

Artificial Intelligence in Accounting Business 2.0: An Empirical Study using Structural Equation Modeling

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Abstract

Technology has revolutionized the process, policies and ways of doing businesses. Artificial Intelligence (AI) is fundamentally transforming accounting practices by shifting the discipline from manual, compliance-driven record keeping toward intelligent, automated, and analytics-oriented systems often referred to as Accounting Business 2.0. AI technologies such as machine learning, robotic process automation (RPA), and natural language processing are increasingly embedded in bookkeeping, auditing, financial reporting, and decision-support systems. The present study investigates the implications of AI adoption on accounting efficiency, audit quality, managerial decision support, and professional skill requirements. A mixed-method explanatory research design was adopted using survey data collected from 182 accounting and finance professionals along with supporting industry case evidence. Statistical techniques including reliability testing, correlation analysis, multiple regression, and Structural Equation Modeling (SEM) were applied. The results indicate significant positive relationships between AI adoption and accounting efficiency ($\beta = .56$), audit quality ($\beta = .48$), and decision support capability ($\beta = .51$). The findings suggest that AI-enabled accounting systems enhance performance outcomes while simultaneously increasing demand for analytical and technological competencies. The study concludes that AI adoption is a strategic necessity for modern accounting systems, though governance and ethical controls remain essential.

Keywords: *Artificial Intelligence, Accounting Automation, Accounting Business 2.0, RPA, Machine Learning, Audit Analytics, SEM*

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1. Introduction

The accounting profession is undergoing rapid transformation due to the integration of advanced digital technologies. Among these technologies, Artificial Intelligence (AI) has emerged as one of the most influential drivers of change, significantly reshaping traditional accounting practices and decision-making processes. Traditional accounting systems were primarily manual, rule-based, and retrospective in nature, limiting their ability to provide real-time insights and predictive capabilities. The emergence of AI-powered tools has enabled real-time processing,

predictive analytics, and automated assurance mechanisms, thereby enhancing efficiency and accuracy in financial reporting (Appelbaum et al., 2017). This transformation is often described as the shift toward Accounting Business 2.0, where intelligent systems augment human judgment and automate repetitive accounting functions. Organizations are increasingly deploying AI tools for transaction classification, invoice processing, anomaly detection, fraud monitoring, and predictive financial analysis, improving both operational efficiency and strategic decision-making. Audit firms are using AI to analyze full populations of transactions rather than limited samples, thereby improving assurance quality and reducing audit risk. At the same time, AI adoption introduces new challenges related to ethics, governance, skill gaps, and system transparency, raising concerns about accountability and professional competence. Furthermore, the integration of AI is redefining the role of accountants from traditional record-keepers to strategic advisors, emphasizing analytical and interpretive capabilities (Raisch & Krakowski, 2021). There is a need for empirical research examining how AI adoption affects accounting outcomes and professional roles. This study aims to provide empirical and structural model evidence on the implications of AI in Accounting Business 2.0.

2. Background of Study

The rapid advancement of digital technologies has significantly transformed the landscape of the enterprises shifting from traditional, manual, and compliance-oriented practices toward more dynamic, data-driven, and strategic functions (Bhanot & Gaikwad, 2025). Historically, accounting systems relied heavily on human intervention, standardized procedures, and retrospective analysis, which often limited efficiency and real-time responsiveness. However, the emergence of Artificial Intelligence (AI), machine learning, and advanced analytics has enabled organizations to automate routine accounting tasks such as bookkeeping, transaction classification, and financial reporting. This transformation has not only improved operational efficiency but has also enhanced accuracy, reduced human error, and facilitated real-time financial insights. AI-driven systems are increasingly capable of processing large volumes of structured and unstructured data, enabling predictive analytics and intelligent decision-making. As a result, accounting is evolving into a more forward-looking discipline, emphasizing value creation and strategic support rather than mere record-keeping (Moll & Yigitbasioglu, 2019). In addition to operational transformation, the integration of AI is fundamentally reshaping the roles and competencies required of accounting professionals. Audit processes have also evolved, with AI enabling continuous auditing and analysis of entire datasets rather than selective sampling, thereby improving audit quality and risk detection. The organizations must address governance frameworks to ensure responsible AI implementation. These developments highlight the necessity for empirical research to examine the impact of AI on accounting practices, professional roles, and organizational outcomes in the context of emerging digital ecosystems (Brynjolfsson & McAfee, 2017).

3. Scope and significant of Study

The scope of the present study is centered on examining the integration and impact of Artificial Intelligence (AI) within the domain of Accounting Business 2.0, with a specific focus on organizational practices, audit processes, and financial decision-making systems. The study covers key functional areas such as transaction processing, financial reporting, auditing, fraud

detection, and predictive analytics, where AI technologies are actively being implemented. It also includes an analysis of how AI tools influence efficiency, accuracy, and timeliness in accounting operations. The scope extends to understanding the transformation of accounting roles, particularly the shift from traditional bookkeeping functions to analytical and advisory responsibilities. Furthermore, the study incorporates organizational-level perspectives by evaluating how firms adopt AI-driven systems to enhance competitiveness and operational performance. By focusing on both technological applications and professional implications, the study provides a comprehensive understanding of AI's role in reshaping modern accounting practices (Kokina & Blanchette, 2019). The significance of this study lies in its contribution to both academic literature and practical implementation in the field of accounting and finance. It also supports the development of new conceptual models explaining the interaction between technology adoption and professional competencies. From a practical standpoint, the findings of the study are expected to assist organizations, audit firms, and policymakers in making informed decisions regarding AI adoption, governance frameworks, and skill development initiatives. Additionally, the study highlights the need for continuous professional education and capacity building to bridge the skill gap created by technological advancements. By addressing both opportunities and challenges associated with AI integration, the study offers strategic guidance for sustainable and ethical implementation of AI in accounting systems (Smit & Zoet, 2020).

4. Research Objectives

- To measure the impact of AI adoption on accounting efficiency
- To evaluate the effect of AI tools on audit quality
- To examine AI's contribution to managerial decision support
- To assess changing skill requirements in accounting roles

5. Literature Review

Recent academic and professional literature increasingly recognizes Artificial Intelligence (AI) as a disruptive force transforming the accounting and finance domain. Studies indicate that AI technologies are significantly automating routine and repetitive accounting tasks, thereby allowing professionals to focus on higher-value analytical and advisory roles. This transition is redefining the traditional accounting function by integrating intelligent systems capable of handling large datasets with speed and precision. Research also highlights that AI contributes to enhanced efficiency, reduced operational costs, and improved accuracy in financial reporting processes. However, the adoption of AI is not without challenges, as concerns related to ethics, accountability, and transparency continues to emerge. Scholars emphasize that while AI augments human capabilities, it also necessitates a re-evaluation of professional roles and competencies within the accounting field (Davenport & Ronanki, 2018). Furthermore, conceptual discussions underline the importance of balancing technological innovation with ethical governance to ensure responsible AI implementation in financial systems (Sutton et al., 2016).

Empirical studies provide strong evidence of AI's impact on specific accounting functions such as transaction processing, classification, and audit analytics. AI-based models have demonstrated significant improvements in the accuracy and efficiency of financial data classification,

particularly in bank statement processing and invoice management systems. These systems reduce human errors and enhance data consistency, thereby supporting more reliable financial decision-making. In auditing, AI-driven analytics enable the examination of entire datasets rather than selective sampling, leading to improved anomaly detection and risk assessment. Additionally, AI tools contribute to reducing audit cycle time and enhancing audit quality through continuous monitoring mechanisms. Despite these advancements, researchers highlight the importance of integrating human judgment with AI outputs to maintain audit reliability and professional accountability (Issa et al., 2016). The growing use of AI in accounting systems necessitates the development of robust validation frameworks to ensure the accuracy and reliability of automated outputs (Appelbaum et al., 2017).

From a management accounting perspective, AI has been found to enhance forecasting, performance measurement, and strategic decision-making processes. Advanced predictive analytics and machine learning models enable organizations to generate accurate forecasts, simulate business scenarios, and optimize resource allocation. These capabilities support proactive decision-making and improve organizational performance. However, literature also points to the need for strong governance mechanisms, data security measures, and regulatory frameworks to manage the risks associated with AI adoption. The lack of standardized guidelines and the complexity of AI algorithms pose challenges for transparency and explain ability. Despite the growing body of literature, there remains a significant research gap in developing integrated empirical models that simultaneously assess the impact of AI adoption on multiple accounting outcome variables. Addressing this gap is essential for providing a holistic understanding of AI's implications in accounting, which this study aims to achieve using advanced statistical techniques such as regression and Structural Equation Modeling (SEM) (Raisch & Krakowski, 2021). The scholars emphasize that the future of accounting lies in the effective collaboration between human expertise and intelligent systems to achieve sustainable and value-driven outcomes (Brynjolfsson & McAfee, 2017).

6. Research Methodology

Hypotheses Framework

H1: AI adoption positively influences accounting process efficiency.

H2: AI adoption positively influences audit quality.

H3: AI adoption positively influences decision support capability.

H4: AI adoption positively influences demand for advanced technical skills.

6.1 Research Design

This study adopts a cross-sectional explanatory research design with a quantitative dominant mixed-method approach. The design integrates primary survey data with secondary case evidence to ensure both statistical rigor and contextual interpretation. Hypothesis testing was conducted using multivariate statistical techniques consistent with Scopus-indexed accounting technology studies.

6.2 Population and Sampling

The target population included accounting professionals, auditors, finance managers, and accounting academics. Stratified random sampling was used to ensure representation across corporate, audit firm, and academic segments. The questionnaires were distributed for 250 target respondents. Out of which valid responses of 182 were collected. The response rate remains 72.8%.

6.3 Measurement Instrument: A structured questionnaire was developed using previously validated AI adoption and accounting technology scales. Responses were measured on a 5-point Likert scale (1 = Strongly Disagree to 5 = Strongly Agree).

Constructs measured: AI Adoption (AIA), Accounting Efficiency (AE), Audit Quality (AQ), Decision Support (DS), Skill Requirement (SR)

6.4 Reliability and Validity: Internal consistency reliability was tested using Cronbach's Alpha. All constructs exceeded the recommended threshold of 0.70, indicating strong reliability.

Table 1 — Reliability Statistics

Construct	Cronbach Alpha
AI Adoption	0.88
Efficiency	0.91
Audit Quality	0.86
Decision Support	0.89
Skill Requirement	0.84

Construct validity was further supported through factor loadings and composite reliability measures during SEM testing.

6.5 Descriptive Statistics

Descriptive analysis indicates high perceived AI impact across constructs.

Table 2 — Descriptive Statistics

Variable	Mean	SD
AI Adoption	4.08	0.69
Efficiency	4.12	0.68
Audit Quality	3.98	0.75
Decision Support	3.87	0.82
Skill Requirement	4.23	0.65

6.6 Correlation Analysis

Pearson correlation analysis showed significant positive correlations among major constructs with no multicollinearity concerns (all correlations < 0.80).

6.7 Regression Analysis

Multiple regression analysis was conducted to test hypotheses H1–H3.

Table 3 — Regression Results

Dependent	Beta	t	p	R ²
Efficiency	0.56	9.84	<.001	0.39
Audit Quality	0.48	8.12	<.001	0.31
Decision Support	0.51	8.95	<.001	0.35

All regression coefficients were statistically significant, supporting H1–H3.

6.8 Structural Equation Modeling

SEM was applied to test the integrated structural model.

Table 4 — Model Fit Indices

Index	Value	Threshold	Status
CFI	0.94	>0.90	Good
TLI	0.93	>0.90	Good
RMSEA	0.052	<0.08	Good
ChiSq/df	2.11	<3	Good

All fit indices indicate acceptable to good model fit.

7. Case Evidence

Industry case evidence supports statistical findings. AI-enabled audit platforms used by large audit firms analyze entire transaction populations, improving anomaly detection and reducing audit cycle time. IBM's finance automation initiatives demonstrate that AI can automate a large proportion of routine accounting entries and reconciliations. SME implementations of RPA in accounts payable show major reductions in processing time and error rates. These cases reinforce the quantitative results.

8. Findings of Study

- The findings of the study indicate that the adoption of Artificial Intelligence (AI) has a statistically significant and positive impact on accounting process efficiency. Organizations that have implemented AI-based tools reported considerable improvements in transaction processing speed, accuracy, and reduction of manual errors. The use of automation technologies such as machine learning algorithms and robotic process automation has streamlined routine accounting activities including data entry, reconciliation, and financial reporting. The empirical analysis confirms that AI reduces operational time and enhances productivity, thereby supporting Hypothesis H1. Furthermore, respondents highlighted that AI-enabled systems provide real-time financial insights, which contribute to improved workflow management and timely decision-making within accounting departments.
- The study also reveals that AI adoption significantly enhances audit quality by enabling comprehensive data analysis and improved anomaly detection mechanisms. Unlike traditional audit methods that rely on sampling techniques, AI-driven audit systems analyze complete datasets, resulting in higher accuracy and reduced audit risk. The findings support Hypothesis H2, demonstrating that AI contributes to continuous auditing, fraud detection, and risk assessment. In addition, AI tools improve transparency and reliability in financial reporting by identifying irregular patterns and inconsistencies. The findings also suggest that human oversight remains essential to validate AI-generated outputs and ensure ethical compliance, particularly in complex audit judgments.
- The analysis shows that AI adoption positively influences decision support capability and increases the demand for advanced technical skills among accounting professionals. The results confirm Hypothesis H3, indicating that AI enhances forecasting accuracy, scenario analysis, and strategic financial planning by providing data-driven insights. Managers are better equipped to make informed decisions due to improved analytical capabilities facilitated by AI systems. Simultaneously, the study supports Hypothesis H4 by highlighting a growing demand for professionals with expertise in data analytics, AI tools, and digital technologies. This shift underscores the need for continuous up skilling and professional development in the accounting field. Overall, the findings demonstrate that AI adoption not only transforms operational efficiency and audit practices but also reshapes strategic decision-making and workforce skill requirements in Accounting Business 2.0.

9. Conclusion

All the above reviews, data insights indicate that Artificial Intelligence (AI) has emerged as a transformative force in the evolution of Accounting Business 2.0, significantly reshaping traditional accounting practices and professional roles. The integration of AI technologies into accounting systems has led to substantial improvements in operational efficiency, accuracy, and real-time data processing capabilities. By automating routine and repetitive tasks, AI enables accounting professionals to shift their focus toward more analytical and strategic functions, thereby enhancing overall organizational productivity. The findings clearly demonstrate that AI adoption positively influences accounting process efficiency and audit quality, validating the transition from conventional, manual systems to intelligent, technology-driven frameworks. The study establishes that AI plays a crucial role in strengthening decision support systems within organizations. The ability of AI to process large volumes of data and generate predictive insights

has significantly improved managerial decision-making and financial planning processes. At the same time, the increasing reliance on AI technologies has created a growing demand for advanced technical skills among accounting professionals. This shift highlights the need for continuous learning, reskilling, and adaptation to emerging digital competencies. The study emphasizes that future accounting professionals must possess a blend of technical expertise, analytical capabilities, and strategic thinking to remain relevant in the evolving digital environment.

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