



The Role of Artificial Intelligence in Transforming Financial Accounting and Tax Compliance

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Abstract – The role of artificial intelligence (AI) in transforming financial accounting and tax compliance is one of those areas that have become very intricate in terms of regulation. Based on the systematic review and synthesis of recent empirical research and industry surveys (2021–2026), the study evaluates how AI, including machine learning, natural language processing, and generative AI, transforms essential accounting and tax processes. As follows, the implementation of AI technologies leads to efficiency gains, including 81% productivity increases and the enhancement of accuracy up to 98%. Companies using AI-powered compliance solutions attain the accuracy rate in fraud detection of more than 98%, while the processing time is reduced to less than a second. However, despite numerous benefits, there are still some challenges identified, including the lack of appropriate internal skills among 44% of respondents and low data readiness among 80% of respondents. Thus, the paper concludes that effective application of AI technologies is possible only through effective collaboration between humans and AI and appropriate governance, which requires significant investments into data infrastructure.

Keywords - Artificial Intelligence, Financial Accounting, Tax Compliance, Machine Learning, Automation, Regulatory Technology.

I. INTRODUCTION

This is a crucial moment for the accounting industry. Until now, financial and tax accounting systems have been run through the manual rule-based procedures, which are not only time-consuming and difficult but are inevitably exposed to human errors. In the recent five years, however, the fast development of artificial intelligence technologies has significantly changed this picture, creating unique opportunities for all organizations and, at the same time, raising numerous questions regarding their realization.

Such urgent change in accounting is motivated by the growing complexity of the regulatory environment. According to a 2026 survey of 300 senior finance professionals, 58% found new and emerging tax compliance obligations inside and outside their countries to be complex. Also, 44% noted that regulations are changing too quickly to keep up with them. Almost two-thirds (61%) pointed out that the pace of emerging new government requirements represents the highest risk for compliance over the next two to three years [8].

At the same time, the accounting field as a profession experiences its identity transition. According to the 2025 Intuit QuickBooks Accountant Technology Survey, 79% of accountants consider that strategic advice is expected to grow by 38% on average during the upcoming year with 94% considering that the transition will positively impact

revenues of accounting firms [3]. Such shift from routine bookkeeping to strategic advice is made possible by technological capabilities offered by AI which allows automating repetitive tasks and working on analytical activities of greater value.

Academic literature reacts to the emergence of such trends with increasing interest in studies of AI applications in accounting and tax fields. There have been conducted several researches devoted to AI-based fraud detection system development [2], usage of generative AI in tax practice [1], creation of intelligent tax management system based on data mining technology [4], and implementation of explainable AI in order to manage tax risks [6]. Nevertheless, the majority of these papers still do not provide an overall picture of how AI transforms both financial accounting and tax fields at once.

The current study bridges the gap through an analysis of the recent empirical literature (2021-2026) that explores the transformational power of AI in both fields. There are three key research questions posed: first, what are the demonstrated improvements in terms of efficiency and accuracy associated with the use of AI technology in accounting and tax procedures; second, what are the technological and organizational challenges of implementation; third, how do professional roles change due to the implementation of AI?



The significance of this study lies not only in its contribution to the literature but in its applicability to different audiences. It will be valuable to accounting professionals to make decisions regarding implementation of the technology. For tax administrators, the study will shed light on both opportunities and threats of AI use for monitoring compliance. For organizational leaders, it will be helpful to develop appropriate governance structures and prepare for new realities of the labor market.

II. LITERATURE SURVEY

There have been many additions in the academic literature concerning the use of artificial intelligence in accounting and taxation after 2021. Researchers have studied the various applications of artificial intelligence in the field, starting from automated bookkeeping to advanced fraud detection models to predictive compliance models. This section reviews some of the key findings in the various themes related to this topic.

One common theme discussed in the academic literature is about the potential benefits of artificial intelligence in improving the efficiency and effectiveness of the financial accounting process. Cao et al. [2] presented the application of an optimized machine learning algorithm called Dynamic Sea Lion Optimized Efficient Random Forest (DSLO-ERF) in the detection of financial fraud, with an accuracy rate of 98.621%, precision of 99.517%, and recall of 99.612%. This study proves the efficacy of the application of optimized algorithms in achieving much better results compared to conventional audit sampling techniques. These findings are in accordance with the industry surveys, which reveal that 81% of accountants claim that AI helps improve productivity and 86% of them claim that it reduces their mental effort while doing the daily activities according to a 2025 Intuit QuickBooks Survey [3].

AI technology in tax practice has become especially relevant among scholars who have explored the changing face of the tax profession. According to Aku et al. [1], 18 semi-structured interviews with tax practitioners and tax technology experts show that generative AI is currently being used for conducting key tax practice tasks such as researching, identifying issues, preparing workpapers, and diagnosing compliance issues. Importantly, Aku et al. [1] revealed that generative AI is mainly used as a reference and copilot tool for statutory interpretation and exploratory analysis purposes, but not as an automation tool for tax judgments.

A number of research methodologies have been used to investigate the technical basis of artificial intelligence-based tax compliance systems. An exhaustive IEEE survey done by researchers from the 2026 International Conference on Smart Tax Management Systems [4]

offered a systematic taxonomy of data mining approaches in tax administration, classifying methods according to whether they are supervised, semi-supervised, unsupervised, and hybrid intelligent. These studies highlighted persistent problems of scalability, interpretability, imbalanced data, and adaptability to changing tax laws. Similarly, work done on explainable AI in tax environments [6] has shown that SHAP (SHapley Additive exPlanations) values can help turn "black box" machine learning algorithms into useful insight for tax risk management, offering both global and local explanations of model behavior.

On a practical level, many studies have analyzed issues concerning the organization and governance of AI implementation. In one study conducted by researchers from Indonesia [9] it was found that despite increasing work efficiency due to automation of repetitive activities and increased accuracy of data through AI, there were a number of obstacles such as human resource inadequacies, cybersecurity threats and potential decrease in role of accountants. The conclusions drawn by the authors coincide with those obtained in an OECD study [5] on the use of AI in tax administration where the need for explainability, transparency and accountability of the process is emphasized.

There are also noticeable research gaps. Very few studies consider AI implementation in both financial accounting and tax compliance functions in one organization, although the synergy between these processes is quite evident. On top of that, while the body of knowledge on the performance of AI is rich, relatively little attention is paid to change management and workforce transitions related to AI implementation. The paper will attempt to fill some of these gaps.

III. PROPOSED METHODOLOGY

The research uses the mixed-methods design, which involves the application of quantitative and qualitative methods. Quantitative method involves analysis of performance data for the AI systems, while qualitative method involves synthesis of experience of implementation of AI in accounting and taxation areas.

Research Design

The study will follow a systematic review and synthesis approach, reviewing empirical research, industry surveys, and case study literature spanning from 2021 to 2026. This period is the one in which AI will reach maturity in finance and will be adopted by organizations most rapidly. Sources providing quantitative evidence of outcomes will be favored in order to allow comparison among different AI implementations.



Figure 1: Research Design Framework

The design framework is illustrated in Figure 1, where the three-steps procedure is presented:

- Systematic identification and review of the literature
- Extraction and synthesis of performance measures through quantitative analysis
- Comparative analysis within the realms of accounting and tax compliance practices

The figure shows how the process moves from the initial body of 200+ articles to the final synthesis of 10 key articles based on the inclusion criteria.

Data Collection and Selection Criteria

The sources have been selected after searching in various academic databases such as IEEE Xplore, the publications of the American Accounting Association, PLOS ONE, and the publications of reputed accounting and finance journals. Data from industry surveys has been gathered from the published literature of relevant associations and technology firms. The inclusion criteria for the sources were that they had to be:

- Published during the period 2021 to 2026
- Dealing with applications of AI in financial accounting and/or tax compliance
- Offering quantitative performance data/implementation experience



Figure 2: AI Adoption and Impact Flow Model

Figure 2 below provides the conceptual framework that directs this study, depicting the process through which AI technologies generate value in the field of accounting and taxation. This framework comprises three types of inputs (data infrastructure, algorithmic capabilities, and human skills) that go through the implementation process (automation, augmentation, and advice) to yield outputs (effectiveness, accuracy, and strategy).

Analytical Approach

This type of method consists of a combination of analysis of performance metrics on a quantitative level and implementation experiences in the form of thematic analysis on a qualitative level. Quantitative data such as percentages of accuracy, time to process information, reductions in costs, and increases in productivity have been gathered and normalized for comparison purposes. The qualitative data such as barriers, facilitators, and governance aspects have been coded according to themes. The study is guided by ethical practices that are followed when conducting an analysis of secondary data by ensuring accuracy in presenting results from sources and giving appropriate citations. In light of the confidential nature of the data on taxes and finance presented in sources, the analysis has considered this issue and concentrated on aggregate trends.

IV. ANALYSIS AND DISCUSSION

The study provides ample evidence regarding the transformational effects of AI on financial accounting and taxation, as well as certain challenges associated with it.

Efficiency and Accuracy Gains

Quantitative studies have shown considerable improvement in efficiency and accuracy after the use of AI. According to the Intuit QuickBooks 2025 study of accountants, 98 percent of respondents noted accuracy improvement as a result of automation, 97 percent noted efficiency improvements, and 95 percent noted better customer service as a result. This is supported by the findings of Cao et al., who used their DSLO-ERF model and predicted fraud with an accuracy of 98.621 percent, which is significantly higher than conventional auditing techniques.

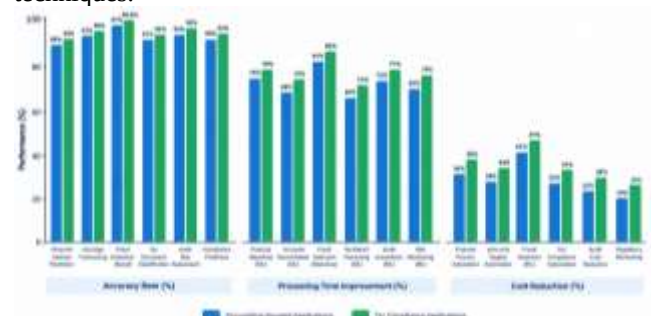


Figure 3: Comparative Performance Metrics Across AI Applications



Chart 3 shows a comparative bar graph of the various performance indicators of AI applications in the literature. The bar graph depicts the accuracy levels of the different applications (from 89% for financial distress prediction to 99.6% for fraud detection recall), as well as improved time and cost savings levels. The color scheme is used to distinguish between accounting applications (blue) and tax applications (green).

Automation of Routine Functions

The most direct and widespread effect of AI will be in the automation of routine, rule-based tasks. Survey results show that 95% of the surveyed accounting companies have implemented automation technologies over the past year, with popular applications being payroll calculation (47%), accounts payable/receivable (46%), and data entry/transaction processing (43%). As for tax processes, generative AI is used in research, creation of work papers, and tax diagnostics, although still requiring considerable human supervision. According to the OECD, tax authorities implement pre-filled tax forms and real-time anomaly detection; for example, in 2023-24, Australia's Tax Office has sent over 636,000 prompts to taxpayers, protecting approximately AUD 78.9 million worth of revenue.

Human-AI Collaboration Models

A common theme across all sources is that AI enhances human judgment instead of superseding it. According to Aku et al., professional accountants limit the independence of AI and stress human control, especially for interpretation of statutes and judgment-based decision-

making. AI is perceived by industry professionals to have advanced “from being a helpful assistant to becoming a key partner” in those activities that used to take hours are now automated and strategic activities grow.

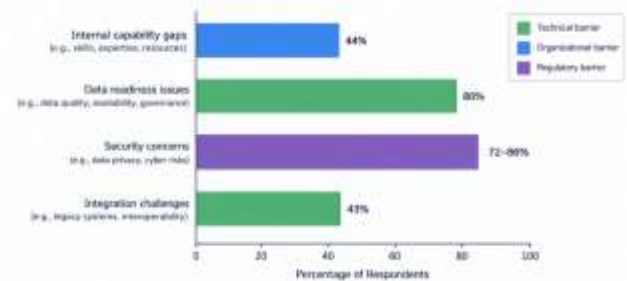


Figure 4: AI Adoption Barriers by Category

Figure 4 shows a horizontal bar chart showing the constraints to the adoption of AI classified according to the findings from survey data. Capability and capacity constraints (44%), data-related constraints (80%), security issues (72-86% based on surveys), and integration constraints (43%) stand out as the most common constraints. The chart classifies the constraints into technical, organizational, and regulatory and indicates that organizational constraints surpass technical constraints.

Comparative Analysis

Table 1 synthesizes performance metrics and implementation characteristics across the primary AI application domains examined in this research.

Table 1: Comparative Analysis of AI Applications in Accounting and Tax Compliance

Domain	AI Technology	Reported Performance	Key Benefits	Primary Constraints
Financial Accounting – Fraud Detection	Optimized Random Forest (DSLO-ERF)	98.6% accuracy, 99.5% precision, 0.10s training time	Rapid anomaly identification, reduced manual review	Data quality requirements, model interpretability
Tax Compliance – Risk Prediction	Machine Learning classifiers, ensemble methods	Variable accuracy; 89% demonstrated for distress prediction	Proactive risk identification, audit targeting	Explainability needs, regulatory acceptance
Tax Practice – Research & Analysis	Generative AI (LLMs)	Qualitative efficiency gains reported; accuracy constrained by data format	Research acceleration, workpaper preparation	Hallucination risk, documentation requirements



Domain	AI Technology	Reported Performance	Key Benefits	Primary Constraints
Enterprise Tax Operations	Integrated AI agents, automation	30% efficiency improvement expected	Workflow automation, real-time compliance monitoring	44% cite internal capability gaps, 80% data readiness issues

Implementation Challenges and Risk Management

Even though there is significant progress in the technology, there are still implementation hurdles that exist. According to the EY survey conducted in 2026 among 1,600 CFOs and tax executives, 44% of respondents stated that lack of internal capabilities was their biggest hurdle in implementing AI, and 80% reported insufficient data that could be used for AI implementation. Security concerns prevail across almost all respondents: 86% of finance leaders had extreme or very strong worries about the data security with AI-based compliance solutions. The “Toeslagenaffaire” fraud scandal in the Netherlands, where flawed algorithms accused around 26,000 households of fraud, is a good example of that.

Evolution of Professional Roles

It is clear that the adoption of artificial intelligence is causing a fundamental redefinition of the role of both accounting and tax practitioners. As it stands now, 53% of an accountant’s time is taken up by repetitive activities, with the goal of lowering that number down to 21% so that there will be more time for valuable advisory services. The transition from being focused on compliance to being focused on advisory is already well under way, with 79% of accountants expecting to see an increase in advisory work and 94% seeing increased income from this.

V. CONCLUSION

This study shows that artificial intelligence is changing the way financial accounting and tax compliance works in a fundamental way, providing tangible benefits in terms of efficiency, accuracy, and strategy-making ability, while at the same time posing new challenges. The study has shown several definite findings.

First, the effectiveness of the use of AI in performing structured accounting and compliance work is high. This can be seen from the fact that AI can reach an accuracy of nearly 99 percent in fraud detection, that 81 percent of accountants experience productivity gains due to AI use, and the estimated efficiency gains of 30 percent in tax processes.

Secondly, the change goes beyond automation, redefining professional roles entirely. The data clearly illustrates a progression from compliance-oriented bookkeeping into

advisory functions, made possible due to AI’s ability to carry out repetitive functions. The implication of this is not only greater value-added activity but new skills from the professionals. Inadequate internal capability being reported as the most significant challenge faced by 44% of the organizations implies that workforce development is a must alongside technological investment.

Thirdly, overcoming the barriers to the successful deployment of AI necessitates the solution of some inherent problems in organizations. Data readiness cited as a constraint by 80% of the executives, along with security issues noted by 86% of the finance leaders, forms some basic conditions for AI to be deployed successfully. The case of tax administration error due to algorithmic failures is a good lesson.

Implications for practice are evident. Organizations are supposed to focus on the development of their data infrastructure prior to the implementation of AI technologies, train their employees in developing the necessary skill set, and implement AI governance framework that ensures transparency, accountability, and human oversight of the implemented AI systems. Tax administrators in particular should pay careful attention to the balance between gains in efficiency and protecting taxpayers’ rights, and the factors such as explainability and due process should be incorporated in the system design.

It is expected that future AI developments will speed up the processes of transformation even further. Generative AI technologies will advance, agentic systems will become increasingly sophisticated, the line between human work and automated processes will shift. The successful organizations will understand that AI is not a tool that can replace professionals’ judgment but one that can augment their skills. Further research is needed to investigate the consequences of this change for professional identity, client relationship, and results of financial reporting and taxation practices.

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