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Artificial Intelligence in Auditing

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ABSTRACT

The transition to digitalization of the financial sector revealed new opportunities in order to integrate advanced technologies such as artificial intelligence (AI), in the audit field. We will analyze in this article how AI is transforming the auditors' role and which are the gains and implications for professionals. We will also analyze the future directions for implementation of co-piloted auditing in obtaining more efficient audit procedures.

1. Introduction

Financial audits confirm the accuracy and compliance of a company's financial statements in an independent and objective way.

Auditors usually rely on sampling, statistics, and professional judgement. Financial audits are performed by authorized auditors, who must be independent and have accounting and financial expertise.

The audit process is usually based on artificial intelligence-based systems in the international context of the development of audit activity in recent years.

Since the 80`s, according to Carlson (Carlson, 1978), a normal decision audit process should necessarily combine three basic phases. These are: intelligence (which means gathering data, identifying objectives, diagnosing problems, validating data and structuring problems), design (which means manipulating data, quantifying objectives, generating alternatives and assigning risks or values to alternatives) and choice (which involves generating statistics on alternatives). Over the years, firms have invested a lot in AI across all sectors, proving its importance.

2. Using AI for auditing

Here's how artificial intelligence (AI) impacts the audit: audits are more efficient and effective with AI and when AI is used, auditors need to reassess and adapt their methodologies.

Like all technological innovations, AI has its challenges that require a deep understanding of how it works. AI makes audit teams' jobs easier, especially time-consuming ones. These include:

- Document analysis – With AI algorithms, large volumes of documents, including multilingual documents, can be analyzed for patterns, anomalies and key insights that would be time-consuming and less accurate if done manually;
- Risk assessment – Artificial intelligence (AI) enhances risk assessment by spotting trends in data quickly, identifying possible sensitive areas, and allowing for more efficient and effective audit planning as a result;
- Routine task execution – AI can improve audit efficiency by automating repetitive tasks, allowing auditors to focus on the analytical and complex aspects of the audit.

Additionally, it's important to see if they're using artificial intelligence, if they've developed specific strategies, and if there's appropriate governance.

If they don't use AI, their business processes could be at risk.

Whether third parties with whom they have contracts use artificial intelligence should also be analyzed by audited entities.

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3. AI tools for supporting the audit process

AI tools from third parties don't work with existing audit systems or clients' IT. There are incompatibilities because cleaning data takes time, tools are customized for specific industries, and many tools are still in development. Client challenges include data quality and integration (Seethamraju, Hecimovic, 2022).

Automated audit processes using machine learning, natural language processing, and robotic process automation. Privacy concerns, ethics, limited auditor expertise, and regulatory uncertainty are some challenges. (Suyono, Puspa, Anugrah, Firnanda, 2025). Artificial intelligence has improved a lot of things about auditing, including accuracy, scope, and efficiency. Detection of fraud, risk assessment, auditing, and compliance checks are all key.

- **Fraud Detection:** A lot of companies use machine learning algorithms to detect fraud by analyzing large amounts of data. Due to AI's ability to analyze data in real time, it can detect fraud earlier than traditional methods, so loss risks are minimized. Systems that use artificial intelligence help auditors find suspicious transactions based on predefined patterns.
- **Risk Assessment:** In the area of risk management, AI has changed audit practices a lot. Analyzing historical data, like financial performance and audit results, makes machine learning models better at predicting audit risks. The use of AI-based risk assessment tools helps auditors focus on high-risk areas, improving audit quality and maximizing resources (Knechel, van Staden, 2017). With predictive analytics powered by AI, auditors can assess and evaluate risks in a more proactive and strategic way.
- **Compliance Monitoring:** As compliance monitoring efforts get more sophisticated, AI technologies are being used more and more. With artificial intelligence, auditors can verify that organizations comply with various tax, financial, and legal regulations. By processing large datasets and identifying non-compliant activities, auditors can ensure regulatory compliance and reduce associated risk.
- **Audit Testing:** Audit testing has been revolutionized by artificial intelligence, which automates the review of financial records to find errors, inconsistencies, or misstatements. Li et al. (2020) demonstrated that artificial intelligence outperforms manual methods when it comes to performing complex statistical tests. Using AI-enabled procedures has proven highly effective in verifying financial statements and making sure accounting standards are followed.

4. Implications for professionals

It's important to enhance the AI literacy of audit professionals to fully leverage AI. The audit corporations came up with a training program aimed at providing not only a foundational understanding of AI, but also practical advice tailored to real-world audit applications. Building AI competence among the auditing staff is essential for effective and responsible deployment of AI tools.

The first step toward achieving the overarching goal is preparing the tech infrastructure, policies, and procedures. In order to do this, audit companies review their current systems and processes and enhance them. Technology infrastructure needs to be upgraded to accommodate AI capabilities, policy changes need to be made to embed AI ethics and governance principles, and operational procedures need to be adjusted to support effective and responsible AI use.

AI auditors should be able to navigate technical, legal, ethical, and organizational domains, collaborating with professionals across a variety of disciplines and evaluating AI systems over their entire lives.

5. Ethical Considerations

Transparency and Explainability. The problem is that AI systems, especially ones based on complex machine learning models, can operate like "black boxes," making it difficult for auditors and stakeholders to figure out what's going on. Audits must be able to justify and explain audit findings to clients, regulators, and other stakeholders if there's a lack of transparency. To ensure explainability, AI models should have interpretable decision processes, which fosters trust and accountability.

Accountability and Responsibility. In auditing workflows, AI tools raise some ethical questions about who's responsible for errors or misjudgments. By blaming AI, auditors abdicate responsibility. They need to maintain oversight and make sure AI outputs are validated. Clear accountability guidelines are needed for ethical auditing to prevent responsibility diffusion and maintain professional standards.

Bias and Fairness. Training AI algorithms on historical audit data may inadvertently teach biases, like discrimination against certain types of transactions. As a result, audit outcomes are unfair or risk assessments are skewed. The purpose of ethical auditing is to ensure that audit decisions are fair, impartial, and legally compliant.

Data Privacy and Confidentiality. The auditing process involves handling sensitive information. There are ethical concerns about data privacy when AI systems require large amounts of data to work. In order to protect the confidentiality of client information, ethical auditors must adhere to strict data governance policies, secure data handling practices, and privacy regulations like GDPR or CCPA.

Informed Consent and Transparency to Clients. The extent of AI use in audits should be explained to clients, along with its capabilities and limitations. Transparency builds trust with clients and makes sure

they're aware how their data is handled. Auditors should provide clients with enough information to understand the role AI plays, any risks involved, and how to mitigate those risks.

Impact on Auditor Judgment and Professional Skepticism. In auditing, it's important to make sure AI tools augment, not replace, professional judgment. Artificial intelligence might lead to complacency or unquestioning acceptance. AI-generated insights should be challenged or corroborated by auditors who remain vigilant, critically assess AI results, and use their expertise.

6. Future Trends: AI and the Evolution of the Audit Profession

As artificial intelligence advances, the audit profession will undergo transformational change. As AI automates routine and repetitive tasks, like data extraction and compliance checks, auditors can concentrate on more complex analytical and advisory tasks. (Kokina & Davenport, 2017).

In order to address the current opacity of many AI models, explainable AI (XAI) will provide transparent and interpretable outputs, boosting auditor trust and regulatory compliance. (Doshi-Velez & Kim, 2017).

In addition, AI will facilitate the transition from periodic audits to continuous, real-time auditing, allowing for ongoing assurance and earlier detection of irregularities and fraud (Alles, 2015). Enhanced fraud detection capabilities will emerge as AI systems analyze diverse and unstructured data sources, improving risk management practices by proactively identifying vulnerabilities (Brown-Liburd, Issa, & Lombardi, 2015).

Natural Language Processing (NLP) technologies will further augment audit procedures by efficiently analyzing large volumes of textual data such as contracts and regulatory filings, thereby improving audit accuracy and coverage (Earley, 2015).

It's important to note that AI in auditing won't replace human auditors, but augments their professional judgment, necessitating new skills in data science and technology oversight (Vasarhelyi & Alles, 2018). Transparency, fairness, and accountability will be ensured through ethics standards and regulatory frameworks for AI-assisted audits (Glover, Prawitt, & Wood, 2018).

To keep up with the evolving audit landscape, the auditor workforce will undergo significant upskilling, with an emphasis on AI literacy and critical thinking (Kuenkaikaew, 2020).

7. The Impact of AI on Auditor Judgment and Decision-Making

Incorporating artificial intelligence into auditing processes has fundamentally changed how auditors make decisions and judgments. AI systems can analyze huge amounts of data, spot patterns, and generate predictions-capabilities that auditors can use for risk assessment, anomaly detection, and fraud detection. (Kokina & Davenport, 2017).

Although these systems can boost efficiency, they also raise concerns about overreliance on algorithms. In the absence of critical evaluation of AI-generated conclusions, auditors may become prone to automation bias, which compromises professional skepticism. (Dowling & Leech, 2014).

AI models often operate like "black boxes," which limit auditors' ability to explain their findings to clients and regulators. (Doshi-Velez & Kim, 2017). AI that makes sense becomes especially important in audit scenarios that require nuanced judgment. Similarly, AI can mitigate human cognitive biases by providing data-driven, consistent analyses that reduce subjectivity (Luo et al., 2018).

The skill set of auditors needs to evolve to include data literacy, algorithm oversight, and critical interpretation of AI. Auditors' ability to maintain their professional judgment while leveraging technology to enhance, not replace, their decision-making processes is crucial to the effective integration of AI into auditing.

8. Regulatory Implications of AI Adoption in Auditing

In the world of auditing, AI has significant regulatory implications that challenge traditional oversight. Regulators have a tough job ensuring AI systems align with existing standards and legal requirements as AI is increasingly influencing audit workflows - from risk assessment to anomaly detection. It's important to be aware of the lack of transparency in many AI models, especially those that use complex machine learning algorithms. As a result of these "black box" systems, auditors have a harder time explaining or justifying conclusions, which conflicts with auditing's fundamental principles of accountability and evidence (IAASB, 2020).

As a result, regulators and standards-setters are exploring how to integrate explainability and auditability requirements. There's a need for guidance on using advanced technologies in audits, for example, from the PCAOB and IAASB (PCAOB, 2022). In addition, data governance is a challenge. Data security, privacy, and cross-border compliance are hot buttons under regulations like the General Data Protection Regulation (GDPR) and the California Consumer Privacy Act (CCPA).

Further, AI can blur the line between auditors and tools, making it harder to assign blame for audit failures or mistakes. As a result, new ethical guidelines and professional codes of conduct have been called for that clarify the auditor's responsibilities when AI is involved (AICPA, 2021). As AI adoption accelerates, regulators will need to balance innovation with safeguards that preserve audit integrity, protect client data, and keep auditing trustworthy.

9. AI Implementation in the Big Four Accounting Firms: Strategies and Applications

The Big Four accounting firms—**Deloitte**, **PwC**, **EY**, and **KPMG**—are at the forefront of integrating artificial intelligence (AI) into audit and assurance services, deploying advanced platforms to improve quality, insight, and efficiency.

Deloitte's **Omnia** platform has recently been augmented with generative AI capabilities—powered by agentic models—to support documentation review and financial statement navigation while preserving professional judgment (Deloitte, 2025).

PwC, having committed over $1 billion to AI innovation, leverages its **Aura** platform and tools such as **GL.ai** and **Cash.ai** to analyze full transactional datasets, detect anomalies, and enhance audit risk assessment (PwC investment data; GL.ai capabilities).

EY's **Helix GLAD** anomaly detector, used since 2018, identified fraud in two of the first ten clients audited, demonstrating the potential of machine learning in real-world contexts (EY Accountancy Age report, 2023), while their **Helix** and **Canvas** platforms support large-scale data extraction and real-time audit workflow collaboration (EY AI maturity snapshot).

KPMG's **KPMG Clara** platform integrates generative AI and cognitive agents to automate risk assessment, substantive procedures, and audit documentation review, empowering over 90,000 auditors globally (KPMG press releases 2024–2025). Despite widespread deployment, regulators such as the UK Financial Reporting Council have noted that Big Four firms often track AI tool usage rather than assessing their impact on audit quality, underscoring the need for better effectiveness metrics (FRC review, 2025).

10. Conclusions

Incorporating artificial intelligence into the auditing profession changes how audits are conducted, interpreted, and valued. Academic research and practical implementations have shown that AI technologies are redefining traditional audit processes by enhancing efficiency, improving accuracy, and enabling real-time risk assessment. The use of AI in audits has gone beyond anomaly detection to natural language processing and intelligent automation. Algorithm transparency, auditor overreliance, data privacy, and accountability highlight the need for robust oversight, education, and implementation. Auditing's future won't just be determined by technology, but by auditors' ability to stay on top of ethical standards, adapt to rapidly changing digital environments, and maintain professional judgment. The potential of AI is vast, provided it's approached critically, with interdisciplinary collaboration, and with a commitment to preserving auditing's core values.

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