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IMPACT OF EMERGING TECHNOLOGIES ON AUDIT PRACTICES IN SELECTED AUDIT FIRMS IN TARABA STATE

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Abstract

The study examines the impact of emerging technologies on audit practices in Taraba State. In an attempt to provide answers to the research questions and hence address the research objectives, correlational research design and survey were employed and the population size used is 100 respondents. The study employed census sampling technique and used the entire population. Structured questionnaire was used in eliciting the required information (data) needed to answer the research questions using the five (5) point Likert scale. Pearson Product Moment was used to analyze the correlation between the dependent and independent variables. The study employed correlation and structural equation model (SEM) regression for data analysis. The study reveals that Artificial Intelligence (AI) significantly has positive impact on audit practices in Taraba State, suggesting these technologies are valuable tools for enhancing audit effectiveness. The study also reveals that Data Analytics (DA) significantly and positively impact audit practices in Taraba State, implying that DA is one of the tools that enhancing audit practice effectiveness. Robotic Process Automation (RPA), however, does not show significant effects, indicating their current application in audit practices may be limited or in early adoption stages. The results advocate for greater emphasis on integrating Artificial intelligence and Data analytics in auditing processes to leverage their benefits fully. This highlights the potential for these technologies to improve audit quality, efficiency, and reliability. The study recommends that audit firm should invest in and prioritize the implementation of technology to improve audit accuracy, efficiency, and overall quality. Audit business should implement a continual training program to equip auditors with the requisite abilities to properly utilize technologies and incorporate software into current audit processes to automate monotonous and labour-intensive operations.

Keywords: Emerging technology, audit practice, Artificial intelligence, data analytics and Robotic process automation.

Introduction

The discipline of auditing has experienced a significant transformation in recent years, driven by the advent of advanced technologies such as artificial intelligence (AI), big data analytics (BDA) and Robotic Process Automation (RPA). These tools possess significant potential to transform audit processes, influencing efficiency, accuracy, and the profundity of insights derived from financial data. In rising economies such as Nigeria, this technological revolution offers both opportunities and problems for audit firms operating within a complex and dynamic environment.

The auditing profession has recently encountered numerous information technology (IT) issues related to the execution of business through advanced IT-enabled accounting transactions. Currently, it is nearly infeasible to conduct a financial statement audit without employing advanced technological tools. An audit

is a systematic, independent, and documented process for acquiring audit evidence (records, factual statements, or other relevant and verifiable information) and objectively assessing it to ascertain the degree to which the audit criteria (a collection of policies, procedures, or requirements) are met. An audit entails an impartial assessment of information to determine its reliability, comprehensibility, and relevance. Various types of audits exist, primarily include financial audits, operational audits, statutory audits, and compliance audits (André & Hanlie, 2023).

Audits are typically conducted by internal or external audit teams. Audit practice is a specialized function that entails an ongoing and critical evaluation of an entity's operations to propose enhancements and augment the overall governance framework, including the entity's strategic risk management and internal control systems. An effective audit procedure is fundamental to any business governance framework. The internal audit methods implemented by a firm are crucial in preventing financial fraud and the manipulation of accounting records, so ensuring a truthful and fair representation of financial statements. Numerous transformations have already been observed in the auditing profession.

The disruption witness in the business sector is driven by a number of technologies, including Robotic Process Automation, data analytics, artificial intelligence (AI). These information and communication technology (ICT) infrastructures are already leaving an indelible effect on audit practice (Riley & McGregor, 2020). Artificial Intelligence (AI)-enabled technology can identify pertinent information, process it, and render it accessible for the human auditor, allowing for greater concentration on intricate evaluative aspects. For example, AI facilitates the complete automation of substantive audit procedures, including payment transaction testing. Artificial Intelligence encompasses several tasks such as pattern identification by computers, expert systems, deep learning, computational reasoning, and natural language processing (Bako & Tanko, 2022).

Data Analysis (DA) is an essential instrument for auditors that enhances the audit process in areas including scoping, risk assessment, trend analysis, and decision-making. Data enables auditors to examine a larger volume of transactions, hence enhancing audit quality through deeper insights into clients' processes. It improves auditors' capacity to identify fraud and enables them to offer services and address issues that exceed existing capabilities through the use of external data (Dang et al., 2021). Robotic Process Automation (RPA) can mechanize repetitive activities such as data input, reconciliation, and document examination, thereby liberating auditors to engage in more analytical and judgment-driven responsibilities.

Numerous audit businesses, particularly in smaller municipalities such as those in Taraba State are encountering difficulties in adapting to technological improvements. The deficiency of digital infrastructure and skilled workers frequently obstructs the efficient deployment of rising technology instruments. Addressing this skills gap necessitates continuous training and upskilling activities, imposing further financial and logistical challenges on smaller enterprises. Moreover, current studies predominantly concentrate on industrialized nations, as evidenced by Albawwat and Al-Frijat (2021) and Alles and Grey (2014), overlooking the distinct obstacles and opportunities encountered by auditors in developing economic environments.

The auditing profession in Nigeria is at a pivotal juncture. Emerging technologies such as artificial intelligence (AI), data analytics (DA), robotic process automation (RPA) are swiftly altering the business environment, necessitating adaptations in audit practices to maintain relevance and efficacy. This study will

investigate the impact of these technologies on audit practices in Taraba State, with particular emphasis on their potential to improve the efficiency, effectiveness, and accuracy of audits.

Literature Review

The Concept of Auditing

Auditing is a methodical procedure for objectively acquiring and assessing evidence related to claims concerning economic activities and occurrences, in order to determine the extent of alignment between the claims and set standards, and to convey the findings to relevant stakeholders (Louwers et al., 2018). The process involves gathering and assessing evidence regarding information to ascertain and communicate the extent of alignment between the information and predefined standards (Arens et al., 2020).

Auditing is defined as a procedural means to an end, encompassing a comprehensive set of information-intensive operations that include obtaining, organizing, processing, analyzing, and presenting data to produce a trustworthy audit conclusion. Auditing is a methodical evaluation of financial statements and supporting records, including books of accounts, vouchers, and other documents, to determine if they accurately reflect the entity's financial position and the outcomes of its financial activities and cash flows, in compliance with accounting standards, regulations, and laws (The Institute of Chartered Accountants of Nigeria, 2017).

Auditing Practice

The auditor serves as an internal overseer of the effectiveness of the comprehensive corporate governance framework (Institute of Internal Auditors, 2011). Audit processes significantly impact the quality of the final audit report and the overall internal control system of the organization. The design of audit practice is influenced by several elements, including audit cost, audit report quality, external audit selection, and ultimate audit opinion. Internal audit measures can enhance transparency in company operations and mitigate risks associated with agency concerns. This ultimately has a favourable impact on the total audit fees the company will incur for external audits.

Moreover, robust and effective internal audit methods substantially improve the overall efficiency of an internal control system, so augmenting the quality of corporate governance. Effective company governance mitigates illicit and unscientific earnings management techniques while improving overall audit quality. Internal audit methods positively impact the generation of high-quality audit reports that accurately reflect the financial status of firms (Thottoli et al., 2022). Thus, exemplary internal audit practices guide the selection of proficient external auditors. The engagement of reputable external auditors improves audit quality, hence bolstering stakeholder confidence and attracting investors, as high-quality auditors validate the integrity of a company's financial records.

Moreover, exemplary internal audit practices prevent manipulation via accruals earnings management, thereby improving the overall quality of the corporate governance system and indirectly reducing the likelihood of receiving modified opinions from external auditors regarding the true and fair representation of the company's affairs. Analyzing the aforementioned components will reveal that the role of internal audit processes within various facets of the organization will be enhanced. To improve the robustness of internal audit practices, it is essential to embrace emerging trends and innovations, including robotic technology, big data, blockchain technology, and international standards for internal auditing, to augment the overall effectiveness of these practices (Barta, 2018).

Emerging Technologies

Emerging technologies denote the most recent developments and advancements throughout diverse domains, especially within science and technology. Emerging technologies include a wide array of innovations, spanning computer technology, biotechnology, artificial intelligence, and more. These technologies has the capacity to disrupt conventional behaviors, generate novel opportunities, and profoundly influence multiple facets of society and the economy. Emerging technologies are characterized by their innovation and swift advancement. They frequently signify a shift from established paradigms and are distinguished by their capacity to tackle contemporary difficulties and provide new opportunities. The adoption and influence of developing technologies transcend mere technological progress. They possess significant ramifications for corporate strategy, governmental laws, ethical considerations, and societal transformations. The governance of developing technologies and their ethical implications are critical issues for decision-makers (Thottoli et al., 2022). Emerging technologies refer to advanced developments capable of transforming conventional methods and generating novel opportunities. These technologies are characterized by their innovation, swift advancement, and capacity to tackle modern difficulties. Their evolution will continually influence numerous sectors and society, warranting continuing examination and adjustment. The notion of emerging technologies within audit practices pertains to novel and sophisticated tools and methodologies that are increasingly incorporated into the auditing profession.

Artificial Intelligence and Audit Practice

Artificial Intelligence (AI), referred to as machine intelligence by Ransbotham et al. (2018), denotes the incorporation of human-like cognitive abilities in machines. The fundamental concept of AI is to comprehend the context and make judicious decisions based on the available knowledge. AI is synonymous with cognitive technology or cognitive computing, possessing the intellect necessary to do cognitive activities. Artificial Intelligence encompasses a range of tasks, including computer pattern recognition, expert systems, deep learning, computational reasoning, and natural language processing (Bako & Tanko, 2022).

Artificial intelligence (AI) was evaluated using a Likert scale (1-5) about the degree to which auditors in Taraba State employ AI-powered tools for activities such as data analysis, a
normaly detection, and risk assessment.

Big Data Analytics and Audit Practice

Big data refers to substantial volumes of information characterized by high velocity and variety, necessitating cost-efficient and novel processing methods to improve insight and decision-making. Alles and Grey (2014) assert that the three Vs of Big Data—volume, velocity, and variety—characterize its distinctive attributes. For Big Data to be pertinent and beneficial for decision-making, data must be processed and examined innovatively. Consequently, Big Data is frequently examined with data analysis. Meuldijk (2017) contends that Big Data is a crucial instrument for auditors, enhancing the audit process in scope, risk assessment, trend analysis, and decision-making. The volume of digital data within organizations has consistently risen over the years, and current developments in processing speed and cloud storage have facilitated data access, so allowing organizations to accumulate and retain vast quantities of data for future utilization. Consequently, Big Data empowers auditors to conduct prescriptive analytics and to computationally validate current activities and their results.

Data analytics was evaluated using a Likert scale (1-5) according to the frequency and complexity of data analytics techniques employed by auditors in Taraba State for activities like trend analysis, fraud identification, and customer analysis.

Robotic Process Automation and Audit Practice

Robotic Process Automation (RPA) can streamline repetitive activities like data input, reconciliation, and document examination, so liberating auditors to engage in more analytical and judgment-driven responsibilities. RPA can markedly diminish the time and effort necessary for standard audit procedures, resulting in enhanced efficiency and production. RPA guarantees uniform and precise execution of repetitive activities, reducing human error and enhancing the overall quality of the audit (Tiberius & Hirth, 2019).

Auditing encompasses numerous tedious and labour-intensive activities, including reconciliations and confirmations. Nonetheless, the auditing literature indicates that technological advancements enable auditors to automate aspects of the audit process, thereby eliminating certain standardized and repetitive work (Tiberius & Hirth, 2019). Automation alleviates auditors from mundane activities, allowing them to engage in more intricate responsibilities.

This study assessed robotic process automation (RPA) using a Likert scale (1-5) to determine the degree to which auditors in Taraba State employ RPA bots for automating repetitive tasks such as data input, reconciliation, and document review.

Review of Empirical Studies

For the sake of this work, the following studies were reviewed as they relate to the topic under discussion.

Rehab et al. (2023) examined how technology will affect the audit process quality. An empirical study was conducted on a sample of Egyptian banks that use emerging technology in the period from (2017) to (2021). The conceptual framework and literature review concluded that this technology could affect audit firms at six key levels. Emerging technology will allow an auditor to: (1) Save time and improve the efficiency of their audit, (2) Favour an audit covering the whole population instead of an audit based on sampling techniques, (3) Focus the audit on testing controls rather than testing transactions, (4) Set up a continuous audit process, (5) Play a more strategic audit role, and (6) Develop new advisory services. Furthermore, the empirical study concluded that there is a significant relationship between emerging technology and audit quality in the banking sector. The results underline the need for the establishment of a clear and coherent legislative system and new audit standards, allowing auditors to embed this technology and enhance audit practices.

Jackson et al. (2022) sought to find out how perfectly universities, employers and professional bodies prepare professional accountants to embrace the emerging technologies and create pathways to build technology-related skills for the future. With mixed - method study of 315 early professional accountants, and 175 managers/recruiters in Australia, the authors discovered that varying insights existed within the groups. The results disclosed that young professional accountants were generally more forthcoming in their judgment regarding how efficiently training programs got them prepared for the up-coming technologies while the managers recruiting organizations showed greater confidence in the competence of universities to meet the demands for emerging skills. TOE framework

Carl and Gertrude (2022) studied the perceived effects of digitalization on auditing in one developed and one developing country. To achieve the aim of the study, a qualitative research method was employed. Semi-structured interviews were conducted with four Swedish and five Liberian audit professionals. The study shows that digitalization and emerging technologies have significantly impacted audit quality and audit efficiency in both Sweden and Liberia. Furthermore, the findings indicate that digitalization is currently also changing the skills and competences needed within audit firms. The study also demonstrates the importance of emerging technologies in the context of auditing.

Elommal and Manita (2022), examined how this technology will affect the audit profession. Based on a qualitative study carried out on a sample of (17) auditors, this research shows that this technology could affect audit firms at six key levels. Block chain will allow an auditor to: (1) Save time and improve the efficiency of their audit, (2) Favours an audit covering the whole population instead of an audit based on sampling techniques, (3) Focus the audit on testing controls rather than testing transactions, (4) Set up a continuous audit process, (5) Play a more strategic audit role and (6) Develop new advisory services. The results underline the need for the establishment of a clear and coherent legislative system and new audit standards, allowing auditors to embed this technology and enhance audit practices.

Maffe et al. (2021) aimed to provide a critical analysis of the role of block chain technology in accounting and auditing practices, by presenting the benefits, threats, risks, and potential issues associated with its adoption and implementation. Moreover, the study examined the impact of block chain technology on how professionals update accounting and auditing practices. The results of the study found that accounting practices benefited from a new fully computerized self-managed accounting system that relies on the innovative three-entry bookkeeping system, which is characterized by unchangeable accounting records. Furthermore, audit practices have taken advantage of the benefits of block chain technology, which includes automatic and real-time reconciliation of budget line items and external confirmation of accounting records, along with constantly updated inventory counts and data analysis.

Theoretical Framework

The study was anchored on the Technology Acceptance Model (TAM) by Proposed by Davis in 1989, which elucidate users' acceptance and adoption of new technologies based on perceived utility and usability. In the realm of audit practice, TAM can evaluate auditors' perceptions of emerging technologies and their readiness to incorporate them into their processes. Nonetheless, the Technology Acceptance Model (TAM) may inadequately encompass the intricacies of technology adoption in the audit profession, including legislative limitations and organizational culture. TAM initially formulated by Davis in 1989, posits that technology will be adopted or utilized if it is perceived as beneficial and user-friendly by the individual.

Kim et al. (2009) assert that the Technology Acceptance Model (TAM) elucidates the elements influencing computer acceptance and reveals the effects of internal beliefs, external influences, and intents. TAM is a prevalent framework for assessing the extent of technological acceptance. The adoption of emerging technologies such as AI, DA, and RPA is notably strong in the auditing sector; nevertheless, numerous studies indicate that acceptance may be diminished in less developed countries (e.g., Albawwat & Al Frija, 2021). Within the framework of audit practice in Taraba State, TAM can offer significant insights into auditors' attitudes, intentions, and behaviours towards the incorporation of developing technology into their workflows.

Methodology

The study employed correlational research design and survey with a population size of 100 respondents. The study employed census sampling technique and use the entire population. Structured questionnaire was used in eliciting the required information (data) needed to answer the research questions using the five (5) point Likert scale. The research employed Cronbach's Alpha to evaluate the reliability and consistency of the data gathering device (Find attach in the Appendix, A). The study demonstrates that all 25 questionnaires designed for respondents had a coefficient value over 0.70, indicating that each question likely contributes significantly to the overall reliability of the questionnaire. A five-point Likert scale was employed to assess the items of the questionnaire. The employed scale ranged from 1 to 5, with 1 representing the lowest score and 5 the highest. Pearson Product Moment was used to analyze correlation between the dependent and independent variables. The study employed Structural Equation Modeling (SEM) for data analysis.

Results and discussion

Table 1: Questionnaire administered

Items	Number	Percentage (%)
Copied distributed	100	100
.Copied retrieved	93	93
Copied unreturned	7	7

Field survey (2024)

Table 1 above shows that 100 questionnaires were administered to staff audit firms in Taraba state. 93% of the questionnaires were retrieved while 7% were unreturned from the respondents. This indicates that the percentage of the questionnaires returned are adequate for the study since is above 50% of the numbers of questionnaires administered.

Table 2: Demographic Data of Respondents

D/Q	No. of respondents	Percentage (%)
Gender		
Male	65	69.9
Female	28	30.1
Age		
18-27 years	25	26.9
28-37 years	30	32.3
38-47 years	26	28.0
48 and above	12	12.9
Accounting professional body, you belong		
ACCA	2	2
ICAN	61	65.6
ANAN	28	30.1
Not a member of any accounting professional body	2	2.2
Highest Educational Qualifications		
O'Level	1	1.1
NCE/ND	18	19.4
BSc./HND	68	73.1
MBA/MSc.	5	5.4
M.Phil/PhD	1	1.1
Work Experience		
Less than 1 year	49	52.7
1-3 years	20	21.5
4-6 years	9	9.7
7-10 years	10	10.8
More than 10 years	5	5.4

Field survey (2024)

Table 2 delineates the demographic data of the respondents. The study revealed that 69.9% (65 respondents) identified as male, whilst 30.1% (28 respondents) identified as female. The gender distribution indicates a greater prevalence of male auditors within the surveyed population. The age distribution of the respondents was generally equitable, with the majority situated among the 28-37 years (32.3%, 30 respondents) and 38-47 years (28%, 26 respondents) age brackets. Furthermore, 26.9% (25 respondents) belonged to the 18-27 age demographic, while 12.9% (12 respondents) were aged 48 years and older. This age distribution reflects a varied representation of auditors across various career stages.

Moreover, a predominant 65.6% (61 respondents) were affiliated with the Institute of Chartered Accountants of Nigeria (ICAN), whilst 30.1% (28 respondents) were associated with the Association of National Accountants of Nigeria (ANAN). A minor percentage, 2% (2 respondents), were affiliated with the Association of Chartered Certified Accountants (ACCA), while 2.2% (2 respondents) were not members of any accounting professional organization. This statistic underscores the preeminence of ICAN and ANAN members within the examined demographic.

The poll indicated that 73.1% (68 respondents) have a Bachelor's degree (BSc./HND) as their highest educational qualification. Furthermore, 19.4% (18 respondents) possessed a National Certificate in Education (NCE) or National Diploma (ND), 5.4% (5 respondents) held a Master's degree (MBA/MSc.), and 1.1% (1 respondent each) had either an O' Level or a higher degree (M.Phil/PhD). This statistic signifies a highly educated labour force within the auditing industry.

A considerable segment of the respondents, 52.7% (49 individuals), possessed less than one year of work experience, indicating a notable presence of entry-level auditors or individuals at the nascent phase of their professions. Furthermore, 21.5% (20 respondents) possessed 1-3 years of experience, 9.7% (9 respondents) had 4-6 years of experience, 10.8% (10 respondents) had 7-10 years of experience, and 5.4% (5 respondents) had above 10 years of experience. This distribution indicates a variety of experience levels among the auditors examined.

1. Responses of the respondent which were gotten through questionnaires.

Table 3: Audit practice

Options/Response Factors	SD	D	N	A	SA
The current audit practices in Taraba State are efficient and effective.	7 (7.5)	9 (9.7)	8 (8.8)	45 (48.4)	24 (25.8)
The traditional audit methods are still sufficient for addressing modern business complexities.	7 (7.5)	8 (8.6)	6 (6.5)	41 (44.1)	31 (33.3)
Continuous professional development (CPD) for auditors is crucial in adapting to new technological advancements.	14 (15.1)	21 (22.6)	14 (15.1)	31 (33.3)	13 (14.0)
Regulatory bodies in Nigeria should provide clearer guidelines on incorporating emerging technologies into audit practices.	15 (16.1)	12 (12.9)	17 (18.3)	32 (34.4)	17 (18.3)
Audit teams have effectively adapted to the changes brought about by emerging technologies.	25 (26.9)	30 (32.3)	7 (7.5)	19 (20.4)	12 (12.9)

Field survey (2024).
SD=Strongly disagreed, D=Disagreed, N=Neutral, SA=Strongly agreed, A=Agreed
The figures in parenthesis are in percentage

Table 3 delineates the perspectives of auditors in Taraba State concerning the efficacy of current audit procedures in tackling contemporary company difficulties. A significant majority of respondents, 48.4%, concurred, while 25.8% strongly concurred that the existing audit processes are both efficient and effective. Nonetheless, 8.8% (8 respondents) expressed neutrality on the efficiency and effectiveness of existing audit methods, while 7.5% (7 respondents) strongly opposed the notion that the current audit practices in Taraba State are efficient and effective, and 9.7% (9 respondents) disagreed with this assertion.

A significant percentage, 44.1% (41 respondents), concurred, and 33.3% (31 respondents) firmly concurred that conventional audit techniques remain adequate for tackling contemporary corporate complications. Nonetheless, 6.5% (6 respondents) expressed neutrality regarding the adequacy of conventional audit methods. 7.5% (7 respondents) strongly disagreed that traditional audiprocedures adequately meet contemporary corporate difficulties, whereas 8.6% (8 respondents) disagreed.

There were divergent opinions concerning the necessity of continual professional development (CPD) for auditors to adjust to emerging technological improvements. Thirty-three point three percent, equivalent to 31 respondents, concurred that CPD is essential, while 14%, representing 13 respondents, expressed strong agreement with this assertion. A notable 15.1%, equating to 14 respondents, strongly disagreed, while 22.6% disagreed that continuing professional development (CPD) for auditors is essential for adjusting to new technology improvements. Fourteen respondents (15.1%) expressed neutrality on the significance of Continuing Professional Development (CPD).

The respondents were polarized about the necessity for regulatory agencies to furnish clearer guidance for integrating developing technology into audit methods, with 34.4% in agreement, 18.3% in strong agreement, 12.9% in disagreement, and 16.1% in extreme disagreement. 18.3% expressed neutrality regarding the necessity for more explicit guidelines. A significant proportion of respondents (26.9%) disagreed and 32.3% strongly disagreed that audit teams had successfully adapted to the changes introduced by developing technologies, indicating a necessity for enhancement in this domain. Nonetheless, 20.4% concurred that audit teams had adapted proficiently, while 12.9% highly concurred with this assertion. Only 7 respondents (7.5%) maintained a neutral stance regarding the adaptability of audit teams.

Table 4: Artificial Intelligence

Options/Response Factors	SD	D	N	A	SA
AI-powered tools can significantly improve the efficiency of data analysis and risk assessment in audits.	6 (6.5)	12 (12.9)	22 (23.7)	33 (35.5)	20 (21.5)
Auditors in Taraba State are confident in their ability to interpret and integrate AI-generated insights into their auditing procedures.	8 (8.6)	13 (14.0)	13 (14.0)	32 (34.4)	27 (29.0)
Implementing AI solutions in audit firms requires substantial investments in training and infrastructure.	7 (7.5)	13 (14.0)	14 (15.1)	35 (37.6)	24 (25.8)
The future of auditing lies in a collaborative approach, where human auditors leverage AI technology for enhanced decision-making.	6 (6.5)	15 (16.1)	7 (7.5)	32 (34.4)	33 (35.5)
The use of artificial intelligence tools has enhanced the detection of anomalies and irregularities in financial data.	17 (18.3)	31 (33.3)	12 (12.9)	17 (18.3)	16 (17.2)

Field survey (2024).
SD=Strongly disagreed, D=Disagreed, N=Neutral, SA=Strongly agreed, A=Agreed
The figures in parenthesis are in percentage

Table 4 presents the findings on auditors' perceptions of the implementation and integration of artificial intelligence (AI) in auditing operations. The assertion that AI-powered technologies may markedly enhance the efficiency of data analysis and risk assessment in audits indicated that six respondents, constituting 6.6% of the population, strongly disagreed, 12 respondents (12.9%) disagreed, while 22 respondents, representing 23.7%, remained neutral. Conversely, 33 respondents expressed agreement, while 20 respondents indicated strong agreement. This constitutes 35.5% and 21.5% of the population, respectively.

Most respondents, around 59, representing 63%, expressed trust in their capacity to evaluate and integrate AI-generated insights into their auditing operations. Nevertheless, 14% of the respondents expressed neutrality towards this matter. Conversely, 14% of respondents expressed disagreement, while 8.6% strongly disagreed about the confidence of auditors in Taraba State in their capacity to evaluate and incorporate AI-generated insights into their auditing practices. A consensus emerged among respondents, with 37.6% strongly agreeing that the implementation of AI solutions in audit companies necessitates significant investments in training and infrastructure, while 25.8% expressed disagreement. Nonetheless, 7.5% expressed severe disagreement, while 14.0% indicated disagreement. 15.1% of the participants expressed neutrality towards this matter.

A substantial majority (69.9%) concurred or strongly concurred that the future of auditing resides in a collaborative methodology, wherein human auditors utilize AI technology to augment decision-making. Nonetheless, 7.5% maintained a neutral stance, while 6.5% strongly disagreed and 16.1% expressed disagreement. Opinions were divided about the efficacy of AI techniques in improving the detection of abnormalities and irregularities in financial data, with 18.3% expressing disagreement, 33.3% strongly opposing, 18.3% agreeing, 17.2% strongly agreeing, and 7.9% remaining neutral.

Table 5: Data Analytic

Options/Response Factors	SD	D	N	A	SA
Data analytics skills are becoming increasingly important for auditors in Taraba State.	8 (8.6)	6 (6.5)	8 (8.6)	44 (47.3)	27 (29.0)
Access to accurate and reliable data is a critical prerequisite for effective data analytics in audits.	22 (23.7)	15 (16.1)	10 (10.8)	32 (34.4)	14 (15.1)
Concerns about data privacy and security pose challenges for the adoption of data analytics in audit practices.	21 (22.6)	32 (34.4)	7 (7.5)	19 (20.4)	14 (15.1)
Data analytics can help identify potential fraud and errors that might be missed through traditional audit methods.	24 (25.8)	28 (30.1)	11 (11.8)	18 (19.4)	12 (12.9)
The use of data analytics has reduced the time and effort required to perform comprehensive audit procedures.	17 (18.3)	7 (7.5)	11 (11.8)	37 (39.8)	21 (22.6)

Field survey (2024).
SD=Strongly disagreed, D=Disagreed, N=Neutral, SA=Strongly agreed, A=Agreed

The figures in parenthesis are in percentage

Table 5 examines auditors' perspectives of the significance and implementation of data analytics in auditing methods. A majority of respondents (47.3% and 29%) concurred and firmly concurred that data analytics competencies are growing progressively vital for auditors in Taraba State. Nevertheless, 8.6% strongly disagreed, 6.5% disagreed, and 8.6% remained neutral about the assertion that data analytics abilities are becoming progressively vital for auditors. While 34.4% concurred and 15.1% strongly concurred that access to correct and reliable data is an essential prerequisite for effective data analytics in audits, a substantial number (39.8%) collectively opposed or strongly disagreed with this assertion. Nevertheless, 10.8% of the participants maintained a neutral stance.

Participants had divergent opinions regarding whether apprehensions about data privacy and security present obstacles to the integration of data analytics in auditing methods, with 22.6% strongly disagreeing, 34.4% disagreeing, 20.4% agreeing, and 12.9% highly agreeing. Merely 7.5% of participants expressed neutrality. Opinions were divided regarding the efficacy of data analytics in detecting potential fraud and errors overlooked by conventional audit techniques, with 30.1% expressing disagreement, 25.8% strongly disagreeing, 19.4% agreeing, and 12.9% highly agreeing. Nonetheless, 11.8% of participants maintained a neutral stance. A majority of respondents (39.8%) concurred, while (22.6%) strongly concurred that the utilization of data analytics had diminished the time and effort necessary to execute thorough audit procedures. Nonetheless, 18.3% of the respondents expressed severe disagreement, while 7.5% indicated disagreement. 11.8% of the participants expressed neutrality.

Table 6: Robotic Process Automation

Options/Response Factors	SD	D	N	A	SA
RPA can automate repetitive tasks, freeing up auditors to focus on more critical aspects of the audit process.	8 (8.6)	11 (11.8)	15 (16.1)	35 (37.6)	24 (25.8)
The implementation of RPA in audit firms in Taraba State is still in its early stages.	6 (6.5)	17 (18.3)	13 (14.0)	34 (36.6)	23 (24.7)
Concerns about job displacement need to be addressed when considering RPA adoption in the audit profession.	24 (25.8)	22 (23.7)	14 (15.1)	21 (22.6)	12 (12.9)
Integrating RPA with existing audit software and systems requires careful planning and implementation.	25 (26.9)	19 (20.4)	13 (14.0)	21 (22.6)	15 (16.1)
Audit teams rely on robotics process automation for repetitive and rule-based audit tasks.	14 (15.1)	14 (15.1)	7 (7.5)	33 (35.5)	25 (26.9)

Field survey (2024).

SD=Strongly disagreed, D=Disagreed, N=Neutral, SA=Strongly agreed, A=Agreed
The figures in parenthesis are in percentage

Table 6 examines auditors' perceptions concerning the adoption and deployment of Robotic Process Automation (RPA) in auditing operations. A majority of respondents (25.8%) concurred, while (37.6%) strongly concurred that RPA can automate monotonous activities, so allowing auditors to concentrate on more essential elements of the audit process. Nevertheless, a minority of respondents (8.6%) strongly disagreed, while (11.8%) expressed disagreement, and 16.1% remained neutral. Furthermore, the majority of respondents (36.6%) concurred, while (24.7%) strongly concurred that the adoption of RPA in audit firms in Taraba State remains in its nascent phase.

Nonetheless, 6.5% strongly disagreed and 18.3% disputed that the adoption of RPA in audit firms in Taraba State remains in its nascent phases. Opinions were divided about the necessity of addressing job displacement concerns in the context of RPA adoption within the audit profession, with 23.7% expressing disagreement, 25.8% strongly opposing, 22.6% agreeing, and 12.9% highly agreeing.

Nevertheless, 15.1% of respondents maintain a neutral stance. Participants exhibited divergent opinions regarding the necessity of meticulous planning and execution for the integration of RPA with current audit software and systems, with 22.6% in agreement, 16.1% in strong agreement, 20.4% in disagreement, and 26.9% in strong disagreement. Nevertheless, 14% of the participants maintained a neutral stance. A majority of respondents (35.5%) concurred, while (26.9%) strongly concurred that audit teams depend on robotic process automation for repetitive and rule-based audit work. Nonetheless, 15.1% expressed disagreement, while 15.1% indicated strong agreement. Merely 7.5% of the respondents maintained a neutral stance.

2. Correlation Analysis

The outcomes of the Pearson Product Moment correlation between the dependent and independent variables are displayed in Table 7.

Table 7: Correlation matrix

Variables	AP	AI	DA	RPA	VIF
AP	1.0000				
AI	0.4446	1.0000			1.42
DA	0.4630	0.4501	1.0000		1.47
RPA	0.3875	0.4199	0.4572	1.0000	1.40

Source: STATA 14 Output (2024).

Table 7 illustrates the association between the dependent variable and the explanatory variables. The correlation values go from -1 to +1. The symbol of the correlation coefficient denotes whether the associations between the variables are positive or negative, as well as the direction of the variables. The absolute value of the correlation coefficient, particularly when bigger, signifies strength and robust associations. The correlation coefficients along the major diagonal are 1.000 for all variables, indicating a perfect positive linear association of each variable with itself. Table 7 demonstrates a favourable correlation between artificial intelligence, data analytics, robotic process automation and audit procedures in Taraba

State, with values of 0.4446, 0.4630, 0.3875 respectively. The positive correlation suggests that artificial intelligence, data analytics, robotic process automation and audit methods in Taraba State progressed together. The favourable correlations indicate that artificial intelligence, data analytics, robotic process automation enhance audit methods in Taraba State.

3. Structural Equation Model

The influence of emerging technology on auditing practices in Taraba State was assessed using a Structural Equations Model (SEM). The examined technologies encompass Artificial Intelligence (AI), Data Analytics (DA), Robotic Process Automation (RPA). The findings demonstrate differing levels of impact from various technologies on auditing processes.

Table 8: Structural Equation Model (SEM)

Variables	Coefficient	t-value	p-value	Remark
Constants	0.2921	5.19	0.002	
AI	0.3067	2.76	0.006***	positive and significant
DA	0.2328	2.47	0.014***	positive and significant
RPA	0.1659	1.62	0.105	positive and insignificant
R-Square		0.1458		
Adj. R-Square		0.0925		
F-Ratio		2.73		
P-value		0.0365		

Source: STATA 14 Output (2024).

Table 8 reveals R-square value of 0.1458 which indicates that approximately 15% of the variance in audit firm practice can be explained by the independent (artificial intelligent, data analytics, robotic process automation) Furthermore, R-square value suggests a moderate level of explanatory power (Hair et al., 2018). This means that factors other than those included in the model are likely to influence the audit firm practice in Taraba State.

$H0_1$: Artificial intelligent does not have significant effect on audit practice.

The SEM result in Table 8 shows that the P-value is 0.006 which is significant at 1% level of significance. This implies that AI has a significant impact on audit practice in Taraba State. The null hypothesis is therefore rejected because the significance value is equal to 0.006. Therefore, AI has a positive and significant impact on audit practice in Taraba State.

$H0_2$: Data analytics does not have significant effect on audit practice

The SEM results in Table 8 shows that the P-value of 0.014 which is significant at 1% significance level. This implies that DA has a positive and significant impact on audit practice in Taraba State. The null hypothesis is therefore rejected because the significance value is below 0.014. Therefore DA shows a significant impact on audit practice in Taraba State.

$H0_3$: Robotic process automation does not have significant effect on audit practice

The SEM result in Table 8 shows that the P-value of 0.105 is positive and insignificant. This implies that RPA does not have significant impact on audit practice. Therefore, the study fails to reject the null hypothesis because the significance value is greater than 0.05 level of significance.
Table 8 demonstrates that Artificial Intelligence (AI) has a coefficient value of 0.3067 and a probability value of 0.006, indicating a positive and significant impact of AI on audit practice. This indicates that AI markedly improves the efficiency and efficacy of audit operations in Taraba State. The finding suggests that the increased utilization of artificial intelligence would enhance the efficacy of audit practices in Taraba State. This finding concurred with Cristea's (2020) study, although contradicted Lombardi's (2015) findings, which reported a detrimental impact of AI on audit practice. AI has improved audit accuracy by swiftly detecting abnormalities and errors, hence diminishing the risk of oversight. AI streamlines basic operations, enabling auditors to concentrate on intricate analyses, hence accelerating the audit process. Advanced AI algorithms identify patterns indicative of fraud, enhancing auditors' capacity to spot fraudulent activity.

The data analytics (DA) reveals a coefficient of 0.2328 and a probability value of 0.014, indicating a positive and significant influence on audit practice. This underscores the significance of data analytics in enhancing the quality and precision of audits. This research indicates that data analytics considerably enhance audit procedures in Taraba State by 0.2328 units. This finding aligns with KPMG's (2015) research indicating that data analytics positively influences audit practices, in contrast to Ali's (2015) findings, which suggest a negative impact of data analytics on audit procedures.

The conclusion suggests that data analytics offers significant insights from extensive datasets, assisting auditors in making more educated decisions. Data analytics enhances risk assessment by recognizing trends and patterns, facilitating more proactive auditing methodologies. Deliver superior audit results through meticulous data analysis, resulting in more dependable and credible audit conclusions. The results highlight the crucial importance of AI and DA in improving audit methodologies.

The research corresponded with agency theory, the theory of inspired confidence, and the Technology Acceptance Model (TAM). The beneficial effects of AI and DA can alleviate agency issues by delivering more precise and prompt information, thereby diminishing information asymmetry between principals and agents. Furthermore, these findings indicate that technologies can bolster public trust in audit outcomes by enhancing the transparency and reliability of audits. The substantial impacts of AI and DA underscore their perceived utility and user-friendliness, essential determinants for technology adoption as proposed by TAM.

Moreover, the findings indicate that Robotics Process Automation (RPA) possesses a coefficient value of 0.1659 and a probability value of 0.105, reflecting a positive yet statistically negligible impact of RPA on audit practice. This indicates that although RPA has a beneficial effect, its influence is insufficient to be deemed substantial. This outcome indicates that RPA significantly enhances audit practices in Taraba State by 0.1659 units. This study aligns with the results of Appelbaum et al. (2017), which demonstrated that RPA positively influences audit practices.

Conversely, the outcome contradicts the findings of Tiberius & Hirth (2017), which indicate that RPA adversely affects audit practices. The findings suggest that additional development and integration could enhance the efficiency and effectiveness of audit practices in Taraba State. This also suggests the necessity for supporting additional research and development to leverage its potential, while auditing firms establish

frameworks that promote effective integration and monitor its evolution, enhancing efficiency and automating repetitive operations, so allowing auditors to focus on more complicated analyses.

The implication indicates that RPA automates repetitious operations, diminishes human error, and enhances audit efficiency. Automated procedures guarantee uniform and dependable execution of routine operations, suggesting that over time, RPA can result in cost savings by diminishing the necessity for manual labour in standard audit activities. The finding partially aligns with agency theory, indicating that RPA has a good yet not substantial impact, suggesting it alleviates agency problems but is not entirely effective. The research also concurred with the confidence hypothesis of inspiration.

Conclusion and Recommendation

The study presents the following conclusions based on its findings:

i. Artificial intelligence exerts a substantial positive influence on audit methods in Taraba State. This signifies that it improves audit precision, efficiency, and fraud detection capabilities, while also indicating that AI diminishes information asymmetry and strengthens public trust in audit outcomes.

ii. Data analytics considerably enhances audit methods in Taraba State, as the study indicated that it offers important insights and improves decision-making processes.

iii. Robotics process automation exerts a beneficial although negligible influence on audit practices in Taraba State. It suggests possible advantages in automating repetitive processes, although necessitates additional integration and development to achieve its complete potential.

In light of the findings, the study proposed the following recommendations:

i. Audit firms should invest in and prioritize the implementation of AI technology to improve audit accuracy, efficiency, and overall quality.

ii. Data analytics has a good and significant impact on audit practices in Taraba State. The audit business must plan training and development for its staff, implementing a continual training program to equip auditors with the requisite abilities to properly utilize data analytic technologies.

iii. Given that RPA exerts a favourable and significant influence on audit practices, audit firms and internal IT departments ought to engage with technology providers to acquire and tailor RPA solutions. Additionally, in collaboration with external RPA consultants, one should supervise the deployment and integration process. Additionally, create extensive training sessions for auditors about the use of RPA tools.

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Appendix A

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alpha AP1 AP2 AP3 AP4 AP5 AI1 AI2 AI3 AI4 AI5 DA1 DA2 DA3 DA4 DA5 RPA1 RPA2 RPA3 RPA4 RPA5 BC1
BC2 BC3 BC4 BC5 DLT1 DLT2 DLT3 DLT4 DLT5

Test scale = mean(unstandardized items)
Reversed items:  BC4 DLT1 DLT2

Average interitem covariance:     .1855381
Number of items in the scale:           30
Scale reliability coefficient:      0.6926

. alpha AP1 AP2 AP3 AP4 AP5 AI1 AI2 AI3 AI4 AI5 DA1 DA2 DA3 DA4 DA5 RPA1 RPA2 RPA3 RPA4 RPA5
BC1 BC2 BC3 BC4 BC5 DLT1 DLT2 DLT3 DLT4 DLT5,
> item

Test scale = mean(unstandardized items)
                                                        average
                          item-test     item-rest       interitem
Item          |  Obs  Sign  correlation  correlation     covariance      alpha
--------------+-----------------------------------------------------------------
AP1           |   93    +       0.2884        0.2174         .189274      0.6861
AP2           |   93    +       0.2830        0.2102        .1893972      0.6864
AP3           |   93    +       0.5326        0.4677        .1762538      0.6705
AP4           |   93    +       0.5096        0.4413        .1770638      0.6718
AP5           |   93    +       0.4987        0.4260        .1768229      0.6720
AI1           |   93    +       0.1766        0.1031        .1942753      0.6920
AI2           |   93    +       0.2198        0.1396        .1920736      0.6903
AI3           |   93    +       0.3157        0.2420        .1876924      0.6846
AI4           |   93    +       0.3484        0.2735        .1858296      0.6826
AI5           |   93    +       0.5365        0.4682        .1750568      0.6695
DA1           |   93    +       0.3578        0.2890        .1860812      0.6822
DA2           |   93    +       0.5228        0.4504        .1750933      0.6700
DA3           |   93    +       0.5076        0.4355        .1763004      0.6714
DA4           |   93    +       0.4491        0.3734        .1796841      0.6757
```

DA5	93	+	0.3475	0.2646	.1850074	0.6826
RPA1	93	+	0.2715	0.1956	.1897271	0.6871
RPA2	93	+	0.3685	0.2972	.1851879	0.6815
RPA3	93	+	0.6228	0.5628	.1702723	0.6630
RPA4	93	+	0.4390	0.3583	.1795157	0.6761
RPA5	93	+	0.1959	0.1060	.1931203	0.6926
BC1	93	+	0.2604	0.1898	.1906167	0.6876
BC2	93	+	0.3310	0.2605	.1872316	0.6837
BC3	93	+	0.1915	0.1110	.1934597	0.6919
BC4	93	-	0.4152	0.0722	.1851295	0.7762
BC5	93	+	0.2543	0.1805	.1906912	0.6880
DLT1	93	-	0.3364	0.2551	.1858244	0.6833
DLT2	93	-	0.1478	0.0617	.1956447	0.6950
DLT3	93	+	0.1656	0.0817	.1947223	0.6937
DLT4	93	+	0.2310	0.1422	.1912229	0.6904
DLT5	93	+	0.2863	0.1936	.1878721	0.6871
Test scale					.1855381	0.6926

```
summarize AP AI DA RPA BCT DLT
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