

IMPACT OF ARTIFICIAL INTELLIGENCE IN ACCOUNTING & AUDITING

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ABSTRACT

Artificial Intelligence (AI) is fundamentally reshaping the accounting and auditing profession, moving practitioners away from manual, transaction-level work toward analytical, judgment-intensive roles. This paper examines the emergence and application of AI technologies—including machine learning, natural language processing, robotic process automation (RPA), and deep learning—across core accounting and auditing functions such as bookkeeping, financial reporting, fraud detection, risk assessment, and continuous auditing. Drawing on a review of academic literature, industry reports, and practitioner surveys, the paper evaluates the benefits AI offers in terms of accuracy, efficiency, real-time insight, and enhanced audit quality, while also critically examining challenges including data quality dependencies, algorithmic explainability (the “black box” problem), regulatory uncertainty, cybersecurity risk, and the widening skills gap among accounting professionals. The paper further discusses how global accounting bodies and audit firms are adapting through AI-enabled audit platforms and continuous assurance models. Finally, it outlines future research directions, including explainable AI (XAI) in assurance work, blockchain-AI integration, and the evolving competency framework for accountants and auditors in an AI-augmented profession. The paper concludes that AI should be viewed as a complement to, rather than a replacement for, professional judgment, with human oversight remaining central to maintaining trust, ethics, and accountability in financial reporting.

INTRODUCTION

Accounting and auditing have historically relied on structured, rules-based processes carried out largely through manual effort and sample-based testing. The exponential growth of financial data volume and complexity, coupled with increasing stakeholder demand for real-time and reliable information, has exposed the limitations of traditional methods. Artificial Intelligence—broadly defined as computer systems capable of performing tasks that

typically require human intelligence, such as pattern recognition, prediction, and language understanding—has emerged as a transformative force capable of addressing these limitations.

AI adoption in accounting and auditing spans a spectrum of technologies: Robotic Process Automation (RPA) for repetitive, rule-based tasks; Machine Learning (ML) for pattern detection and predictive modelling; Natural Language Processing (NLP) for extracting insights from unstructured text such as contracts and disclosures; and increasingly, generative AI for drafting reports, summarizing findings, and supporting analytical procedures. Major audit firms have invested heavily in proprietary AI-enabled audit platforms designed to analyze entire populations of transactions rather than samples, fundamentally altering the nature of audit evidence.

This paper aims to (a) map the principal applications of AI across the accounting and auditing value chain, (b) assess the benefits and risks associated with AI adoption, (c) examine the regulatory and ethical dimensions of AI-enabled assurance, and (d) identify emerging research and practice directions. The paper is organized as follows: Section 2 reviews related literature; Sections 3 and 4 discuss AI applications in accounting and auditing respectively; Section 5 outlines benefits; Section 6 discusses challenges; Section 7 presents illustrative industry practices; Section 8 discusses future directions; and Section 9 concludes.

LITERATURE REVIEW

Early research on automation in accounting focused primarily on RPA as a means of eliminating repetitive manual data entry and reconciliation tasks. Subsequent literature shifted attention toward machine learning applications in fraud detection and audit risk assessment, demonstrating that supervised learning models could outperform traditional statistical techniques in identifying anomalous transactions. Scholars have also examined the implications of AI for auditor judgment, noting that while AI tools enhance the identification of outliers and risk indicators, the interpretation of results and formation of audit opinions remains a human responsibility grounded in professional scepticism.

A parallel stream of research addresses the accounting profession's readiness for AI adoption, highlighting concerns about the erosion of foundational skills among entry-level accountants who increasingly rely on automated tools, as well as the need for updated curricula that integrate data analytics and AI literacy. Regulatory and standard-setting bodies have also begun to address AI, issuing guidance on the use of technology-based audit evidence and emphasizing that automated tools do not diminish auditor responsibility for the overall audit opinion. Collectively, the literature suggests a consensus that AI is best positioned as an augmentation of, rather than a substitute for, professional judgment in accounting and auditing.

AI APPLICATIONS IN ACCOUNTING

Automated Bookkeeping and Data Entry

RPA bots and AI-enabled optical character recognition (OCR) systems automatically capture, classify, and post transactions from invoices, receipts, and bank statements, reducing manual data entry errors and freeing staff for analytical work.

Financial Reporting and Reconciliation

Machine learning models assist in automated account reconciliation, variance analysis, and the identification of unusual journal entries, accelerating the month-end and year-end close processes while improving the accuracy of financial statements.

Fraud and Anomaly Detection

Supervised and unsupervised learning algorithms analyze large transaction datasets to flag anomalies indicative of fraud, embezzlement, or errors—patterns that would be difficult to detect through manual sampling. Techniques such as clustering, neural networks, and outlier detection have shown strong performance in identifying fraudulent financial reporting and expense manipulation.

Predictive Analytics and Forecasting

AI-driven forecasting models support budgeting, cash flow projection, and going-concern assessments by analysing historical financial data alongside external variables such as market and macroeconomic indicators, enabling more accurate and dynamic financial planning.

AI APPLICATIONS IN AUDITING

Risk Assessment and Audit Planning

AI tools assist auditors in identifying high-risk accounts and transactions during the planning phase by analyzing historical audit findings, industry benchmarks, and client-specific data, enabling more targeted and risk-responsive audit procedures.

Continuous Auditing and Real-Time Monitoring

Rather than relying solely on periodic, retrospective testing, AI enables continuous auditing, in which transactions are monitored and analyzed as they occur. This shift supports earlier detection of control breakdowns and misstatements, and moves assurance toward a more real-time model.

Full-Population Testing

AI and data analytics allow auditors to test entire populations of transactions rather than statistical samples, increasing the scope of audit evidence and enhancing the likelihood of detecting material misstatements that might fall outside a traditional sample.

Natural Language Processing for Document Review

NLP techniques are increasingly used to review contracts, board minutes, and management disclosures, extracting relevant clauses, identifying inconsistencies, and supporting going-concern and litigation risk assessments more efficiently than manual review.

BENEFITS OF AI IN ACCOUNTING AND AUDITING

- Improved accuracy and reduction of human error in repetitive, high-volume tasks.
- Increased efficiency, allowing professionals to focus on analysis, interpretation, and advisory work.
- Enhanced fraud and anomaly detection through pattern recognition across large datasets.
- Expanded audit coverage through full-population testing rather than limited sampling.
- Real-time, continuous assurance rather than periodic, backward-looking reviews.
- Better-informed decision-making through predictive analytics and forecasting.

CHALLENGES AND LIMITATIONS

Data Quality and Integration

AI systems are only as reliable as the data on which they are trained; inconsistent, incomplete, or poorly structured financial data can undermine model accuracy and produce misleading outputs.

Explainability and the “Black Box” Problem

Complex machine learning models, particularly deep learning systems, often lack transparency in how they arrive at conclusions, creating difficulties for auditors who must be able to justify and document the basis of audit judgments to regulators and stakeholders.

Regulatory and Ethical Concerns

The use of AI in assurance work raises questions regarding accountability when errors occur, data privacy, and the adequacy of existing auditing standards, which were largely developed before AI-based evidence became prevalent.

Skill Gap and Change Management

The integration of AI requires accountants and auditors to develop new competencies in data analytics, statistics, and technology governance, and firms face challenges in reskilling existing staff and updating training and educational curricula accordingly.

INDUSTRY PRACTICE AND ILLUSTRATIVE EXAMPLES

Leading global audit firms have developed proprietary AI-enabled audit platforms that combine data analytics, machine learning, and visualization tools to support full-population testing, risk scoring, and anomaly detection across client engagements. Enterprise Resource Planning (ERP) vendors have similarly embedded AI-driven modules for automated matching, anomaly flagging, and intelligent reconciliation within finance and accounting software suites. These developments illustrate a broader industry trend toward embedding AI directly into

everyday accounting workflows and audit methodologies, rather than treating it as a standalone tool.

FUTURE RESEARCH AND PRACTICE DIRECTIONS

- Development of Explainable AI (XAI) frameworks tailored to audit evidence requirements.
- Integration of AI with blockchain and distributed ledger technology for real-time, verifiable transaction records.
- Establishment of updated auditing standards addressing AI-based evidence and algorithmic accountability.
- Curriculum reform in accounting education to build AI and data-analytics competencies.
- Empirical research on auditor reliance behaviour and professional scepticism when working alongside AI tools.

CONCLUSION

Artificial Intelligence is redefining the accounting and auditing profession by automating routine tasks, expanding the scope and depth of audit evidence, and enabling more timely, data-driven decision-making. While the benefits in terms of accuracy, efficiency, and fraud detection are substantial, the profession must address challenges related to data quality, explainability, regulatory readiness, and workforce competency. Rather than displacing professional judgment, AI is best understood as a tool that augments the accountant's and auditor's ability to identify risk and add value, with human oversight and ethical responsibility remaining central to maintaining public trust in financial reporting and assurance services.

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