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THE ROLE OF ARTIFICIAL INTELLIGENCE IN IMPROVING THE QUALITY OF ACCOUNTING AND FINANCIAL REPORTING

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Abstract. The rapid development of artificial intelligence (AI) is transforming traditional accounting and financial reporting practices. AI-based technologies, including machine learning, intelligent automation, expert systems, natural language processing, and advanced data analytics, provide new opportunities for increasing the accuracy, timeliness, relevance, and reliability of accounting information. This study examines the role of artificial intelligence in improving accounting processes and the quality of financial reporting. Particular attention is paid to the impact of AI on accounting process automation, internal control, error detection, financial data analysis, forecasting, and managerial decision-making. The study applies systematic analysis, comparative analysis, synthesis, induction, and deduction to examine recent theoretical and empirical research. Based on the findings, an integrated "AI–Accounting Quality" framework is proposed, linking AI adoption with accounting process automation, data accuracy, internal control effectiveness, financial reporting quality, and decision usefulness. The study argues that AI should not be considered merely as a tool for reducing routine accounting work. When combined with effective internal controls, professional judgment, ethical standards, and appropriate data governance, AI can become an important mechanism for improving the overall quality of accounting information. At the same time, algorithmic bias, cybersecurity risks, data privacy, lack of transparency, and excessive reliance on automated decisions require continuous human oversight. The paper provides practical recommendations for organizations seeking to integrate AI technologies into their accounting and financial reporting systems.
Keywords: artificial intelligence, accounting, financial reporting, accounting information quality, machine learning, automation, internal control, financial data, professional judgment, digital transformation.

1. Introduction

Digital transformation has become one of the major forces reshaping contemporary business. The increasing availability of large volumes of financial data, improvements in computing capacity, and the development of artificial intelligence technologies are changing how organizations collect, process, analyze, and report accounting information.

Traditional accounting systems have historically depended on structured procedures, predefined rules, manual verification, and professional judgment. Although digital accounting systems have

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significantly reduced the amount of manual processing, many accounting activities still require considerable time for data classification, reconciliation, verification, analysis, and interpretation.

Artificial intelligence creates opportunities to transform this process. Machine learning algorithms can identify patterns in large datasets, intelligent systems can classify transactions, automated tools can detect unusual transactions, and advanced analytical systems can assist organizations in forecasting future financial developments.

The growing use of AI therefore changes the role of accounting from a predominantly transaction-processing function toward a more analytical, predictive, and decision-oriented function.

The quality of accounting information is particularly important because financial statements represent one of the primary channels through which managers, investors, creditors, regulators, and other stakeholders evaluate an organization's financial position and performance. Inaccurate, delayed, incomplete, or irrelevant information may lead to inefficient decisions and increase information risk.

Recent empirical evidence indicates that AI and automation can contribute to improvements in accounting information systems, internal controls, and the accuracy of financial data reporting. However, the adoption of AI also introduces new risks related to algorithmic transparency, data governance, cybersecurity, privacy, professional competence, and ethical responsibility.

Consequently, the central research question of this study is:

How can artificial intelligence improve the quality of accounting and financial reporting while maintaining effective professional and human oversight?

The purpose of this study is to examine the mechanisms through which artificial intelligence influences accounting and financial reporting quality and to develop an integrated framework for the effective application of AI in accounting systems.

The study proposes the following conceptual relationship:

AI Adoption → Accounting Process Automation → Data Accuracy and Internal Control → Financial Reporting Quality → Improved Decision-Making

The main hypothesis is that the effective adoption of artificial intelligence, when supported by appropriate internal controls, qualified accounting professionals, and reliable data governance, contributes positively to the quality of accounting information and financial reporting.

2. Literature Review

The relationship between technology and accounting has developed significantly over recent decades. Earlier accounting information systems primarily focused on recording, processing, and storing financial transactions. Modern AI-based systems extend these functions by providing predictive, analytical, and automated capabilities.

Recent academic research demonstrates increasing interest in the application of AI to financial accounting. Research on AI-based forecasting shows that machine learning and related methods can support prediction tasks in accounting. However, the literature also indicates that broader and more

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generalizable knowledge regarding the organizational implementation of these technologies is still developing.

Automation represents another important component of the transformation of financial reporting. Technologies such as machine learning, robotic process automation, and artificial intelligence can automate repetitive accounting activities and strengthen control procedures. Empirical research suggests that the use of automation in financial reporting is associated with improvements in the internal control environment.

The quality of accounting information systems is another important area. AI can facilitate the processing of large amounts of accounting data, detect inconsistencies and anomalies, and provide information to accounting professionals more quickly. Recent empirical findings indicate positive relationships among AI, internal control systems, accounting information system quality, and the accuracy of financial data reporting.

AI may also affect the broader quality characteristics of accounting information. High-quality financial information should be relevant to decision-makers and faithfully represent the underlying economic phenomena. AI-based analytical tools can potentially improve these characteristics by increasing processing speed, detecting errors, identifying unusual patterns, and supporting the analysis of complex financial datasets.

At the same time, the literature does not support the assumption that AI automatically produces high-quality accounting information. The quality of AI output depends substantially on the quality of input data, model design, organizational controls, professional competence, and governance mechanisms.

Another emerging area concerns generative artificial intelligence and large language models. These technologies provide new opportunities for classification, summarization, textual analysis, financial document processing, and other accounting-related applications. Nevertheless, their use also raises concerns regarding factual accuracy, confidentiality, explainability, accountability, and professional judgment.

Thus, the literature suggests that the impact of AI on accounting quality should be examined not only from a technological perspective but also from organizational, professional, ethical, and governance perspectives.

3. Research Methodology

This study employs a qualitative analytical research approach. Systematic analysis, comparative analysis, synthesis, induction, deduction, and conceptual modelling are used to identify the major channels through which artificial intelligence can influence accounting and financial reporting quality.

The analytical framework distinguishes five major dimensions:

1. AI adoption and technological capability;
2. accounting process automation;
3. financial data accuracy;

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4. internal control effectiveness;
5. financial reporting quality and decision usefulness.

For conceptual purposes, the relationship can be expressed as:

FRQ = f(AI, DA, IC, PC, DG)

where:

FRQ = Financial Reporting Quality;
AI = Artificial Intelligence Adoption;
DA = Data Accuracy;
IC = Internal Control Effectiveness;
PC = Professional Competence;
DG = Data Governance.

The model assumes that AI can have both a direct and an indirect impact on financial reporting quality. Its direct impact occurs through automated data processing, anomaly detection, classification, and analytical capabilities. Its indirect impact occurs through improvements in data accuracy and internal control effectiveness.

An integrated Accounting Quality Index may conceptually be represented as:

$$AQI = w_1A + w_2R + w_3T + w_4C + w_5V$$

where:

AQI = Accounting Quality Index;
A = Accuracy;
R = Relevance;
T = Timeliness;
C = Completeness;
V = Verifiability;
$w_1 \ldots w_5$ = weights assigned to each quality component.

The proposed framework does not assume universal numerical weights. In empirical applications, weights should be determined according to the research design, expert evaluation, statistical procedures, or the characteristics of the organization being studied.

4. Results and Discussion

The analysis identifies several major channels through which artificial intelligence can contribute to accounting and financial reporting quality.

4.1. Automation of Routine Accounting Processes

One of the most immediate benefits of AI is the automation of repetitive accounting tasks. Transaction classification, invoice processing, account reconciliation, document processing, and selected control procedures can increasingly be supported by intelligent technologies.

Automation may reduce the time accountants spend on repetitive processing and allow greater attention to analysis, interpretation, risk assessment, and decision support.

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However, efficiency should not be confused with reporting quality. A rapidly automated process can reproduce errors at scale if the underlying data, rules, or algorithms are incorrect. Therefore, automated processes require appropriate validation and control.

4.2. Improving Financial Data Accuracy

Accounting systems process substantial volumes of financial information. Manual data processing creates the possibility of input errors, duplicate entries, incorrect classifications, and inconsistent records.

AI-based tools can support the identification of anomalies and unusual patterns within large datasets. This enables accountants to focus their attention on transactions that require further investigation.

The relationship can be presented as:

AI-based detection → earlier identification of anomalies → corrective action → higher data accuracy → improved financial reporting quality.

4.3. Strengthening Internal Control

Internal control is fundamental to reliable financial reporting. AI and automation can support continuous monitoring rather than relying exclusively on periodic manual review.

Automated systems can compare transactions against established criteria, identify unusual deviations, and flag higher-risk transactions for professional review.

Therefore, AI may strengthen financial reporting not only by improving accounting calculations but also by improving the control environment in which accounting information is produced.

4.4. Improving Timeliness

Financial information loses part of its decision-making value when it becomes available too late. Automated processing and real-time analytical capabilities can shorten the period between the occurrence of economic events and their incorporation into management information.

Greater timeliness can provide management with earlier information regarding liquidity problems, unusual expenses, changes in revenue patterns, and other financial developments.

4.5. Supporting Forecasting and Decision-Making

The contribution of AI to accounting extends beyond historical reporting. Machine learning and advanced analytical models can be used for forecasting and predictive analysis.

Potential applications include cash-flow forecasting, revenue forecasting, credit-risk assessment, expense prediction, identification of financial distress indicators, and scenario analysis.

This development changes the function of accounting information. Instead of only explaining past economic events, accounting systems can increasingly support forward-looking managerial decisions.

Table 1. Potential Effects of AI on Accounting and Financial Reporting

AI application	Accounting function	Expected benefit	Major risk
Automated transaction processing	Recording and classification	Efficiency and consistency	Incorrect automated classification

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AI application	Accounting function	Expected benefit	Major risk
Machine learning	Pattern and anomaly detection	Improved error detection	Algorithmic bias
Intelligent reconciliation	Account verification	Faster reconciliation	Excessive reliance on automation
Predictive analytics	Forecasting	Better planning	Model uncertainty
AI-supported internal control	Continuous monitoring	Earlier risk identification	Weak model governance
Generative AI	Text and document analysis	Faster information processing	Inaccurate or fabricated output

The table demonstrates that each potential benefit of AI is accompanied by a corresponding risk. Consequently, the appropriate question for accounting organizations is not whether AI should replace accountants, but how AI and professional accountants can operate within an effective control framework.

5. Proposed AI–Accounting Quality Framework

Based on the analysis, this study proposes an integrated **AI–Accounting Quality Framework**.

The framework consists of four interconnected stages:

Stage 1: AI Readiness

Organizations should assess the quality of existing data, information systems, employee skills, cybersecurity arrangements, and internal control procedures before implementing AI.

Stage 2: Intelligent Accounting Processes

AI should be introduced into clearly defined accounting activities in which automation or advanced analysis provides measurable benefits, including reconciliation, anomaly detection, forecasting, transaction classification, and control monitoring.

Stage 3: Human Verification and Governance

Material accounting judgments and high-risk AI outputs should remain subject to professional review. Organizations should establish responsibility for model validation, data protection, access controls, and correction of erroneous outputs.

Stage 4: Reporting Quality and Decision Usefulness

The final effectiveness of AI implementation should be evaluated not merely through cost savings but through improvements in accuracy, relevance, timeliness, completeness, verifiability, internal control, and usefulness of financial information.

The framework can therefore be represented as:

AI Readiness → Intelligent Processing → Human Oversight & Internal Control → High-Quality Financial Information → Better Decisions

This framework represents the central conceptual contribution of the study.

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6. Scientific Novelty

The scientific contribution of this study is the development of an integrated approach that evaluates AI adoption not merely as accounting automation but as a multi-stage mechanism influencing the quality of accounting and financial reporting.

The proposed approach distinguishes three interconnected effects:

Technological effect: AI increases the speed and capacity of financial data processing.

Control effect: AI assists in identifying anomalies, inconsistencies, and potentially risky transactions.

Information-quality effect: improvements in processing and controls can increase the accuracy, timeliness, relevance, completeness, and usefulness of financial information.

Accordingly, the study proposes that AI effectiveness in accounting should be evaluated through the following relationship:

AI Effectiveness = Technological Capability × Data Quality × Internal Control × Professional Oversight

The multiplicative interpretation emphasizes that weakness in any major component can substantially reduce the overall benefits of AI adoption.

7. Risks and Ethical Considerations

Despite its advantages, artificial intelligence introduces several important risks into accounting.

First, AI models depend on data. Poor-quality or biased data can produce unreliable outputs.

Second, complex algorithms may lack transparency, making it difficult for accounting professionals to explain how particular conclusions were generated.

Third, accounting systems contain confidential financial and personal information. Integration with AI technologies therefore requires strong cybersecurity and data-protection mechanisms.

Fourth, excessive dependence on automated recommendations may weaken professional skepticism and human judgment.

Fifth, responsibility remains a fundamental issue. Organizations must clearly establish who is accountable for reviewing AI-generated accounting outputs and correcting material errors.

For these reasons, the principle of **human-in-the-loop accounting** should be maintained. AI should support professional accountants rather than eliminate professional responsibility.

8. Practical Recommendations

Organizations seeking to implement AI in accounting and financial reporting should introduce the technology gradually and according to the risk level of accounting activities.

AI applications should initially focus on processes with structured data and clearly measurable outcomes. Organizations should establish data-quality standards before introducing complex AI models.

Internal control systems should be redesigned to include controls over AI models, data inputs, system access, model changes, and AI-generated outputs.

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Accounting professionals should receive continuous training in digital technologies, data analytics, AI risks, cybersecurity, and ethical requirements.

Organizations should maintain documented human approval procedures for material estimates, judgments, financial statement disclosures, and unusual transactions.

Finally, the performance of AI systems should be evaluated using both efficiency indicators and accounting-quality indicators. A reduction in processing time alone should not be regarded as successful AI adoption if financial information becomes less reliable or less explainable.

9. Conclusion

Artificial intelligence is changing the nature of accounting and financial reporting. Its importance extends beyond the automation of repetitive transactions. AI provides opportunities to improve financial data processing, anomaly detection, internal control, forecasting, and analytical decision support.

The analysis demonstrates that the contribution of AI to financial reporting quality occurs through several interconnected channels. Automation can increase processing efficiency; intelligent analytical tools can help identify errors and unusual transactions; continuous monitoring can strengthen selected internal controls; and predictive technologies can expand the decision-making value of accounting information.

However, AI cannot independently guarantee high-quality financial reporting. Its effectiveness depends on data quality, appropriate system design, internal controls, professional competence, cybersecurity, ethical governance, and human oversight.

The study therefore proposes an AI–Accounting Quality Framework in which technological capabilities are integrated with data accuracy, internal control, professional judgment, and governance. This approach shifts attention from the simple question of whether accounting functions can be automated toward the more important question of how AI can be governed to produce reliable and decision-useful financial information.

The future of accounting should consequently be viewed not as a competition between artificial intelligence and professional accountants but as a model of intelligent collaboration. AI can perform high-volume processing and advanced pattern recognition, while professional accountants remain responsible for interpretation, judgment, ethics, control, and accountability.

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