ARTIFICIAL INTELLIGENCE AND THE DIGITAL TRANSFORMATION OF ACCOUNTING AND AUDITING: A THEORETICAL AND DESCRIPTIVE STUDY

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Abstract. This study examines the potential role of artificial intelligence (AI) technologies in the digital transformation of accounting and auditing, focusing on organizational readiness, professional applications, and implementation challenges. The research combines a theoretical analysis of relevant literature with a descriptive examination of questionnaire data provided by the authors. The questionnaire comprised 16 statements organized into four thematic areas and was administered to a reported sample of 100 respondents representing accounting and related professional specializations. Following a comparison of the supplied questionnaire summary and response dataset, 14 items with consistent response distributions were included in the descriptive analysis, while two items were excluded because of discrepancies between the sources. The results indicate generally favorable perceptions of AI adoption. In particular, 90% of respondents agreed or strongly agreed that their organizations had a strategic plan for AI adoption, while 85% expressed agreement regarding continuous digital training. In the accounting section, 70% expressed agreement with each of the three analyzed statements concerning error reduction, process efficiency, and financial analysis. In auditing, 60% expressed agreement regarding continuous monitoring and anomaly detection, whereas only 40% agreed that AI improves the quality and reliability of audit reports. Professional skills shortages and insufficient regulatory adaptation were identified as potential challenges by 70% of respondents in each case. The findings describe respondents' perceptions rather than independently verified improvements in professional performance. Limitations relating to sampling documentation, questionnaire validation, and data consistency restrict the generalizability of the results. The study contributes an integrated theoretical and descriptive perspective on AI applications in accounting and auditing and emphasizes the importance of technological readiness, professional competencies, data governance, and human oversight.

Keywords: artificial intelligence, digital transformation, accounting, auditing, questionnaire survey, organizational readiness.

ИСКУССТВЕННЫЙ ИНТЕЛЛЕКТ И ЦИФРОВАЯ ТРАНСФОРМАЦИЯ БУХГАЛТЕРСКОГО УЧЁТА И АУДИТА: ТЕОРЕТИКО-ОПИСАТЕЛЬНОЕ ИССЛЕДОВАНИЕ

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Аннотация. В статье рассматриваются возможности применения технологий искусственного интеллекта (ИИ) в цифровой трансформации бухгалтерского учёта и аудита с акцентом на организационную готовность, профессиональные направления использования и проблемы внедрения. Исследование сочетает теоретический анализ научной литературы и описательную обработку данных анкетирования, предоставленных авторами. Анкета включала 16 утверждений, объединённых в четыре тематических блока. Согласно представленным материалам, в опросе приняли участие 100 респондентов, представляющих бухгалтерский учёт и смежные профессиональные направления. По результатам сопоставления сводных данных анкеты и массива ответов в описательный анализ включены 14 вопросов с согласованными распределениями ответов. Два вопроса исключены вследствие выявленных расхождений между источниками. Результаты свидетельствуют о преимущественно положительном восприятии возможностей внедрения ИИ. В частности, 90 % респондентов согласились или полностью согласились с утверждением о наличии стратегического плана внедрения ИИ, а 85 % — о проведении непрерывного обучения сотрудников цифровым компетенциям. В блоке бухгалтерского учёта по каждому из трёх анализируемых утверждений, связанных со снижением ошибок, повышением эффективности процессов и финансовым анализом, доля положительных ответов составила 70 %. В отношении непрерывного аудита и выявления аномалий положительную оценку выразили 60 % участников, тогда как улучшение качества и достоверности аудиторских отчётов поддержали только 40 %. Недостаток специализированных компетенций и необходимость совершенствования нормативного регулирования отметили по 70 % респондентов. Полученные результаты характеризуют восприятие участниками возможностей и проблем применения ИИ, но не подтверждают фактического повышения эффективности бухгалтерского учёта и аудита. Ограничения, связанные с недостаточной документацией процедуры формирования выборки, отсутствием подтверждённой валидации анкеты и расхождениями в исходных материалах, ограничивают возможность обобщения результатов. Научный вклад исследования заключается в комплексном теоретико-описательном рассмотрении применения ИИ в бухгалтерском учёте и аудите с выделением значения технологической готовности, профессиональных компетенций, управления данными и контроля со стороны специалистов.

Ключевые слова: искусственный интеллект, цифровая трансформация, бухгалтерский учёт, аудит, анкетирование, организационная готовность.

Introduction

The rapid development of digital technologies is transforming accounting and auditing practices by introducing new approaches to financial information processing, reporting, and professional decision-making. Artificial intelligence (AI), including machine learning, predictive analytics, and intelligent automation, offers opportunities to improve accounting procedures, support financial analysis, and enhance audit risk assessment.

AI-supported systems may facilitate transaction classification, financial forecasting, anomaly detection, and the examination of audit evidence. However, their effectiveness depends on data quality, technological infrastructure, professional competencies, internal controls, and compliance with applicable accounting and auditing standards. Cybersecurity, confidentiality, algorithmic transparency, and professional accountability also remain significant challenges.

Although previous research has examined the potential benefits of AI, technological capabilities should be distinguished from their actual implementation and measurable effects. Understanding how professionals perceive AI applications and implementation challenges is therefore important for evaluating organizational readiness for digital transformation.

This study examines organizational readiness, perceived applications of AI in accounting and auditing, and challenges associated with technological adoption. It combines a theoretical review of relevant literature with descriptive questionnaire data from 100 respondents representing accounting, business administration, economics, statistics, and finance and banking.

The questionnaire contains 16 statements across four thematic areas, assessed using a five-point Likert scale. Comparison of the supplied questionnaire summary and response spreadsheet identified consistent distributions for 14 items. Two items were excluded because of unresolved discrepancies. Accordingly, the analysis uses frequencies and percentages rather than regression-based hypothesis testing.

The findings indicate generally favorable perceptions of AI applications in accounting and organizational readiness, while assessments of AI-supported auditing are more varied. Professional skills shortages and regulatory preparedness also emerge as perceived challenges.

The study's contribution lies in integrating these dimensions within a common theoretical and descriptive framework. Nevertheless, limitations concerning sampling documentation, questionnaire validation, and data consistency restrict the generalizability of the findings. The results therefore describe respondents' perceptions rather than statistically verified effects of AI adoption.

1. Research Methodology and Theoretical Foundations

1-1. Research Methodology

First: Research Problem

Artificial intelligence offers opportunities to automate accounting processes, analyze financial data, identify unusual transactions, and support auditing procedures. However, its implementation requires technological readiness, reliable information, qualified personnel, effective controls, and appropriate regulatory frameworks.

The potential benefits of AI should be distinguished from objectively demonstrated improvements in accounting and auditing performance. In particular, favorable perceptions of accounting automation do not necessarily imply comparable confidence in AI-supported audit quality and evidence evaluation.

The research therefore examines perceptions of organizational readiness, professional applications, and challenges associated with AI adoption.

The central research question is:

How do respondents perceive organizational readiness, professional applications, and implementation challenges associated with artificial intelligence in the digital transformation of accounting and auditing?

The study addresses this question through theoretical analysis and descriptive questionnaire results without attempting to establish causal relationships.

Second: Research Objectives

The primary objective is to examine the potential role of artificial intelligence in accounting and auditing through theoretical analysis and respondents' reported perceptions.

The specific objectives are:

1. To examine perceptions of organizational awareness, technological infrastructure, strategic planning, and professional training for AI adoption.
2. To analyze perceived AI applications in accounting, particularly error reduction, operational efficiency, financial analysis, and forecasting.
3. To investigate perceived applications in auditing, including continuous monitoring, anomaly detection, risk assessment, and audit report quality.
4. To identify professional, technological, organizational, and regulatory challenges associated with AI implementation.
5. To compare descriptive response patterns, interpret them in relation to existing research, and formulate practical recommendations and directions for future investigation.

Third: Significance of the Research

The significance of this study lies in examining AI applications, organizational readiness, and implementation challenges within a unified framework of accounting and auditing digital transformation.

1. Theoretical Significance

The study integrates discussions of AI applications in accounting and auditing, including automated information processing, financial forecasting, continuous monitoring, and audit risk assessment. It distinguishes technological capabilities and perceived benefits from objectively demonstrated professional outcomes.

2. Descriptive and Empirical Significance

The research analyzes questionnaire materials reporting responses from 100 participants across four thematic areas: organizational readiness, accounting applications, auditing applications, and implementation challenges.

The findings identify patterns in respondents' perceptions, but do not establish causal relationships, statistically significant differences, or sample representativeness.

3. Practical Significance

The study provides considerations for accounting professionals, auditors, financial institutions, and organizations adopting AI technologies. These include professional training, technological readiness, data governance, cybersecurity, internal controls, and continued human oversight.

4. Methodological Significance

The research emphasizes the importance of distinguishing descriptive survey results from inferential evidence. It also highlights the need for documented sampling procedures, consistent datasets, validated research instruments, and reproducible statistical methods.

Fourth: Research Questions

The study addresses four questions corresponding to the principal thematic areas of the questionnaire:

RQ1. How do respondents assess organizational awareness, technological readiness, strategic planning, and professional preparedness for AI adoption?

RQ2. How do respondents perceive the potential contribution of AI to accounting accuracy, operational efficiency, financial analysis, and forecasting?

RQ3. How do respondents assess AI applications in auditing, including continuous monitoring, anomaly detection, risk assessment, and audit report quality?

RQ4. What professional, technological, organizational, and regulatory challenges are perceived as barriers to digital transformation?

These questions are examined through descriptive analysis and a review of relevant literature. The study does not employ regression-based hypothesis testing or establish causal effects.

Fifth: Research Design, Sample, and Data Analysis

1. Research Design

The study employs a descriptive research design supported by a theoretical review of AI applications in accounting and auditing.

The empirical component examines respondents' reported perceptions of organizational readiness, professional applications, and implementation challenges. It does not measure actual changes in organizational performance resulting from AI adoption.

2. Study Sample

The supplied demographic summary reports 100 respondents representing five professional specializations:

- Accounting: 40 respondents (40%).
- Business Administration: 20 respondents (20%).
- Economics: 20 respondents (20%).
- Statistics: 10 respondents (10%).
- Finance and Banking: 10 respondents (10%).

Educational qualifications and professional experience are summarized in Tables 1–3.

The available documentation does not establish the sampling procedure, data collection period, or individual institutional affiliations. Consequently, the sample cannot be considered demonstrably representative of the broader population of accounting and auditing professionals.

Demographic information was available only in aggregated form and could not be linked to individual questionnaire responses. Therefore, subgroup comparisons were not performed.

3. Research Instrument

The research instrument consisted of 16 questionnaire statements grouped into four thematic sections:

1. Organizational awareness and readiness for AI adoption.
2. Perceived applications of AI in accounting processes.
3. Perceived applications of AI in auditing.
4. Professional, technological, and regulatory challenges associated with digital transformation.

Responses were recorded using a five-point Likert scale: Strongly Disagree (1), Disagree (2), Neutral (3), Agree (4), and Strongly Agree (5).

The questionnaire measures respondents' perceptions of AI technologies rather than actual improvements in accounting or auditing performance. Therefore, its results are interpreted descriptively and are not treated as evidence of causal effects.

4. Data Verification and Preparation

The authors provided an aggregated questionnaire summary and a spreadsheet containing 100 rows of individual responses. Comparison of the two sources showed consistent response distributions for 14 of the 16 questionnaire items.

Discrepancies were identified for Q8 and Q12, and the available documentation did not establish which distributions were correct. Consequently, these items were excluded from the descriptive analysis.

The remaining 14 items were retained because their reported frequencies matched across both sources. However, this agreement does not independently verify the authenticity of the underlying responses.

5. Statistical Analysis

The quantitative analysis was limited to descriptive statistics, including frequencies and percentages. The percentage of responses in each category was calculated as follows:

$$P = \frac{f}{N} \times 100$$

where P is the percentage, f is the response frequency, and N = 100 is the reported sample size.

Favorable responses were calculated by combining the categories Agree and Strongly Agree. These proportions were used to describe respondents' perceptions, not to construct validated scales or demonstrate statistically significant relationships.

Results are presented in Tables 4–7. Regression analysis and inferential hypothesis testing were not performed.

6. Reliability, Validity, and Methodological Limitations

The supplied materials did not establish the validity of the questionnaire's four thematic sections as measurement scales. Preliminary internal-consistency assessments also failed to provide sufficient support for constructing reliable composite measures.

Consequently, aggregate scale scores were not used for regression or other inferential analyses.

Additional limitations include the absence of documented sampling procedures, data collection dates, questionnaire validation methods, and individual institutional affiliations. The original respondent-level records could not be independently authenticated, and Q8 and Q12 were excluded because of conflicting distributions.

These limitations restrict the generalizability of the results. Accordingly, the study reports descriptive patterns of respondents' perceptions rather than verified effects of artificial intelligence on accounting or auditing performance.

Future research should employ validated instruments, documented sampling methods, verified datasets, and reproducible statistical procedures.

Sixth: Scientific Novelty and Authors' Contribution

The scientific contribution of this study lies in integrating the theoretical examination of artificial intelligence (AI) in accounting and auditing with a descriptive assessment of organizational readiness, perceived applications, and implementation challenges.

The research examines four interconnected dimensions: readiness for AI adoption, accounting applications, auditing applications, and professional and regulatory challenges. This framework enables comparisons of reported perceptions while distinguishing potential technological benefits from objectively demonstrated outcomes.

The empirical component draws on questionnaire materials reporting responses from 100 participants. Following data verification, 14 of the 16 items were retained for descriptive analysis.

The findings indicate generally favorable perceptions of organizational readiness. Agreement concerning strategic planning for AI adoption reached 90%, while 85% expressed agreement regarding continuous digital training.

In accounting, 70% of respondents agreed or strongly agreed with each of the three analyzed statements addressing error reduction, operational efficiency, and financial analysis.

Perceptions of AI applications in auditing were more varied. Agreement reached 60% for continuous auditing and anomaly detection but only 40% for improvements in audit report quality and reliability.

Professional skills shortages and insufficient regulatory adaptation were identified as potential challenges by 70% of respondents in each case.

These results reveal descriptive differences in perceptions across accounting and auditing activities. However, they do not establish statistically significant differences or causal relationships.

The authors' contribution consists of synthesizing relevant literature, organizing the theoretical discussion within a unified framework, analyzing the available questionnaire distributions, and developing recommendations for responsible AI implementation.

The study's contribution is therefore theoretical and descriptive. Further research using validated instruments and verified empirical data is required to assess measurable improvements in professional performance.

1-2. Theoretical Foundations of Accounting and Auditing

1-2-1. The Accounting Profession: A Theoretical Introduction

First: Definition and Significance of the Accounting Profession

Accounting provides essential financial information for evaluating organizational performance and supporting economic decision-making. As a professional discipline, it has evolved alongside changes in business practices, regulatory requirements, and information technologies.

The accounting profession involves identifying, recognizing, measuring, recording, analyzing, and communicating information about economic transactions and events. Its activities support financial reporting, resource allocation, investment decisions, and organizational accountability.

Accounting also contributes to budgeting, cost analysis, cash flow management, internal control, and performance evaluation. Relevant financial information enables management, investors, creditors, and regulatory authorities to assess an organization's financial position and performance.

Digital technologies have transformed accounting information processing and reporting. Artificial intelligence may facilitate automated transaction classification, document analysis, anomaly detection, and financial forecasting. However, its application requires reliable data, appropriate internal controls, compliance with accounting standards, and professional judgment.

Second: Objectives of the Accounting Profession

The primary objective of accounting is to provide relevant and faithfully represented financial information that supports economic decision-making and organizational accountability.

Its principal objectives include:

1. Providing Useful Financial Information

Accounting generates information about an organization's financial position, performance, and cash flows. Such information should be relevant, faithfully represented, comparable, verifiable, timely, and understandable.

2. Supporting Economic Decision-Making

Financial information assists stakeholders in evaluating investment opportunities, financing requirements, organizational performance, and financial risks.

3. Strengthening Accountability and Transparency

Accounting documents economic transactions and supports the assessment of management's stewardship of organizational resources, thereby contributing to transparency and confidence in financial reporting.

4. Supporting Financial Planning and Control

Accounting information facilitates budgeting, cost management, financial planning, performance evaluation, and internal control.

5. Promoting Compliance and Professional Responsibility

Accountants must apply relevant reporting standards, maintain accurate records, and comply with applicable legal and ethical obligations. Integrity, objectivity, competence, and professional judgment remain essential requirements.

Artificial intelligence may support these objectives by improving data processing and analytical capabilities. Nevertheless, technological tools should complement rather than replace professional expertise and accountability.

Third: Accounting Functions

Accounting performs three interconnected functions: identification, measurement, and communication (Ajila, 2019, pp. 12–13).

1. The Identification Function

Identification involves recognizing economic transactions and events that should be reflected in accounting records. Accountants examine relevant documentation and determine appropriate classifications according to applicable accounting policies.

Digital systems and AI applications may assist with document recognition, transaction classification, and anomaly detection. However, accurate identification requires reliable data and professional oversight.

2. The Measurement Function

Measurement involves assigning monetary values to transactions, assets, liabilities, income, and expenses in accordance with the applicable financial reporting framework.

Reliable measurement depends on appropriate accounting principles, supporting documentation, and professional judgment.

Artificial intelligence may support financial calculations, data analysis, and the examination of accounting estimates. Nevertheless, automated outputs require verification and do not independently guarantee accurate financial measurement.

3. The Communication Function

Communication involves presenting financial information to internal and external users through financial statements, reports, and other disclosures.

The accounting communication process comprises five elements:

- **Source:** Economic transactions and events generating financial information.
- **Sender:** The organization responsible for preparing and reporting the information.
- **Message:** Financial statements and related accounting disclosures.
- **Channel:** Financial reports, accounting information systems, and digital reporting platforms.
- **Recipient:** Management, investors, creditors, regulators, and other stakeholders.

Effective communication requires reliable, complete, timely, and understandable information.

Artificial intelligence and digital reporting systems may facilitate information processing, financial analysis, and reporting. However, technological efficiency does not automatically ensure information reliability.

Overall, identification, measurement, and communication form the foundation of accounting activities. AI technologies can support these functions while preserving the importance of professional judgment, internal controls, and compliance with reporting standards.

Fourth: Fundamental Principles of Accounting Ethics and Professional Conduct

Professional ethics are essential for maintaining reliable financial reporting, protecting stakeholders' interests, and preserving public confidence in accounting and auditing.

The International Code of Ethics for Professional Accountants, issued by the International Ethics Standards Board for Accountants (IESBA), establishes five fundamental principles: integrity, objectivity, professional competence and due care, confidentiality, and professional behavior (IESBA, 2025).

These principles govern professional conduct and remain applicable when accounting and auditing procedures involve artificial intelligence and other digital technologies.

1. Integrity

Integrity requires professional accountants to act honestly and straightforwardly in their professional relationships. They must avoid misleading financial information, concealment of material facts, and conduct that undermines the reliability of financial reporting.

When using artificial intelligence, accountants remain responsible for evaluating the accuracy and appropriateness of automated outputs. Technological assistance does not diminish their ethical obligations.

2. Objectivity

Objectivity requires accountants to exercise professional judgment without bias, conflicts of interest, or undue influence. Decisions must be supported by relevant evidence and applicable professional standards.

AI-generated recommendations may reflect limitations in training data, algorithms, or model assumptions. Therefore, automated outputs should be critically assessed rather than accepted without verification.

3. Professional Competence and Due Care

Professional competence involves acquiring and maintaining the knowledge and skills necessary to perform accounting responsibilities effectively. Due care requires accountants to act diligently and comply with relevant technical and professional standards.

The adoption of artificial intelligence creates additional requirements concerning digital systems, data analysis, cybersecurity, and the evaluation of automated results. Continuous professional training is therefore essential, although technological knowledge cannot replace accounting expertise and professional judgment.

4. Confidentiality

Confidentiality requires accountants to protect financial, commercial, organizational, and personal information obtained through professional activities.

Accountants must prevent unauthorized disclosure or misuse of confidential information, ensure that personnel under their supervision comply with confidentiality requirements, and maintain relevant obligations after professional relationships end, subject to applicable legal and professional requirements.

AI-supported systems introduce additional risks because they may process substantial volumes of sensitive financial information. Organizations should therefore establish appropriate access controls, data protection procedures, cybersecurity measures, and safeguards governing the use of information in automated systems.

5. Professional Behavior

Professional behavior requires accountants to comply with applicable laws and regulations, uphold professional responsibilities, and avoid conduct that could discredit the profession.

The use of artificial intelligence does not eliminate these obligations. Accountants must ensure that automated procedures comply with relevant legal, ethical, and professional requirements and seek appropriate assistance when technological outputs cannot be reliably evaluated.

6. Auditor Independence and Compliance with Professional Standards

In addition to the five fundamental ethical principles, independence is essential for auditors performing engagements subject to independence requirements.
Auditors must maintain impartiality, exercise professional skepticism, evaluate audit evidence objectively, and comply with applicable auditing and independence standards.
AI-supported analytical tools may assist with transaction examination, risk assessment, and audit documentation. However, auditors remain responsible for assessing the relevance and reliability of automated outputs and ensuring that technological applications do not compromise professional independence or judgment.

7. Ethical Responsibilities in the Digital Transformation of Accounting and Auditing

The integration of artificial intelligence introduces ethical challenges associated with algorithmic bias, limited transparency, cybersecurity, data confidentiality, and accountability for automated decisions.
Organizations should establish appropriate governance frameworks, clearly defined responsibilities, and procedures for evaluating AI system performance.
Accountants and auditors must retain the ability to question automated recommendations, identify errors, and exercise independent professional judgment.
Thus, responsible digital transformation requires combining technological innovation with professional competence, human oversight, ethical conduct, and compliance with applicable standards.

1-2-2. The Auditing Profession: A Theoretical Introduction

First: Definition and Significance of the Auditing Profession

Auditing contributes to the credibility of financial reporting and supports confidence among investors, creditors, regulators, and other stakeholders. It involves the systematic examination and evaluation of information against established criteria.
The auditing profession encompasses external financial statement auditing, internal auditing, and compliance-related engagements. Although these activities have different objectives, they share an emphasis on evidence-based evaluation, professional competence, and accountability.
The present discussion focuses primarily on independent financial statement auditing while considering selected technological applications relevant to internal auditing.
The principal objective of an independent financial statement audit is to enhance users' confidence in financial statements by expressing an opinion on whether they have been prepared, in all material respects, in accordance with the applicable financial reporting framework.
Auditors obtain sufficient appropriate evidence, assess risks of material misstatement, and perform procedures consistent with applicable auditing standards.
The development of auditing standards has also been examined in the context of accounting reforms. Zouhri and Saleh (2015) discussed the auditing profession in Algeria in relation to financial accounting reforms and international auditing standards, emphasizing the importance of adapting professional practices to changing reporting requirements.
An independent audit provides reasonable rather than absolute assurance. Consequently, it cannot guarantee the detection of every error, fraudulent transaction, or instance of non-compliance.
Auditing therefore requires professional competence, skepticism, objectivity, independence where applicable, and adherence to ethical and technical standards.
Digital technologies and artificial intelligence may support financial data analysis, anomaly detection, and audit risk assessment. Nevertheless, automated systems cannot replace the auditor's responsibility for evaluating evidence and forming professional conclusions.

Second: Objectives of the Auditing Profession

The objectives of auditing depend on the nature of the engagement. In independent financial statement auditing, the primary objective is to obtain reasonable assurance that the financial statements as a whole are free from material misstatement, whether caused by fraud or error, and to express an appropriate audit opinion.
The principal objectives and related activities include the following:

1. Identifying and Assessing Risks of Material Misstatement

Auditors assess risks associated with financial reporting by examining the entity's activities, accounting systems, relevant internal controls, and operating environment.
Risk assessment guides the selection of audit procedures and identifies areas requiring additional examination.
Artificial intelligence may assist by analyzing financial datasets and detecting unusual transactions. However, automated risk indicators do not independently establish material misstatement or fraud.

2. Obtaining Sufficient Appropriate Audit Evidence

Auditors collect and evaluate evidence through procedures such as document inspection, external confirmation, observation, recalculation, and analytical examination.
The sufficiency of audit evidence concerns its quantity, while appropriateness relates to its relevance and reliability.
Digital technologies may facilitate evidence collection and processing, but auditors remain responsible for determining whether the evidence supports their conclusions.

3. Evaluating Accounting Policies, Estimates, and Financial Reporting Practices

Auditors assess whether accounting policies, significant estimates, and financial reporting procedures comply with the applicable financial reporting framework.
AI-supported analytical systems may help identify inconsistencies and examine complex financial relationships. However, the underlying assumptions, estimates, and evidence require professional evaluation.

4. Assessing Financial Statement Presentation and Disclosure

Auditors evaluate whether financial statements are appropriately presented and whether relevant disclosures satisfy applicable reporting requirements.
Automated tools may assist in identifying unusual classifications, missing information, or inconsistencies between financial reports. Nevertheless, the overall assessment requires professional judgment.

5. Forming and Communicating an Independent Audit Opinion

After evaluating the evidence obtained, auditors determine whether it provides a sufficient basis for expressing an opinion on the financial statements.
The auditor's report communicates the results of the examination to intended users. Depending on the circumstances, the auditor may express an unmodified or appropriately modified opinion.
Although artificial intelligence can support audit documentation and analysis, responsibility for the audit opinion remains with the auditor.
Overall, AI technologies may improve the efficiency of selected auditing procedures, but their use must remain consistent with professional skepticism, evidence requirements, independence, and applicable auditing standards.

Third: The Importance of Auditing

Auditing strengthens confidence in financial reporting and supports informed economic decision-making. Investors, creditors, financial institutions, regulatory authorities, and other stakeholders may rely on audited financial statements to evaluate financial position, performance, and relevant economic risks.
Independent auditing contributes to the credibility of financial information by providing reasonable assurance concerning material misstatement. However, an audit does not guarantee future profitability, financial stability, or the detection of every fraudulent activity.
The significance of auditing can be examined from the perspectives of organizational management, financial institutions, regulatory authorities, and the development of digital accounting and auditing practices.

1. Organizational Management and Corporate Governance

Auditing contributes to organizational accountability by evaluating financial reporting and identifying deficiencies in relevant accounting procedures and internal controls. Although independent financial statement auditing does not provide comprehensive assurance regarding

management performance or internal control effectiveness, its findings may help organizations improve financial reporting practices.

Tabchi and Khouiledat (2023) examined the contribution of accounting auditing to management control through a case study of Sonelgaz in Algeria during 2021–2022. Their research provides a theoretical background for understanding the relationship between auditing and organizational governance.

Artificial intelligence may support these functions through automated transaction analysis, anomaly detection, and audit evidence processing. However, technological applications must complement established auditing procedures and professional oversight.

2. Investors, Creditors, and Financial Institutions

Investors, creditors, and financial institutions rely on audited financial statements to assess financial performance, creditworthiness, and investment risks. Independent auditing enhances confidence in financial information but does not guarantee future profitability, solvency, or repayment of financial obligations.

AI-supported analytical tools may assist auditors in examining financial transactions and identifying unusual patterns. Nevertheless, their effectiveness depends on reliable data, validated models, and professional judgment.

3. Government and Regulatory Authorities

Government agencies and regulatory authorities use financial information for taxation, financial supervision, regulatory compliance, and economic analysis. Audited financial statements may support these activities by providing additional assurance regarding financial reporting reliability. However, financial statement auditing differs from regulatory inspections and compliance engagements, which have distinct objectives and procedures.

Artificial intelligence may facilitate financial data analysis and regulatory monitoring, but automated outputs do not independently establish legal compliance or eliminate the need for professional evaluation.

4. The Development of Digital Accounting and Auditing Practices

The increasing digitalization of financial information requires auditors to understand electronic accounting systems, technology-related risks, and the reliability of digital records.

Artificial intelligence may support audit planning, continuous monitoring, anomaly detection, and the analysis of audit evidence. However, its implementation introduces challenges concerning cybersecurity, data confidentiality, algorithmic transparency, and professional accountability.

Accordingly, AI should be considered a supporting technology that enhances analytical capabilities without replacing sufficient appropriate audit evidence, professional judgment, or compliance with auditing standards.

2. Artificial Intelligence and Its Professional Applications

2-1. The Concept and Nature of Artificial Intelligence

First: Definition of Artificial Intelligence

Artificial intelligence (AI) is a multidisciplinary field of computer science concerned with developing systems capable of performing tasks associated with human intelligence, including learning, pattern recognition, language processing, problem-solving, and decision support.

AI technologies have evolved from rule-based systems to machine learning, artificial neural networks, deep learning, and other computational approaches. Their development has been supported by advances in computing power, data availability, and algorithmic methods.

The United States' National Defense Authorization Act for Fiscal Year 2019 describes AI through several technological capabilities, including autonomous task performance and learning from experience (United States Congress, 2018).

From a functional perspective, AI comprises computational methods that analyze information, recognize patterns, generate predictions, and support decision-making (Al-Khattab, 2024).

Nevertheless, artificial intelligence should not be equated with human intelligence. Its performance depends on system architecture, data quality, and implementation conditions.

In accounting and auditing, AI is particularly relevant to automated information processing, financial forecasting, anomaly detection, and audit risk assessment.

Second: Characteristics of Artificial Intelligence

Artificial intelligence technologies possess several capabilities that support their application in accounting and auditing.

1. Complex Problem-Solving Capabilities

AI systems can analyze complex information, identify relationships, and generate possible solutions. In accounting and auditing, these capabilities may support financial risk assessment and the identification of unusual transactions.

2. Processing Structured and Unstructured Data

AI technologies can process numerical information, documents, images, and other digital records. Machine learning and natural language processing may facilitate the examination of financial statements, contracts, invoices, and accounting documentation.

3. Decision-Support Capabilities

AI systems can generate predictions and analytical recommendations to support professional decisions. However, their outputs require verification and do not replace professional judgment.

4. Learning and Adaptation

Certain AI systems can improve their performance through training on additional data. This capability may support adaptation to changing financial conditions and transaction patterns, provided that models are appropriately validated and monitored.

5. Pattern Recognition and Visual Information Processing

AI applications can identify patterns in numerical and visual information. Computer vision technologies may support document recognition, data extraction, and the examination of financial records.

These characteristics demonstrate the potential of AI to improve analytical capabilities, although practical effectiveness depends on data quality, system reliability, and professional oversight.

Third: The Importance of Artificial Intelligence

Artificial intelligence provides opportunities to improve information processing, operational efficiency, and decision-making across professional and economic activities.

Its principal applications include the following.

1. Organizational Knowledge Management

AI-supported systems may facilitate the storage, organization, retrieval, and application of institutional knowledge. Effective implementation requires appropriate data management and continuous validation.

2. Human–Computer Interaction

Natural language processing enables interaction with digital systems through written or spoken language, improving information accessibility and simplifying selected professional activities.

3. Professional and Economic Applications

Artificial intelligence is increasingly applied in healthcare, finance, education, manufacturing, accounting, and auditing. In financial professions, it may support transaction classification, reporting, forecasting, and risk assessment.

4. Data-Driven Decision-Making

AI technologies can analyze large datasets, identify patterns, and generate predictions. However, their outputs may be affected by incomplete data, algorithmic bias, and model limitations.

5. Automation of Routine Activities

AI applications may automate repetitive tasks, including document classification, transaction monitoring, data processing, and preliminary financial analysis. Such automation can allow professionals to devote greater attention to analytical activities requiring judgment.

Overall, artificial intelligence may support digital transformation through automation and advanced analytics. Its successful adoption nevertheless requires reliable data, appropriate technological infrastructure, qualified personnel, and effective internal controls.

Fourth: Types of Artificial Intelligence and Their Applications

Artificial intelligence may be classified according to functional capabilities and computational approaches.

A conceptual classification distinguishes four categories:

1. Reactive Machines

Reactive systems respond to current inputs without relying on stored experiences or previous interactions.

2. Limited-Memory Artificial Intelligence

Limited-memory systems use historical information and learned patterns to support predictions and decisions. Many contemporary machine learning applications can be considered within this broad category.

3. Theory-of-Mind Artificial Intelligence

Theory-of-mind AI refers to hypothetical systems capable of interpreting human mental states and intentions in a manner comparable to human social cognition. This category remains theoretical rather than an established technological capability.

4. Self-Aware Artificial Intelligence

Self-aware AI describes hypothetical systems possessing awareness of their own existence and internal states. Such capabilities have not been scientifically established in existing AI systems.

From a practical perspective, accounting and auditing applications rely on several computational approaches.

1. Expert Systems

Expert systems use structured knowledge and predefined rules to support decisions in specialized fields. They may assist accountants and auditors in evaluating financial information and applying established decision criteria.

2. Artificial Neural Networks

Artificial neural networks identify complex relationships within datasets and support classification, prediction, and pattern recognition. Their potential applications include financial forecasting, fraud detection, and audit risk assessment.

3. Robotics and Intelligent Automation

Robotic process automation (RPA) can automate repetitive activities such as data extraction, reconciliation, and document processing. Robotics and RPA are not inherently AI technologies, although they may be integrated with machine learning and other intelligent systems.

4. Fuzzy Logic

Fuzzy logic enables the representation of uncertain or imprecise information through degrees of truth. It may support expert systems and financial decision-making under conditions of uncertainty.

These approaches have different technical characteristics and should not be treated as interchangeable. Their effectiveness depends on the professional task, data availability, technological infrastructure, and implementation requirements.

Fifth: Advantages and Limitations of Artificial Intelligence

1. Advantages of Artificial Intelligence

Artificial intelligence offers several potential advantages in financial information processing and professional activities.

a. Efficiency and Consistency

AI-supported systems can process substantial volumes of data and perform selected computational tasks consistently. They may reduce repetitive workloads and facilitate the identification of discrepancies in accounting records. However, automated outputs are not necessarily error-free or unbiased.

b. Knowledge Management

Artificial intelligence may support the organization, retrieval, and application of professional information. Nevertheless, transferring an AI system between organizational environments requires appropriate adaptation and validation.

c. Automation of Routine Activities

AI technologies can facilitate document processing, transaction classification, reconciliation, and preliminary financial analysis, allowing professionals to focus on tasks requiring interpretation and judgment.

d. Advanced Analytical Capabilities

Machine learning and predictive analytics may support financial forecasting, risk assessment, fraud detection, and organizational performance analysis. Their effectiveness depends on suitable data and validated analytical models.

2. Limitations and Challenges of Artificial Intelligence

Despite these advantages, AI adoption presents several technological, organizational, and professional limitations.

a. Data Quality and Model Reliability

Incomplete, inaccurate, or biased data may produce misleading predictions and classifications. Reliable data governance and systematic model validation are therefore essential.

b. Limited Interpretability

Certain complex AI models are difficult to explain, creating challenges when financial decisions and audit conclusions require transparent justification. Explainable AI methods may improve interpretability, although their effectiveness varies across applications.

c. Technological and Operational Risks

AI systems may experience technical failures, cybersecurity incidents, model deterioration, or integration difficulties. Appropriate internal controls, maintenance, and continuous monitoring are necessary to mitigate these risks.

d. Ethical and Professional Challenges

AI applications raise concerns regarding confidentiality, algorithmic bias, accountability, and inappropriate reliance on automated decisions. Organizations must maintain appropriate governance arrangements and human oversight.

e. Implementation Costs and Professional Competencies

AI adoption may require investments in software, technological infrastructure, cybersecurity, and staff training. Accountants and auditors must develop the competencies necessary to evaluate technological outputs and understand their limitations.

Overall, artificial intelligence should be regarded as a technological resource that supports accounting and auditing activities. Its potential benefits must be evaluated alongside implementation costs, professional responsibilities, ethical requirements, and applicable accounting and auditing standards.

2-2. Artificial Intelligence and the Accounting Profession

Artificial intelligence offers opportunities to automate accounting procedures, improve financial data processing, and support the development of digital accounting information systems. Its applications may include transaction classification, accounting measurement, financial reporting, predictive analytics, and anomaly detection.

However, successful implementation depends on reliable accounting information, technological infrastructure, organizational readiness, and professional competencies (Belaid & Benhaoues, 2024, pp. 1042–1043).

Amirhum (2022) examined the implications of AI applications for the future of accounting and auditing through a field study, providing relevant background for understanding technological developments in these professions.

Nevertheless, findings from previous studies should not be interpreted as direct evidence concerning the respondents or organizations represented in the present research.

First: Automation of Routine Accounting Tasks

Artificial intelligence can facilitate the automation of repetitive accounting procedures, including data entry, invoice processing, transaction classification, account reconciliation, and financial reporting.

Technologies such as optical character recognition (OCR), machine learning, and intelligent document processing may support the extraction and classification of financial information, reduce manual workloads, and assist in identifying errors.

However, their effectiveness depends on data quality, appropriate system configuration, internal controls, and professional oversight. Automation may enable accountants to devote greater attention to analytical and advisory activities requiring professional judgment.

Second: Predictive Analytics and Financial Decision Support

Artificial intelligence supports financial analysis by identifying patterns and relationships within accounting datasets. Machine learning models may assist with cash flow forecasting, revenue prediction, financial risk assessment, and the identification of unusual financial trends.

These applications can support budgeting, planning, and financial decision-making. Nevertheless, AI-generated predictions remain subject to uncertainty and depend on the quality of training data, analytical methods, and implementation conditions. Their results should therefore be evaluated alongside professional expertise.

Third: Automation and Analysis of Tax Procedures

AI technologies may support tax-related accounting activities through automated data extraction, transaction classification, document processing, and the identification of inconsistencies in financial records.

Such applications can facilitate tax calculations, reporting, and compliance-related procedures. However, tax obligations are determined by applicable legislation, and automated systems cannot independently guarantee compliance. Their outputs must be verified by qualified professionals.

Fourth: Supporting Digital Transformation in Accounting

Artificial intelligence contributes to accounting digitalization by supporting the transition from manual procedures to integrated information systems.

Boudehane and Ghazal (2019) examined the role of information technology in developing the accounting profession through a field study in Algeria. Although their research addressed information technology more broadly, it provides relevant background for understanding technological changes in accounting practices.

AI-supported systems may facilitate transaction processing, financial analysis, electronic reporting, and continuous monitoring. These applications can improve information accessibility and support the identification of inconsistencies.

Nevertheless, effective digital transformation requires reliable technological infrastructure, data governance, cybersecurity, professional training, and compliance with applicable accounting standards.

Fifth: Smart Contracts, Distributed Ledger Technology, and Financial Record Verification

Blockchain and distributed ledger technology (DLT) provide mechanisms for recording and verifying transactions. Although distinct from artificial intelligence, these technologies may be integrated with AI applications to support accounting and auditing.

Jayalakshmi (2023) examined the implications of blockchain technology for accounting and auditing, particularly its potential applications in transaction recording and financial information management.

Distributed ledger systems may improve transaction traceability and reduce certain risks of unauthorized record modification.

Abdelmonem (2024) investigated the relationship between blockchain adoption, accounting information quality, and investors' decision-making in Egypt. This research provides empirical context for blockchain applications but does not establish the effectiveness of artificial intelligence.

Smart contracts automatically execute predefined operations when specified conditions are satisfied. They may support payment processing, transaction verification, and selected contractual procedures.

Artificial intelligence can complement these technologies through transaction analysis, anomaly detection, and risk assessment. However, neither blockchain nor smart contracts guarantee the accuracy, legality, or completeness of financial information.

Their implementation requires appropriate security measures, internal controls, regulatory compliance, and professional oversight.

Overall, AI technologies may support accounting efficiency and digital transformation, but their practical value depends on organizational readiness, technological reliability, and professional competence.

2-3. Artificial Intelligence and the Auditing Profession

Artificial intelligence offers opportunities to improve audit planning, financial data analysis, risk assessment, and the examination of audit evidence.

Al-Sammarraee and Al-Shareeda (2020) investigated the role of AI technologies and digital auditing in relation to audit quality and audit strategy in Bahrain. Similarly, Qader and Cek (2024) examined blockchain, artificial intelligence, and audit quality in Turkey.

These studies provide relevant empirical background for discussing technological developments in auditing. However, their findings should not be interpreted as direct evidence concerning the respondents included in the present study.

First: Analysis of Financial Data Using Natural Language Processing (NLP)

Natural language processing (NLP) enables computer systems to analyze and extract information from textual data. In auditing, it may facilitate the examination of financial reports, contracts, accounting documents, and other unstructured records.

Combined with machine learning, NLP can assist auditors in identifying inconsistencies, unusual patterns, and information requiring further investigation.

However, suspicious content does not independently establish fraud. The reliability of NLP applications depends on data quality, model accuracy, and appropriate verification procedures. Auditors must also comply with confidentiality and data protection requirements.

NLP should therefore be regarded as a supporting analytical tool rather than a replacement for professional judgment.

Second: Using Machine Learning to Detect Potentially Fraudulent Transactions

Machine learning algorithms can analyze financial transactions, identify anomalies, and generate indicators of potential errors or fraud.

These applications may support transaction screening, audit risk assessment, and the selection of areas requiring further examination.

However, detection performance depends on dataset characteristics, model design, and evaluation procedures. Appropriate performance indicators include precision, recall, false-positive rates, and classification accuracy.

Because fraudulent transactions may represent only a small proportion of financial records, overall classification accuracy alone may be misleading.

Machine learning results must therefore be evaluated alongside other audit evidence. An anomalous transaction requires professional investigation and should not automatically be classified as fraudulent.

Third: Using Deep Learning to Support Audit Evidence Analysis

Deep learning uses multilayer artificial neural networks to identify complex relationships within data. In auditing, it may support the analysis of financial documents, electronic correspondence, images, and other digital records.

Potential applications include document classification, information extraction, anomaly detection, and preliminary transaction examination.

Nevertheless, deep-learning systems present challenges concerning data requirements, model interpretability, computational costs, and reliability.

AI-generated outputs do not automatically constitute sufficient appropriate audit evidence. Auditors remain responsible for assessing their relevance and reliability and performing additional verification when necessary.

Fourth: Using Robotics and Automated Technologies in Audit Procedures

Robotic technologies and automated systems may support audit activities through data collection, document processing, and the examination of organizational records.

Physical technologies, including drones, may assist in obtaining visual information about inventories or assets that are difficult to inspect directly.

Robotic process automation (RPA) can facilitate repetitive digital procedures such as data extraction, reconciliation, and audit documentation.

Although robotics and RPA are not inherently artificial intelligence technologies, they may be integrated with AI-supported analytical systems.

Their use requires appropriate technological controls, regulatory compliance, and evaluation of the reliability of collected information.

Overall, NLP, machine learning, deep learning, and automated technologies may improve the efficiency of selected auditing procedures. However, their application must remain consistent with professional skepticism, sufficient appropriate audit evidence, human oversight, and relevant auditing standards.

3. Applied Study

Descriptive Analysis of the Study Sample

First: Analysis of the General and Demographic Characteristics of Respondents

The empirical component is based on questionnaire materials reporting responses from 100 participants representing five professional specializations: accounting, business administration, economics, statistics, and finance and banking.

The demographic characteristics examined include educational qualifications, professional specialization, and years of professional experience. Their distributions are presented in Tables 1–3.

Frequencies and percentages were used to describe the composition of the sample. These characteristics provide contextual information for interpreting the questionnaire results but do not independently establish the representativeness of the sample or the reliability and validity of the research instrument.

The subsequent analysis examines respondents' reported perceptions of artificial intelligence applications, organizational readiness, and challenges associated with digital transformation.

1. Educational Qualifications

Table 1. Distribution of Respondents by Educational Qualification

Educational Qualification	Frequency (n)	Percentage (%)
Diploma	20	20.0
Bachelor's degree	30	30.0
Master's degree	25	25.0
Doctoral degree	25	25.0
Total	**100**	**100.0**

Source: Authors' descriptive summary of the questionnaire data.

Analysis of Educational Qualifications

Table 1 presents respondents' educational qualifications. Of the 100 participants, 20% held diplomas, 30% held bachelor's degrees, 25% held master's degrees, and 25% held doctoral degrees. Bachelor's degree holders constituted the largest individual group, while respondents with postgraduate qualifications collectively represented 50% of the sample.

This distribution reflects educational diversity but does not independently establish respondents' familiarity with artificial intelligence, professional competencies, or the representativeness of the sample.

2. Professional Specialization

Table 2. Distribution of Respondents by Professional Specialization

Professional Specialization	Frequency (n)	Percentage (%)
Accounting	40	40.0
Business Administration	20	20.0
Economics	20	20.0
Statistics	10	10.0
Finance and Banking	10	10.0
Total	**100**	**100.0**

Source: Authors' descriptive summary of the questionnaire data.

Analysis of Professional Specialization

Table 2 shows that accounting specialists constituted the largest group (40%), followed by business administration and economics (20% each), and statistics and finance and banking (10% each).

The sample therefore includes participants from five related professional fields. However, specialization does not necessarily indicate current occupation or institutional affiliation.

Consequently, these data describe the professional composition of the sample without establishing that all respondents were practicing accountants, auditors, or employees of financial institutions.

3. Years of Professional Experience

Table 3. Distribution of Respondents by Years of Professional Experience

Years of Professional Experience	Frequency (n)	Percentage (%)
Less than 5 years	35	35.0
5–10 years	30	30.0
More than 10 years	35	35.0
Total	**100**	**100.0**

Source: Authors' descriptive summary of the questionnaire data.

Analysis of Professional Experience

Table 3 indicates that 35% of respondents had less than five years of professional experience, 30% had five to ten years, and 35% had more than ten years.

The distribution reflects different levels of professional experience. However, experience alone does not establish respondents' digital competencies, familiarity with artificial intelligence, or ability to assess its effectiveness.

The results should therefore be interpreted as descriptive characteristics of the study sample.

Second: Descriptive Analysis of Questionnaire Responses

The questionnaire comprised 16 statements covering organizational readiness, AI applications in accounting, AI applications in auditing, and implementation challenges.

The authors provided aggregated results and a spreadsheet containing responses attributed to 100 participants. Comparison of the sources revealed consistent distributions for 14 items, while Q8 and Q12 contained unresolved discrepancies and were excluded from the quantitative analysis.

The remaining items were analyzed using frequencies and percentages. Response categories were Strongly Agree (SA), Agree (A), Neutral (N), Disagree (D), and Strongly Disagree (SD). As the reported sample size was 100, frequencies are numerically equivalent to percentages.

The findings describe respondents' perceptions rather than objectively verified improvements in professional performance.

1. Organizational Awareness and Readiness for Artificial Intelligence Adoption

Table 4. Distribution of Responses Concerning Organizational Awareness and Readiness for AI Adoption (n = 100)

Item	Statement	SA	A	N	D	SD
Q1	Management's understanding of AI applications	35	40	15	10	0
Q2	Availability of technological infrastructure	50	20	20	5	5
Q3	Existence of a strategic plan for AI adoption	45	45	5	5	0
Q4	Continuous digital training of personnel	30	55	15	0	0

Source: Authors' questionnaire materials and supplied response spreadsheet.

Analysis of Organizational Awareness and Readiness

Table 4 indicates generally favorable perceptions of organizational readiness for AI adoption. Agreement or strong agreement reached 75% regarding management's understanding of AI and 70% concerning technological infrastructure.

The highest proportions were recorded for strategic planning (90%) and continuous digital training (85%).

These findings suggest positive perceptions of organizational preparedness. However, respondents' assessments do not independently verify the existence or effectiveness of AI strategies, technological infrastructure, or training programs.

2. Perceived Applications of Artificial Intelligence in Accounting Processes

Table 5. Distribution of Responses Concerning AI Applications in Accounting (n = 100)

Item	Statement	SA	A	N	D	SD
Q5	Reduction of data-entry errors through AI applications	35	35	25	5	0
Q6	Acceleration of accounting and financial reporting procedures	45	25	15	10	5
Q7	Financial data analysis and forecasting	20	50	20	5	5

Source: Authors' questionnaire materials and supplied response spreadsheet. Item Q8 was excluded because of conflicting response distributions.

Analysis of AI Applications in Accounting

Table 5 demonstrates consistently favorable perceptions of AI applications in accounting. For each of the three analyzed statements, 70% of respondents agreed or strongly agreed with the potential benefits of AI.

These statements concerned reducing data-entry errors, accelerating accounting and reporting procedures, and supporting financial analysis and forecasting.

However, the findings reflect respondents' opinions rather than direct measurements of accounting accuracy, processing efficiency, or forecasting performance. Therefore, they do not establish actual improvements resulting from AI adoption.

3. Perceived Applications of Artificial Intelligence in Auditing

Table 6. Distribution of Responses Concerning AI Applications in Auditing (n = 100)

Item	Statement	SA	A	N	D	SD
Q9	Continuous auditing and risk monitoring	10	50	20	20	0
Q10	Detection of anomalies, errors, and potential fraud	40	20	40	0	0
Q11	Quality and reliability of audit reports	10	30	50	10	0

Source: Authors' questionnaire materials and supplied response spreadsheet. Item Q12 was excluded because of conflicting response distributions.

Analysis of AI Applications in Auditing

Table 6 shows varied perceptions of artificial intelligence applications in auditing. Agreement reached 60% for continuous auditing and risk monitoring and 60% for anomaly detection. However, only 40% agreed that AI improves audit report quality, while 50% remained neutral.

These findings indicate greater uncertainty regarding AI-supported audit reporting than transaction monitoring and anomaly detection. Nevertheless, the results reflect respondents' perceptions rather than objectively verified improvements in audit quality or fraud-detection performance.

4. Challenges Associated with Artificial Intelligence Adoption

Table 7. Distribution of Responses Concerning Challenges of AI Adoption and Digital Transformation (n = 100)

Item	Statement	SA	A	N	D	SD
Q13	Shortage of specialized personnel with AI competencies	30	40	20	10	0
Q14	Data security, confidentiality, and cybersecurity concerns	20	20	40	0	20
Q15	Potential displacement of traditional accounting roles	20	30	30	20	0
Q16	Insufficient adaptation of legislation and professional standards	30	40	30	0	0

Source: Authors' questionnaire materials and supplied response spreadsheet.

Analysis of Challenges Associated with Digital Transformation

Table 7 presents respondents' assessments of the principal challenges associated with AI adoption. Professional skills shortages and insufficient regulatory adaptation received the highest levels of agreement (70% each). Potential displacement of traditional accounting roles concerned 50% of respondents.

Opinions regarding cybersecurity risks were more varied: 40% agreed that these risks represented significant concerns, 40% remained neutral, and 20% strongly disagreed.

The findings suggest that respondents perceived professional competencies and regulatory preparedness as important implementation challenges. However, these assessments do not independently establish the actual severity of technological or institutional deficiencies.

5. Overall Interpretation of the Descriptive Findings

The descriptive analysis identifies four principal patterns.

First, respondents expressed favorable perceptions of organizational readiness, particularly concerning strategic planning (90%) and continuous digital training (85%).

Second, agreement regarding AI applications in accounting reached 70% for each of the three analyzed statements concerning error reduction, operational efficiency, and financial analysis.

Third, perceptions of AI applications in auditing were less consistent. Agreement reached 60% for continuous monitoring and anomaly detection, compared with 40% for improvements in audit report quality.

Fourth, professional skills shortages and insufficient regulatory adaptation were identified as potential challenges by 70% of respondents in each case.

These findings provide descriptive evidence of respondents' perceptions but do not establish statistically significant differences or causal effects.

The study is limited by incomplete sampling documentation, unavailable evidence of questionnaire validation, and inconsistencies in two questionnaire items. Consequently, its results should not be generalized beyond the reported sample without further investigation.

4. Conclusions and Recommendations

First: Conclusions

1. The theoretical analysis and questionnaire findings suggest that artificial intelligence is perceived as a potentially useful resource for digital transformation in accounting and auditing. Its applications include automation, financial analysis, anomaly detection, and risk assessment. However, the study does not establish objectively measured improvements resulting from AI adoption.

2. Respondents expressed favorable perceptions of organizational readiness. Agreement reached 90% concerning strategic planning for AI adoption and 85% regarding continuous digital training. These findings reflect reported assessments rather than independently verified organizational practices.

3. In accounting, 70% of respondents expressed agreement with each of the three analyzed statements concerning data-entry accuracy, process efficiency, and financial analysis. These results indicate perceived benefits but do not demonstrate actual improvements in accounting performance.

4. Perceptions of AI-supported auditing were more varied. Agreement reached 60% for continuous auditing and anomaly detection, whereas only 40% supported improvements in audit report quality, with 50% remaining neutral. This pattern suggests greater uncertainty regarding AI's contribution to audit reporting.

5. The principal perceived challenges involved shortages of specialized personnel and insufficient regulatory adaptation, with 70% agreement for each issue. Responses concerning cybersecurity and occupational displacement were less consistent, highlighting differences in respondents' assessments of implementation risks.

6. The study contributes an integrated theoretical and descriptive examination of AI applications, organizational readiness, and implementation challenges in accounting and auditing. However, limitations concerning sampling documentation, questionnaire validation, and data consistency restrict the generalizability of the results. Further empirical research is required to assess measurable technological effects.

Second: Recommendations

1. Organizations should implement AI technologies gradually, beginning with pilot projects supported by clear objectives, appropriate infrastructure, and measurable performance indicators.

2. Accounting and auditing professionals should receive continuous training in AI applications, data analytics, cybersecurity, and the critical evaluation of automated outputs.

3. Organizations should strengthen data governance, information security, internal controls, and model validation procedures to ensure the responsible use of AI-supported systems.

4. AI applications in auditing should complement established procedures rather than replace professional auditors. Automated outputs must be evaluated using sufficient appropriate audit evidence, professional skepticism, and applicable auditing standards.

5. Professional associations, educational institutions, and regulatory authorities should develop updated guidance and training initiatives addressing AI-related competencies, ethical responsibilities, and regulatory requirements.

6. Future research should employ documented sampling methods, validated questionnaires, verified respondent-level data, and appropriate statistical procedures to examine relationships between AI adoption, accounting information quality, and audit performance.

References

1. Al-Sammarraee, A. E., & Al-Shareeda, N. A. (2020). The role of artificial intelligence techniques using digital auditing in achieving audit quality and supporting the audit strategy from the point of view of auditors: A field study in audit firms in the Kingdom of Bahrain [In Arabic]. *Global Journal of Economics and Business, 8*(1), 15–31. https://doi.org/10.31559/GJEB2020.8.1.2
2. Ajila, H. (2019). *Reforming the certified accountant profession in light of the financial accounting system and international accounting standards: A field study of certified accountants in southeastern Algeria* [Unpublished doctoral dissertation, University of Ghardaia].
3. Boudehane, N. E. H., & Ghazal, I. (2019). *The role of information technology in developing the accounting profession: A field study of accountants and auditors in Ouargla* [Master's thesis, Kasdi Merbah University, Ouargla]. https://dspace.univ-ouargla.dz/jspui/handle/123456789/22754
4. Zouhri, J., & Saleh, E. (2015). The reality of the auditing profession in Algeria between financial accounting reforms and international auditing standards. *Innovation and Marketing Journal*, (2), 77–97. https://search.emarefa.net/detail/BIM-864596
5. Tabchi, A., & Khouiledat, M. E. A. (2023). *The contribution of accounting auditing to the effectiveness of management control: A case study of Sonelgaz Ouargla (2021–2022)* [Master's thesis, Kasdi Merbah University, Ouargla]. https://dspace.univ-ouargla.dz/jspui/handle/123456789/33965
6. Abdelmonem, R. M. M. (2024). The mediating role of accounting information quality in the relationship between blockchain technology adoption and the rationalization of investors' decisions [In Arabic]. *Journal of Accounting Research (Tanta University), 11*(4), 576–667. https://doi.org/10.21608/abj.2024.392156
7. Al-Khattab, B. O. (2024). Artificial intelligence applications [In Arabic]. *Scientific Journal of Intellectual Property and Innovation Management, 7*(1), 255–286. https://doi.org/10.21608/jipim.2024.382162
8. Amirhum, J. A. N. (2022). The impact of the use of artificial intelligence applications on the future of the accounting and auditing profession: A field study [In Arabic]. *Journal of Financial and Commercial Research, 23*(2), 244–294. https://doi.org/10.21608/jsst.2022.130602.1397
9. Belaid, K., & Benhaoues, K. (2024). The most important applications of artificial intelligence used in the accounting and auditing professions: A case study of the Big Four firms. *Tabna Journal of Academic Scientific Studies, 7*(1), 1031–1052. https://doi.org/10.51841/2159-007-001-050
10. United States Congress. (2018). *John S. McCain National Defense Authorization Act for Fiscal Year 2019*, Pub. L. No. 115-232, § 238(g). https://www.congress.gov/115/plaws/publ232/PLAW-115publ232.pdf
11. Jayalakshmi, S. (2023). Blockchain and its implications in accounting and auditing. *International Journal of Humanities & Social Science Studies, 12*(2), 29–34.
12. Qader, K. S., & Cek, K. (2024). Influence of blockchain and artificial intelligence on audit quality: Evidence from Turkey. *Heliyon, 10*(9), e30166. https://doi.org/10.1016/j.heliyon.2024.e30166
13. International Ethics Standards Board for Accountants (IESBA). (2025). *Handbook of the International Code of Ethics for Professional Accountants (including International Independence Standards)*. International Federation of Accountants. https://www.ethicsboard.org/iesba-code