

# Effect of Artificial Intelligence on Auditors' Independence and Ethical Practices

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## ABSTRACT

The study focused on effect of artificial intelligence on auditors' independence and ethical practices. Artificial intelligence represents the independent variable of the study. However, auditors' independence and ethical practices represent the dependent variable of the study and it was measured using auditor's independence, ethical decision making and professional skepticism. To achieve the objective of the study, survey research design was adopted. The data were collected through questionnaire administration. The population of the study is made up of 100 staff of KPMG, Deloitte, PricewaterhouseCoopers and Ernst and Young (EY) all located in Lagos, Nigeria. However, the sample size of the study is 80 staff and was derived using convenience sampling. The data collected were analyzed using ordinary least simple regression analysis. The result revealed that artificial intelligence has a positive and significant effect on auditor's independence, ethical decision making and professional skepticism. Based on the findings, the study concludes that artificial intelligence enhances both auditors' independence and ethical practices. Therefore, the study recommends that Auditing firms should acknowledge the need for regulatory adaptation to keep pace with technological advancements, ensuring that AI complements rather than replaces human expertise. This would help in enhancing auditor's independence. It is crucial for auditors and organizations to balance innovation with integrity when adopting AI in auditing. This means upholding ethical standards, ensuring the responsible use of AI, and prioritizing transparency, fairness, and accountability in audit practices. By doing so, auditors can leverage the benefits of AI while upholding the principles of integrity and ethical conduct.

**Keywords:** Artificial intelligence, Auditors'

independence and ethical practices, Ethical decision making, Professional skepticism, Audit firms.

## I. INTRODUCTION

Artificial intelligence (AI) has in recent years become a ubiquitous concept with different definitions based on who is asked to define it. According to Sheikh et al. (2023) defining AI precisely is challenging, given that it seeks to replicate or emulate human intelligence, which is itself a concept we have yet to fully comprehend. It is then understandable that AI (such as the digital assistants Deloitte's GRAPA or PwC's GL.ai) is revolutionizing the field of financial auditing by significantly enhancing both the quality and efficiency of the process. It excels in providing precision and consistency when analyzing vast amounts of data, swiftly identifying patterns and irregularities that human auditors might overlook (Deloitte, 2018; PwC, 2018). On the other hand, as AI continues to advance and become more integrated into the auditor's work, previous research has shown that this can also bring forth a set of critical ethical challenges for the audit profession (AICPA, 2020; ACCA, 2017; Lehner, et al., 2022; Munoko, et al., 2020; Samiolo, et al., 2023; Boland, et al., 2019; Schneider, et al., 2015). Hence, the main focus of this study is to explore the ethical challenges that the audit profession experiences with AI integration.

An initial attempt to describe AI is that it can perform tasks that would otherwise require human intelligence or intervention, where examples are digital assistants (e.g. Amazon's Alexa or Apple's Siri), GPS guidance, autonomous vehicles, and generative AI tools (e.g. Open AI's ChatGPT). This demonstrates that AI can encompass different things and have different meanings conditional upon the context, and now with the widespread use

of generative AI the way of working has changed (IBM, n.d.a). This can be said to be the case for the audit profession, among many others. Although a general agreement is that the profession has not been quick to adapt to changes in society, sometimes even being considered as slow and conservative, it is possible to see signs of transformation in the audit profession where one increasing development lies with artificial intelligence (Marton, et al., 2024, pp.2-3). The audit profession can be viewed as a service relying on complex cognitive tasks and social interaction (Pemer, 2020), such professions have usually been shielded from digitalization because they require personalized judgment and face-to-face interactions (Susskind & Susskind, 2015). However, Susskind and Susskind (2015) also asserted that this protection is diminishing as advancements in technology, especially in AI, begin to automate and replicate the tasks that were once thought to require the unique skills of trained professionals. Moreover, there is continuous push for acceptance of transformation, where human jobs are redesigned to utilize the power of machines and emphasize the aspects of work that humans can do better than machines (Davenport & Kirby, 2015). With this, Pemer (2020) found that auditing firms embrace digitalization to a larger extent than thought before, due to increasing demand for auditors to be more “up to date”. Fotoh and Lorentzon (2023) agreed that the audit profession is undergoing a notable transition from traditional sample-based methodologies towards automated audit methodologies characterized by the comprehensive analysis of entire datasets, facilitated by AI tools. On the other hand, this AI based digitalization also introduces new risks and uncertainties for auditors, for example, it could alter the skills required from auditors (Fotoh & Lorentzon, 2023). There are also concerns about long-term effects, such as reduced opportunities for junior auditors to learn through practical experience, which could impact their development of professional skepticism (c.f. Jansson, et al., 2024; Samiolo, et al., 2023; Boland, et al., 2019). These risks are among those associated with disrupting the five fundamental principles of ethics for auditing by the International Ethics Standards Board for Accountants (IESBA), which are: Integrity, Objectivity, Professional Competence and Due Care, Confidentiality, and Professional Behavior<sup>1</sup>. These principles are further explained and discussed in the literature review.

The increasing use of Artificial Intelligence (AI) in auditing has raised concerns about its impact on auditor's independence and

ethical practices. As AI technology advances, auditors are relying more heavily on machines to perform tasks that were previously done manually, such as data analysis and risk assessment (Knechel et al., 2019). While AI can improve the efficiency and accuracy of auditing, it also poses significant risks to auditor independence and ethical practices.

One of the primary concerns is that AI systems can be biased and may not always make decisions based on objective criteria (Beda et al., 2017). This can lead to inconsistent and inaccurate audit results, which can compromise auditor independence and undermine confidence in the audit process. Furthermore, the use of AI in auditing can also create conflicts of interest, as auditors may be pressured to rely on AI systems that are developed and sold by audit firms themselves (Cohen et al., 2019).

Another concern is that AI systems can be difficult to understand and interpret, making it challenging for auditors to provide transparent and accountable audit results (Hernandez-Perdomo et al., 2019). This lack of transparency can erode trust in the audit process and compromise auditor independence. Moreover, the use of AI in auditing can also create new risks and challenges for auditors, such as the potential for AI systems to be hacked or compromised, which can lead to inaccurate and unreliable audit results (Paget et al., 2019).

In light of these concerns, it is essential to investigate the impact of AI on auditor independence and ethical practices. This study aims to explore the effects of AI on auditor independence and ethical practices, and to identify strategies for mitigating the risks associated with AI in auditing.

The specific objectives are:

- (i) To examine the effect of artificial intelligence on auditor's independence.
- (ii) To determine the effect of artificial intelligence on ethical decision making.
- (iii) To assess the effect of artificial intelligence on professional skepticism.

## **II. LITERATURE REVIEW**

### **2.1 Conceptual Review**

#### **2.1.1 Artificial intelligence**

Artificial Intelligence (AI), while lacking a generally accepted definition, is commonly described as a technology that enables machines to replicate complex aspects of human intelligence (Sheikh, et al., 2023), a concept echoed by Google and Microsoft (Google Cloud, n.d.; Microsoft Azure, n.d.). However, Sheikh, et al. (2023) critique this definition as overly broad, pointing out

the absence of a clear understanding of human intelligence itself and, therefore, the challenge in defining its artificial imitation (meaning AI). Philosopher Daniel Dennett views AI as tools rather than colleagues, which he explains through the following: “These machines do not (yet) have the goals or strategies or capacities for self-criticism and innovation to permit them to transcend their databases by reflectively thinking about their own thinking and their own goals” (Dennett, 2019). Dennett (2019) likens AI to oracles: predictive yet devoid of human qualities such as personality or conscience.

In contemporary discussions, AI is frequently linked with new technologies like Machine Learning (ML), which detects and applies patterns through algorithms, refining their processes via feedback (IBM, n.d.b; IFAC, 2018). Unlike traditional programming, these algorithms are designed to learn from data and prior experiences, continually enhancing their predictive and analytical capabilities. This creates a collaborative system wherein machines pre-identify possible issues, which users subsequently fine-tune. Deep Learning (DL), while a more extensive subset of ML, does the same as ML but autonomously (McKinsey & Company, 2023). With this, Sheikh et al. (2023) suggest that the discourse on AI primarily refers to those self-learning algorithms. Therefore, the notion of AI as merely an imitation of human intelligence is somewhat reductive. Instead, Sheikh et al. (2023) propose adopting the AI HLEC’s<sup>4</sup> more encompassing definition, which describes AI as “systems that display intelligent behavior by analyzing their environment and taking actions – with some degree of autonomy – to achieve specific goals”. This broader perspective allows for a more flexible understanding of AI’s capabilities and functions (Sheikh, et al., 2023), which is relevant when examining how the complex ethical terrain of auditing is navigated with an emerging technology such as AI (Munoko, et al., 2020; Rotolo, et al., 2015).

### **2.1.2 The audit profession and the principles of ethics**

Auditing is an official examination and inspection of financial accounts, through a systematic process an auditor aims to obtain and document evidence that the audited organization presents their financial information in accordance with the accounting principles and standards that apply to them (González-Díaz & García-Fernández, 2018; IESBA, 2023, p.128). Auditors’ primary role involves making judgments and acting as a guard against the opportunistic behavior of agents who

might use their discretion to misstate financial information (Jensen & Meckling, 1976). Accordingly, the International Auditing and Assurance Standards Board (IAASB) requires that the auditor exercise professional judgment and maintain professional skepticism throughout the planning and performance of the audit (IESBA, 2023, p.37). Moreover, IAASB maintains a close collaboration and coordination with the International Ethics Standards Board for Accounting (IESBA) to align key concepts in the IAASB’s and IESBA’s standards. This includes having the IESBA code of ethics as a foundation for the IAASB’s standards (IAASB, 2023). The principle-based approach of IAASB’s and IESBA’s standards offers accountants and auditors a more adaptable and holistic framework for decision-making. Unlike rule-based systems that may encourage a minimum compliance mentality, principle-based ethics have been found to encourage professionals to go beyond mere adherence to specific rules and consider the broader implications of their actions on public trust and the integrity of financial reporting. Satava et al. (2006) maintained that this approach promotes a culture of ethical decision-making that is responsive to the complexities and nuances of real-world situations, thereby enhancing the reliability, transparency, and overall quality of accounting and auditing practices (Satava, et al., 2006).

In accordance with IESBA there are five fundamental principles of ethics that professional accountants must adhere to. The first principle is Integrity, which obliges professional accountants to be straightforward and honest in all their professional and business relationships. This includes being fair, telling the truth, and having the courage to do the right thing, even if it’s hard or might cause problems for the accountants or for their organization. Additionally, integrity means that professional accountants must avoid associating with any information they believe contains false or misleading statements, recklessly provided statements, or intentionally omits important details that could mislead others. The second principle is Objectivity, which mandates that professional accountants must exercise their professional or business judgment without being influenced by bias, conflicts of interest, or undue pressure from individuals, organizations, technology, or external factors. Additionally, objectivity means that a professional accountant should not do their job if there’s something that might make them judge a situation unfairly or wrongly. The third principle is Professional Competence and Due Care, which necessitates professional accountants to acquire and

sustain the necessary knowledge and skills to deliver competent professional service to their clients or employing organizations, following current technical and professional standards and relevant legislation, while also acting diligently in accordance with applicable technical and professional standards.

Additionally, a professional accountant must ensure that those working under their authority receive appropriate training and supervision. Furthermore, the accountant should inform clients, the employer, or other users of their professional services about any limitations associated with those services. The fourth principle is Confidentiality, which obligates professional accountants to uphold the privacy of information obtained through their professional and business associations. The fifth and the last principle is Professional Behavior, which mandates professional accountants to adhere to applications, conduct themselves in a manner aligned with the profession's duty to serve the public interest in all professional and business interactions, and avoid any behavior that could potentially bring disrepute to the accounting profession. (IESBA, 2023).

### **2.1.3 Professional skepticism and judgment**

Seethamraju and Hecimovic (2022) discovered auditor concern of technology overreliance, which suggests that auditors run the risk of relaxing their professional judgment when using an AI tool. Similarly, Dickey et al. (2019) expressed concerns about auditors becoming overly dependent on AI-driven results. This dependence could lead to a lack of scrutiny over the inputs fed into AI systems and the outputs generated. Commerford et al. (2021) drew the conclusion that if auditors tend to undervalue evidence provided by the company itself (due to auditors' algorithm aversion), they may place greater emphasis on evidence provided by management, making them more inclined to accept management's preferences. Commerford et al. (2021) suggested that auditors, when presented with conflicting evidence from an AI system versus a human specialist, tended to propose smaller adjustments to management's estimates. This dichotomy between overreliance and aversion shows that the challenge lies in achieving a balance with auditors leveraging technological advancements without undermining the diligence of their professional skepticism.

Considering this challenge, Samiolo et al. (2023) examined the impact of digital tools such as robotic process automation (RPA), data analytics, ML, and AI on auditors' decision-making. While technology aids auditors in navigating complex

decisions, automating less critical tasks risks sidelining critical thinking and reflection (Samiolo, et al., 2023). The effective use of technology in auditing depends on auditors' prior client knowledge, acquired before the advent of AI, which allows auditors to merge AI-generated outputs into their judgments. Essentially, Samiolo et al. (2023) contended that the harmony between AI producing better auditable information and the information being used skeptically by the auditor is dependent on skills developed in the pre-AI period. The real risk of technology reliance then lies with early career auditors who run a significant risk of limiting the scope of applying their judgment, leading them to "think less". Consequently, juniors may become less attuned to identifying unusual transactions, which can impede with them cultivating habits that are associated with professional skepticism, and thus negatively affect the principles of integrity and objectivity (Samiolo, et al., 2023). Moreover, echoing the findings by Commerford et al. (2021) regarding auditors' algorithm aversion, Samiolo et al. (2023) highlighted the potential for auditors to disregard technology outputs if these conflicted with their understanding of the client. This then emphasizes the need to preserve a skeptical mindset in the face of automation. Ultimately, Samiolo et al. (2023) determined that as auditing tasks become more automated, auditors may become less prepared for high-level judgment work, posing a dilemma for audit firms seeking to balance automation (structure) and professional judgment. On the other hand, Cushing and Loebbecke (1986) advocated for the structured audit approach guided by algorithmic tools. Francis (1994) opposed this as he could identify drawbacks of a highly structured approach, particularly its impact on the auditor's professional judgment. Instead, he suggested that an overly structured audit might undermine the role of subjective judgment in auditing. Francis (1990) claimed that accounting is not only a technical practice but also a moral one, as it involves choices that can affect people's lived experiences, thus accountants cannot discount or ignore their own moral agency.

## **2.2 Theoretical framework**

### **2.2.1 The Technology Acceptance Model (TAM)**

Technology Acceptance Model was developed by Fred Davis in 1986. TAM was developed to provide more understanding of users' intentions and behaviors related to technology adoption (Davis, 1986). The Technology Acceptance Model (TAM) is a widely recognized theoretical framework that provides insights into the factors influencing the acceptance and adoption of

new technologies, particularly within an organizational context (Deslonde & Becerra, 2018). TAM is based on two core constructs known as Perceived Usefulness (PU) and Perceived Ease of Use (PEOU) (Hubert, Blut, Brock, Zhang, Koch, & Riedl, 2018). Perceived Usefulness (PU) refers to the degree to which an individual believes that a particular technology will enhance their job performance or make their tasks easier and more efficient. Perceived usefulness is a critical factor in technology adoption because users are more likely to accept and use technology if they perceive it as valuable and beneficial to their work (Hubert et al., 2018). On the other hand, Perceived Ease of Use (PEOU) relates to the extent to which individuals believe that using a technology will be free from effort and straightforward. If users perceive a technology as easy to use, they are more inclined to adopt it. Conversely, if they see it as complex or challenging, adoption may be hindered (Hubert et al., 2018). In the context of this study, TAM provides a valuable theoretical framework for examining the attitudes and intentions of accounting professionals toward AI adoption. By assessing how Nigerian accountants perceive the usefulness and ease of use of AI technologies, researchers can gain insights into the likelihood of AI adoption and identify potential barriers or facilitators to its integration into their professional practices.

### 2.2.2 Innovation diffusion theory

Innovation diffusion theory was developed by Roger (1983). The innovation diffusion theory denotes individuals' intention to adopt a technology as a modality to perform a traditional activity (Simon & Senaji, 2016). The motivating factor that drives individuals' intention to adopt modern technology to perform traditional activities is relative advantage which is expected to be gain. This theory is more concerned about the manner in which technological idea is put to use. It explains how individuals and business organizations intend to use modern technology to perform their operations. Olannyei et al (2017) stated that innovation diffusion theory tends to describe the manner in which individuals and corporate organizations accept technology as a modality to perform their traditional operations. It is all about the intention of the individuals or organization to embrace modern technology to perform their activities efficiently.

The innovation diffusion theory is very useful in studying the motives behind the adoption of artificial intelligence technologies in manufacturing firms. The theory explains that the motive behind the adoption of technology is to

improve business operations and gain a competitive advantage over their larger rivals. According to Idowu et al (2016), companies considered it beneficial to adopt artificial intelligence technologies in their operation because of its potentials in improving their marketing performance. This has led to the development of machine learning technologies which makes it possible to learn from data and perform that humans can perform. With artificial intelligence technologies, quoted manufacturing firms in Nigeria can develop new products, promote and advertise the products using modern technology and deliver quality products to their target customers (Simon & Senaji, 2016).

The innovation diffusion theory supports the fact that quoted consumer goods firms in Nigeria can use artificial intelligence technologies to improve their marketing performance. The theory explains that modern technology enables quoted manufacturing firms in Nigeria to adopt artificial intelligence in their business operations and improve their marketing performance. With these artificial intelligence tools, quoted manufacturing firms can satisfy their customers, retain them for a longer term, attract new customers to their firm and improve their overall marketing performance.

### 2.3 Empirical review

Fatima and Kalkidan (2024) examined the impact of artificial intelligence on auditing: navigating ethical challenges. Data were collected using semi-structured interviews with auditors from two Big Four audit firms in Switzerland. The data collected were analyzed using ordinary least square regression analysis. The findings revealed that auditors perceive AI differently; sometimes as a decision-support tool or a potential replacement of the auditor, but currently AI serves mainly administrative functions. While optimistic about the potential of AI to enhance efficiency, auditors are aware of the ethical challenges AI can pose. The findings indicated that AI integration is transforming auditing roles, and will continue to do so, necessitating new skills, and posing risks of overreliance that may undermine foundational auditing competencies mainly among inexperienced auditors. The "black-box" nature of AI and biases in algorithms require auditors to maintain professional skepticism and judgment. Moreover, verifying clients' AI-generated data showed to pose challenges due to inconsistencies and errors, which emphasized the need for updated ethical guidelines and regulatory oversight to ensure AI support, rather than replaces, human

expertise in auditing. A consensus among the interviewed auditors was that adhering to the five ethical principles is crucial. We could show that audit firms are implementing training programs and guidelines to ensure ethical AI use, focusing on utilizing AI for administrative tasks rather than judgment-based work and promoting human verification of AI outputs.

Adelakun (2022) explores the ethical considerations in employing AI in auditing, focusing on the balance between harnessing innovation and maintaining integrity. The primary aim of this study is to identify and analyze the ethical challenges associated with AI in auditing, to fill the research gap concerning a comprehensive ethical framework that guides AI utilization in this field. This research employs a mixed-method approach, integrating quantitative data from surveys of auditing professionals with qualitative insights from in-depth interviews with AI ethics experts. The data collected were analyzed using ordinary least square regression analysis. The results reveal a significant concern among professionals about bias and decision-making transparency in AI tools. Analysis shows that while AI can streamline data processing and enhance decision-making accuracy, it also introduces complexities such as algorithmic opacity and data security concerns that can compromise ethical standards.

Obi and Anaeye (2023) examined the current landscape of the adoption of AI in accounting practice within the Nigerian context. A survey research design was adopted for this study which involved the use of a questionnaire administered to a purposive sample of 20 respondents who are knowledgeable in the application of artificial intelligence. Data collected was analyzed using logistic regression and independent sample t-test at significance level;  $p < 0.05$ . The findings indicate that accounting professionals in Nigeria currently lack a sufficient level of awareness and understanding of AI technologies in accounting. It was also found that AI adoption in accounting practice in Nigeria has a positive influence on efficiency and decision-making. It was recommended that educational institutions and professional bodies should collaborate to develop and offer comprehensive AI education and training programs tailored to accounting professionals. Also, government and regulatory bodies can engage with policymakers to ensure that regulations and policies are conducive to AI integration while safeguarding data privacy and security.

Sani, Adeyemi, and Bakare (2022)

examined the transformative potential of technology, especially AI, in revenue generation within the context of Nigeria, following the challenges posed by the COVID-19 pandemic. The research aligned with the broader global trend of leveraging information technology to enhance revenue collection and streamline financial processes in both the public and private sectors. The adoption of AI in accounting systems was portrayed as a critical driver of change, replacing traditional methods and offering solutions to long-standing issues like incomplete taxpayer data and multiple taxation. The paper further highlighted the confidence-boosting effects on taxpayers, which can result from more efficient and technology-driven revenue collection processes. One notable concern raised in the study was the limited adoption of technology, particularly AI, in Nigeria's revenue generation practices. This underutilization of technological advancements is identified as a key factor impacting revenue generation and added value. It signifies the urgency for Nigerian authorities to embrace technology more comprehensively in revenue-related activities.

Hasan (2022) offers a comprehensive analysis of the application of Artificial Intelligence (AI) in the fields of accounting and auditing. This study drew insights from a range of published books and journals and employs a semi-systematic or narrative review approach. It identified the challenges posed by disruptive technologies associated with Industry 4.0. In the face of rapid technological advancements, the accounting and auditing discipline is urged to undergo a significant transformation to adapt to the changing landscape effectively. It acknowledged the dual nature of AI development and implementation in accounting and auditing. While AI offers substantial advantages, it also presents uncertainties and changes over time. It is emphasized that the accounting and auditing profession, as known traditionally, is poised for significant transformation in the near future. The study emphasized the necessity of interdisciplinary collaboration in research concerning AI in accounting and auditing. Given the multifaceted nature of AI's impact, this collaboration is crucial for addressing the evolving demands of the field.

Ukpong, Udoh, and Essien (2019) examined the pivotal role of Artificial Intelligence (AI) in reshaping professional services and its potential implications for the banking, accounting, and auditing sectors in Nigeria. The study combined both qualitative and quantitative research approaches, utilizing a descriptive survey research design and secondary quantitative data. Data was obtained using a questionnaire design from

stakeholders from the banking sector and academia, selected through purposive sampling. The data was analyzed using frequency and means. The study found that banks will play a major role in promoting the use of AI and it will have significant impacts on auditing systems. It noted the transformative potential of AI in the context of Nigeria's banking, accounting, and auditing sectors and raised awareness of the challenges associated with AI adoption in developing regions.

### III. METHODOLOGY

#### 3.1 Research design

The research design used for this study is the survey research design. This design is deemed most suitable as it allowed seeking the opinions of well-informed individuals on the influence of artificial intelligence on accounting profession in Nigeria, which provided comprehensive thoughts from the number of individual cases.

#### 3.2 Data collection and research variables

The study used a descriptive field survey research design and adapted questionnaire as a research instrument. The instrument was structured using the four point rating Likert scale comprising of Strongly Agree (SA), Agree (A), Disagree (D), and Strongly Disagree (SD) from which the respondent specified their level of agreement. The questionnaire was distributed using online Google form where the questions were sent to the respondents through social media platforms.

#### 3.3 Population/ sample size

The population of the study was the big 4 Audit firms operating in Nigeria. The Audit firms include; KPMG, Deloitte, PricewaterhouseCoopers and Ernst and Young all located in Lagos, Nigeria. The study adopted convenience sampling technique. Only 100 staff that showed interest in responding to the questionnaire were used as the sample size of the study. Therefore, 100 questionnaire instruments were distributed evenly

across the firms but only 80 were correctly completed and returned.

#### 3.4 Data analysis technique

Simple regression analysis was used to determine the cause-effect of the independent variables on the dependent variable. Analysis was done with the aid of Statistical Package for Social Sciences (SPSS 23.0).

#### 3.5 Model Specification

The regression equations are given as:

$$AIND = \beta_0 + \beta_1 AI + \mu$$

$$EDM = \beta_0 + \beta_1 AI + \mu$$

$$PS = \beta_0 + \beta_1 AI + \mu$$

Where:

AI = Artificial Intelligence

AIND = Auditor's independence

EDM = Ethical decision making

PS = Professional skepticism

$\beta$  = regression parameter, which measures the coefficient.

$\mu$  = error term or stochastic variable.

### IV. DATA ANALYSIS, RESULT AND DISCUSSIONS

#### 4.1 Data Presentation

The analysis focused on effect of artificial intelligence on auditor's independence and ethical practices. Artificial intelligence (AI) represents the independent variable of the study. However, auditor's independence and ethical practices represent the dependent variable of the study and it was measured using auditor's independence (AIND), ethical decision making (EDM) and professional skepticism (PS).

#### 4.2 Data Analysis.

The data were analysed using both descriptive statistics and simple regression analysis.

#### 4.1 Regression Analysis

| Parameters        | Model 1 (AIND) | Model 2 (EDM) | Model 3 (PS) |
|-------------------|----------------|---------------|--------------|
| Constant          | 0.587          | 0.022         | 0.453        |
| Coefficient       | 0.865          | 0.967         | 0.906        |
| Std Error         | 0.047          | 0.040         | 0.048        |
| T-statistics      | 18.426         | 23.973        | 18.785       |
| R-Square          | 0.813          | 0.880         | 0.819        |
| Adjusted R-Square | 0.811          | 0.879         | 0.817        |
| F-statistics      | 339.517        | 574.694       | 352.873      |
| P-value           | 0.0000         | 0.0000        | 0.0000       |

Source: Appendix 2A, 2B and 2C

Table 4.1, presents the regression result on the effect of artificial intelligence (AI) on auditor's independence and ethical practices (AIND, EDM and PS). From the model summary table above, the following information can be distilled.

#### Empirical analysis for model 1

The  $R^2$  which measure the level of variation of the dependent variable caused by the independent variables stood at 0.813. The  $R^2$  otherwise known as the coefficient of determination shows the percentage of the total variation of the dependent variable (AIND) that can be explained by the independent or explanatory variable (AI). Thus the  $R^2$  value of approximately 0.813 indicates that 81.3% of the variation in the auditor's independence (AIND) can be explained by a variation in artificial intelligence (AI) while the remaining 18.7% (i.e.  $100-R^2$ ) could be accounted by other factors not included in this model.

The regression result as presented in table 4.1 determines the relationship between AI and AIND shows that when all the independent variables are held stationary; the AIND variable is estimated at 0.587. This simply implies that when all independent variables are held constant, there will be an increase in the AIND up to the tune of 0.587% occasioned by factors not incorporated in this study. Thus, a unit increase in AI will lead to an increase in AIND by 0.865%. Finally, the result shows that there is a significant variation of Fisher's statistics (339.517) has the probability value of 0.0000 which means the model as a whole is statistically significant at 5% level.

#### Empirical analysis for model 2

The  $R^2$  which measure the level of variation of the dependent variable caused by the independent variables stood at 0.880. The  $R^2$  otherwise known as the coefficient of determination shows the percentage of the total variation of the dependent variable (EDM) that can be explained by the independent or explanatory variable (AI). Thus the  $R^2$  value of approximately 0.880 indicates that 88.0% of the variation in the ethical decision making (EDM) can be explained by a variation in artificial intelligence (AI) while the remaining 12.0% (i.e.  $100-R^2$ ) could be accounted by other factors not included in this model.

The regression result as presented in table 4.1 determines the relationship between AI and EDM shows that when all the independent variables are held stationary; the EDM variable is estimated at 0.022. This simply implies that when

all independent variables are held constant, there will be an increase in the EDM up to the tune of 0.022% occasioned by factors not incorporated in this study. Thus, a unit increase in AI will lead to an increase in EDM by 0.967%. Finally, the result shows that there is a significant variation of Fisher's statistics (574.694) has the probability value of 0.0000 which means the model as a whole is statistically significant at 5% level.

#### Empirical analysis for model 3

The  $R^2$  which measure the level of variation of the dependent variable caused by the independent variables stood at 0.819. The  $R^2$  otherwise known as the coefficient of determination shows the percentage of the total variation of the dependent variable (PS) that can be explained by the independent or explanatory variable (AI). Thus the  $R^2$  value of approximately 0.819 indicates that 81.9% of the variation in the auditor's independence (AIND) can be explained by a variation in artificial intelligence (AI) while the remaining 18.1% (i.e.  $100-R^2$ ) could be accounted by other factors not included in this model.

The regression result as presented in table 4.1 determines the relationship between AI and PS shows that when all the independent variables are held stationary; the PS variable is estimated at 0.453. This simply implies that when all independent variables are held constant, there will be an increase in the PS up to the tune of 0.453% occasioned by factors not incorporated in this study. Thus, a unit increase in AI will lead to an increase in PS by 0.906%. Finally, the result shows that there is a significant variation of Fisher's statistics (352.873) has the probability value of 0.0000 which means the model as a whole is statistically significant at 5% level.

## V. CONCLUSION AND RECOMMENDATION

### 5.1 Conclusion

The analysis focused on artificial intelligence and accounting profession of Big 4 auditing firms in Nigeria. Data were collected using questionnaire administered to the management and staff of Big 4 Auditing firms in Nigeria. The data collected were analyzed using simple regression analysis. The findings revealed that artificial intelligence has a positive and significant effect on auditor's independence, ethical decision making and professional skepticism. The study therefore concludes that artificial intelligence enhances both auditor's independence and ethical practices.

## 5.2 Recommendations

Based on the findings of this study, it is therefore recommended that:

- (i) Auditing firms should acknowledge the need for regulatory adaptation to keep pace with technological advancements, ensuring that AI complements rather than replaces human expertise. This would help in enhancing auditor's independence.
- (ii) It is crucial for auditors and organizations to balance innovation with integrity when adopting AI in auditing. This means upholding ethical standards, ensuring the responsible use of AI, and prioritizing transparency, fairness, and accountability in audit practices. By doing so, auditors can leverage the benefits of AI while upholding the principles of integrity and ethical conduct.
- (iii) The audit firms should implement training programs to educate auditors on AI's capabilities and limitations, emphasizing the need for ongoing professional development. Training should focus on developing auditors' ability to critically assess AI outputs, thereby maintaining professional skepticism, and upholding the five ethical principles.

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