSICAL ADDRESS
314	Trust Associates	Maana Plaza, Spintex Road, Accra
315	Trust Assurance (Chartered Accountants)	House No. C/11 Christian Village, Accra
316	Trustform Consult	Nhyira Plaza, Opposite Texpo, 18 Spintext Road, Accra
317	UHY Godwinson Chartered Accountants	C904/15 Olusegun Obasanjo Way Geoman House, Pig Farm Junction, Groman House, Accra
318	UHY Voscon Chartered Accountants	2nd Floor, Cocoshe, Opposite Silver Star Tower, Agostinho Neto Close, Airport Residential Area, Accra
319	Upgrade Consult	D306/4 Brewery Road, Opposite First Allied Savings & Loans, Adabraka, Accra
320	Venturehall Consult	Unnumbered House, Adjacent South Kwabenya Police Station Post
321	Virtual Point Associates	Mantse Okle Street, Baatsona Spintex Road, Accra (Behind Unibank Ghana, Spintex Road Branch)
322	Von Aulock Partnerschaft	Dansoman Roundabout, Asafoanye Adokailey Road, Dansoman
323	VT Consult	1st Floor JLK Plaza, Selasi Junction, Off Haatso-Agbogba Road
324	W.K. Adom Consultancy	No. 3/2, Okai Mensah Street, Adabraka, Accra
325	Wayo Consult	Yamusah Storey Building, Off Water Works Road, Tamale
326	Wintrust Consult	H/No. E780/7 Mantse Boi Street, Kaneshie, Accra
327	WM Consult	Block A10, Gicel Estates, SCC, New Weija Accra.
328	YOA Consult	Konadu Shopping Complex, AP Filling Station, Community 4, Tema
329	Zief Financial Consult	House No 16, Kutense-Satelites

Appendix 3: Introductory letter from the Department of Accounting

UNIVERSITY OF CAPE COAST

COLLEGE OF HUMANITIES AND LEGAL STUDIES

SCHOOL OF BUSINESS

DEPARTMENT OF ACCOUNTING

Telephone: 0312292655
E-mail: dact@ucc.edu.gh

UNIVERSITY POST OFFICE
CAPE COAST, GHANA

Our Ref:

Your Ref: SB/BUA/19/0016

30th May, 2022

The Director
Quality Assurance Monitoring
Institute of Chartered Accountants, Ghana
P. O. Box GP 4268
Accra

Dear Sir/Madam,

LETTER OF INTRODUCTION: CORNELIUS ADORM-TAKYI

The bearer of this letter, Mr. Cornelius Adorm-Takyi, is a Doctor of Philosophy (Business Administration) candidate in the School of Business, University of Cape Coast. He is conducting research on the topic: **"Factors influencing audit quality of audit firms in Ghana: The role of audit automation adoption, corporate culture, and technological training"** to enable him write his doctoral thesis.

We would be grateful if you could assist him with the contact details (including emails) of audit firms in Ghana to enable him undertake data collection.

Please, for further information about the research you can contact the student or his supervisor with the following details:

Student: Mr. Cornelius Adorm-Takyi (Email: ctakyi@ucc.edu.gh ; Phone number: 0243066424)

Supervisor: Dr. George Tackie (Email: gtackie@ucc.edu.gh ; Phone number: 0244378894)

Yours faithfully,

Prof. Edward Marfo-Yiadom, FCA

Head

Appendix 4: IRB

UNIVERSITY OF CAPE COAST
INSTITUTIONAL REVIEW BOARD SECRETARIAT

TEL: 0558093143/0508878309
E-MAIL:irb@ucc.edu.gh
OUR REF: UCC/IRB/A/2016/1369
YOUR REF:
OMB NO: 0990-0279
IORG #: IORG0009096

23RD MAY, 2022

Mr. Cornelius Adorm-Takyi
Department of Accounting
University of Cape Coast

Dear Mr. Adorm-Takyi,

ETHICAL CLEARANCE - ID (UCCIRB/CHLS/2022/07)

The University of Cape Coast Institutional Review Board (UCCIRB) has granted Provisional

Approval for the implementation of your research **Factors influencing audit quality of audit firms in Ghana: The role of audit automation adoption, corporate culture, and technological training.** This approval is valid from 23rd May 2022 to 22nd May 2023. You may apply for a renewal subject to the submission of all the required documents that will be prescribed by the UCCIRB.

Please note that any modification to the project must be submitted to the UCCIRB for review and approval before its implementation. You are required to submit a periodic review of the protocol to the Board and a final full review to the UCCIRB on completion of the research. The UCCIRB may observe or cause to be observed procedures and records of the research during and after implementation.

You are also required to report all serious adverse events related to this study to the UCCIRB within seven days verbally and fourteen days in writing.

Always quote the protocol identification number in all future correspondence with us in relation to this protocol.

Yours faithfully,

Samuel Asiedu Owusu, PhD
UCCIRB Administrator

ADMINISTRATOR
INSTITUTIONAL REVIEW BOARD
UNIVERSITY OF CAPE COAST