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Artificial Intelligence (AI) in tax accounting: Opportunities, challenges, and ethical implications for tax accounting professionals

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Abstract---Artificial intelligence (AI) has emerged as a transformative technology that is reshaping tax accounting by automating routine processes, enhancing tax compliance, and supporting strategic decision-making. While existing studies have extensively examined AI applications in accounting, the literature remains fragmented regarding its opportunities, implementation challenges, ethical implications, and the evolving competencies required of tax accounting professionals. This study aims to systematically synthesize current research on AI adoption in tax accounting and develop an integrated understanding of its implications for professional practice. A Systematic Literature Review (SLR) was conducted following the PRISMA 2020 guidelines. Relevant publications were retrieved from major academic databases using predefined inclusion and exclusion criteria, followed by thematic synthesis to identify recurring patterns across the literature. The review reveals five major themes. First, AI enhances operational efficiency through the automation of repetitive tax processes, improved accuracy, and faster information processing. Second, AI strengthens tax compliance, risk management, and strategic tax advisory by leveraging machine learning, natural language processing, predictive analytics, and generative AI. Third, successful implementation is constrained by challenges related to data quality, system integration, cybersecurity, regulatory uncertainty, organizational readiness, algorithmic transparency, and AI literacy. Fourth, AI adoption raises important ethical issues concerning accountability, explainability, fairness, confidentiality, and professional judgment, emphasizing the need for robust AI governance and continuous human oversight. Finally, the review demonstrates that AI is redefining rather than replacing the tax accounting profession, shifting the required competency profile toward AI literacy, data analytics, critical thinking, ethical reasoning, strategic advisory



capability, interdisciplinary collaboration, and lifelong learning. Based on these findings, this study proposes an integrated conceptual framework that positions responsible AI adoption as the result of balancing technological opportunities with organizational readiness, ethical governance, and future professional competencies. The study contributes to the accounting literature by integrating fragmented evidence into a comprehensive perspective on AI-assisted tax accounting and provides practical implications for organizations, professional accounting bodies, educators, and policymakers seeking to prepare the profession for an increasingly AI-enabled taxation environment.

Keywords---artificial intelligence, tax accounting, systematic literature review, ethical AI, professional competencies, tax advisory, digital transformation.

Introduction

Artificial Intelligence (AI) has emerged as one of the most disruptive technologies shaping the digital transformation of modern organizations. The transition from Industry 4.0 to Industry 5.0 has shifted the focus of technological development from automation-centered production systems toward a more human-centric, sustainable, and resilient ecosystem in which advanced technologies complement rather than replace human capabilities. The European Commission (2021) emphasizes that Industry 5.0 promotes collaboration between humans and intelligent technologies to create greater economic, social, and environmental value. Consequently, AI is increasingly viewed not merely as an automation tool but as a strategic enabler capable of supporting professional judgment, knowledge creation, and organizational decision-making across various industries, including accounting and taxation.

The rapid pace of digital transformation has fundamentally reshaped accounting practices over the last decade. Emerging technologies such as cloud computing, big data analytics, robotic process automation (RPA), blockchain, and artificial intelligence have automated many routine accounting tasks while enabling accountants to focus on higher-value activities involving strategic analysis, advisory services, and business decision support. Rather than functioning solely as record keepers, accountants are increasingly expected to become strategic partners who integrate technological capabilities with professional expertise. This transformation has consequently expanded the competency requirements of accounting professionals beyond technical accounting knowledge to include digital literacy, data analytics, critical thinking, and technological adaptability (Zhao & Wang, 2024).

Among recent technological developments, the emergence of Generative Artificial Intelligence (GenAI) has accelerated AI adoption across professional services. The public release of ChatGPT by OpenAI in late 2022 marked a significant milestone in the evolution of Large Language Models (LLMs), enabling AI systems to understand, generate, summarize, and interpret natural language with

unprecedented fluency. Unlike previous AI applications that primarily focused on prediction and classification, generative AI supports complex cognitive tasks, including drafting reports, interpreting regulations, synthesizing information, and assisting professional decision-making. Recent literature indicates that research concerning ChatGPT and LLMs in accounting has expanded rapidly, particularly in financial reporting, auditing, accounting education, managerial accounting, and professional practice. However, researchers simultaneously emphasize concerns regarding output reliability, explainability, accountability, algorithmic bias, and the preservation of professional judgment in AI-assisted environments (Dong et al., 2024; Zhao & Wang, 2024).

The growing adoption of AI has also transformed tax administration worldwide. Tax authorities increasingly leverage artificial intelligence to improve compliance monitoring, automate taxpayer services, strengthen fraud detection, perform predictive risk assessment, and enhance administrative efficiency. Recognizing these developments, the Organisation for Economic Co-operation and Development (OECD) introduced the concept of **Tax Administration 3.0**, which envisions tax administration as an integrated digital ecosystem where taxation becomes increasingly seamless through real-time data exchange, intelligent automation, and machine-readable tax regulations. Recent OECD reports further indicate that tax administrations in many countries have begun implementing AI technologies to support taxpayer services, compliance management, and operational decision-making, while simultaneously addressing governance, transparency, cybersecurity, and responsible AI challenges (OECD, 2025).

In Indonesia, the modernization of tax administration has entered a new stage through the implementation of the Core Tax Administration System (Coretax). Coretax represents one of the largest digital transformation initiatives undertaken by the Directorate General of Taxes to integrate taxpayer registration, reporting, payment, compliance monitoring, auditing, and administrative services into a unified digital platform. Beyond improving administrative efficiency, Coretax aims to strengthen tax compliance, enhance data integration, support evidence-based policymaking, and align Indonesia's tax administration with international digital taxation standards. Previous studies have suggested that the implementation of Coretax constitutes an important component of Indonesia's long-term tax reform agenda, although its effectiveness ultimately depends on the balance between technological capability, institutional trust, and taxpayer compliance (Darmayasa & Hardika, 2024).

These developments inevitably reshape the professional role of tax accountants. Traditionally, tax accountants were primarily responsible for preparing tax returns, calculating tax liabilities, maintaining tax documentation, and ensuring regulatory compliance. However, AI increasingly performs many repetitive and data-intensive activities that previously relied on human labor. As intelligent technologies become embedded within tax administration and business processes, tax professionals are expected to interpret AI-generated outputs, validate automated analyses, exercise professional skepticism, manage ethical risks, and provide strategic tax advisory services that require contextual understanding beyond algorithmic capabilities. Consequently, future tax accountants require new competencies encompassing AI literacy, digital analytics,

cybersecurity awareness, data governance, interdisciplinary collaboration, and ethical reasoning alongside conventional taxation expertise. The profession is therefore evolving from compliance-oriented execution toward technology-enabled strategic advisory supported by responsible human oversight.

Despite the remarkable growth of AI research within accounting, the current body of literature remains unevenly distributed across accounting disciplines. Existing studies predominantly investigate AI applications in financial accounting, auditing, financial reporting, fraud detection, earnings prediction, and accounting education, where AI has demonstrated significant potential to improve efficiency, analytical capability, and decision support (Dong et al., 2024; Zhao & Wang, 2024). Comparatively, research focusing specifically on tax accounting remains considerably more limited. Although taxation is one of the most regulation-intensive, information-intensive, and judgment-dependent areas of accounting practice, relatively few studies have comprehensively examined how AI transforms tax accounting functions, influences professional responsibilities, reshapes competency requirements, and creates new ethical dilemmas associated with AI-assisted taxation.

Moreover, the emergence of generative AI introduces complex ethical and governance issues that extend beyond technological adoption. AI-generated tax recommendations may involve algorithmic bias, hallucinated legal interpretations, confidentiality risks associated with taxpayer information, accountability for automated decisions, and reduced professional skepticism when practitioners rely excessively on AI outputs. These issues are particularly critical within tax accounting because tax decisions directly affect legal compliance, public trust, corporate governance, and government revenue. While recent discussions acknowledge the transformative potential of AI for taxation, existing literature has yet to provide a comprehensive synthesis that simultaneously examines technological opportunities, implementation challenges, and ethical implications from the perspective of tax accounting professionals.

Accordingly, this study addresses this gap by conducting a systematic literature review to synthesize current knowledge regarding the adoption of artificial intelligence in tax accounting. Specifically, this study aims to identify the opportunities offered by AI, examine the technical and organizational challenges associated with its implementation, analyze its ethical implications for tax accounting professionals, and propose a future research agenda that supports the responsible integration of AI into tax accounting practice. By integrating these dimensions into a single conceptual discussion, this study contributes to the growing literature on digital transformation in accounting while providing practical insights for researchers, accounting educators, tax practitioners, professional accounting bodies, and policymakers seeking to navigate the future of tax accounting in the era of intelligent technologies.

Methods

This study employed a Systematic Literature Review (SLR) to comprehensively synthesize existing evidence regarding the adoption of artificial intelligence in tax accounting, with particular attention to its opportunities, implementation

challenges, and ethical implications for tax accounting professionals. Unlike traditional narrative reviews, systematic literature reviews follow a transparent, rigorous, and reproducible process for identifying, evaluating, and synthesizing relevant studies, thereby minimizing selection bias while improving the reliability of research findings (Page et al., 2021; Snyder, 2019).

The review protocol was developed based on the Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA 2020) guidelines proposed by Page et al. (2021). PRISMA has become one of the most widely accepted standards for conducting systematic reviews across multidisciplinary research, including accounting, information systems, management, and public policy. The framework provides a structured approach consisting of literature identification, screening, eligibility assessment, and final inclusion, ensuring transparency throughout the review process.

The objective of this review was not merely to summarize previous findings but also to identify emerging research themes, evaluate current knowledge, reveal research gaps, and develop a conceptual understanding of AI adoption within tax accounting. The literature search was conducted between June and July 2026 using four internationally recognized academic databases:

- 1) Scopus
- 2) Web of Science (WoS)
- 3) ScienceDirect
- 4) Emerald Insight

These databases were selected because they index high-quality peer-reviewed journals in accounting, taxation, artificial intelligence, information systems, and business research. Higher-order analytical themes were developed to generate conceptual insights beyond the findings of individual studies. Five major themes emerged from the synthesis:

- 1) AI Adoption in Tax Accounting
- 2) Opportunities of AI
- 3) Implementation Challenges
- 4) Ethical Implications
- 5) Future Competencies of Tax Accounting Professionals

These themes formed the basis for the subsequent discussion and conceptual framework. To ensure methodological rigor, each included article was evaluated according to four quality dimensions adapted from established systematic review practices (Kitchenham & Charters, 2007; Snyder, 2019):

- 1) clarity of research objectives,
- 2) methodological transparency,
- 3) relevance to AI and tax accounting,
- 4) contribution to theoretical or practical knowledge.

Studies with insufficient methodological information or limited relevance were excluded during the eligibility assessment.

Result and Discussion

Evolution of Artificial Intelligence in Tax Accounting

The evolution of artificial intelligence (AI) in tax accounting has been driven by rapid advances in digital technologies, increasing tax complexity, and the growing demand for efficient, accurate, and data-driven decision-making. While AI has long been associated with automation and computational intelligence, its application in taxation has undergone substantial transformation over the past decade. Initially, AI was primarily utilized to automate repetitive administrative functions, such as document processing, tax calculations, and data validation. However, recent technological developments, particularly the emergence of machine learning, natural language processing (NLP), predictive analytics, robotic process automation (RPA), and generative AI, have significantly expanded the scope of AI applications beyond automation toward intelligent decision support and strategic tax management (Dwivedi et al., 2023).

The evolution of AI in tax accounting cannot be separated from the broader digital transformation of the accounting profession. Digital transformation has fundamentally changed how accounting information is collected, processed, analyzed, and communicated. Technologies such as cloud computing, blockchain, big data analytics, and AI have collectively shifted accounting functions from manual record-keeping toward integrated digital ecosystems capable of generating real-time financial and taxation information (Kokina & Davenport, 2017). Although early accounting information systems primarily focused on transaction recording and reporting, contemporary AI-enabled systems increasingly support predictive analysis, risk identification, regulatory interpretation, and strategic advisory services.

Historically, AI applications in accounting evolved through several technological phases. During the first phase, accounting automation was largely supported by rule-based expert systems developed during the 1980s and 1990s. These systems relied on predefined logical rules to assist accountants in performing standardized calculations and compliance procedures. While effective for structured tasks, expert systems lacked adaptability when dealing with complex regulatory environments such as taxation, where legal interpretations frequently change and contextual judgment remains essential (Sutton et al., 2016).

The second phase emerged with the adoption of machine learning and data mining technologies during the early 2010s. Unlike rule-based systems, machine learning algorithms learn patterns directly from historical data, enabling continuous improvement without explicit programming. Within taxation, machine learning has been increasingly applied to taxpayer segmentation, fraud detection, compliance prediction, transfer pricing analysis, and tax risk assessment. Tax authorities began utilizing predictive models to identify high-risk taxpayers and optimize audit selection, thereby improving resource allocation while reducing unnecessary compliance burdens for low-risk taxpayers (OECD, 2025).

A significant milestone in AI development occurred with the widespread adoption of robotic process automation (RPA). RPA enables software robots to perform repetitive administrative processes traditionally executed by human employees,

including extracting tax data from invoices, reconciling tax documents, validating tax identification numbers, preparing tax filings, and generating standardized compliance reports. By automating these routine tasks, organizations substantially reduced processing time, minimized human error, and improved operational efficiency. Consequently, tax professionals increasingly shifted their attention from transaction processing toward higher-value analytical and advisory activities (Zhang et al., 2020).

The most transformative stage of AI evolution began with advances in deep learning and natural language processing. These technologies enabled AI systems not only to process structured numerical information but also to understand unstructured textual data, including tax regulations, judicial decisions, policy documents, and legal opinions. Tax legislation is inherently complex, dynamic, and text-intensive. Therefore, NLP technologies provide substantial value by assisting tax professionals in interpreting legislative changes, retrieving relevant legal provisions, summarizing regulatory documents, and identifying potential compliance issues across large collections of legal texts (Dwivedi et al., 2023).

The introduction of Generative Artificial Intelligence further accelerated this transformation. The public release of ChatGPT in late 2022 marked a turning point in professional AI adoption because large language models (LLMs) demonstrated unprecedented capabilities in generating coherent text, answering technical questions, summarizing documents, translating regulations, drafting professional correspondence, and supporting knowledge-intensive work. Unlike previous AI systems that primarily classified or predicted numerical outcomes, generative AI performs cognitive tasks requiring contextual understanding and natural language interaction (OpenAI, 2023; Dwivedi et al., 2023).

Within tax accounting, generative AI has expanded the possibilities of professional practice. Tax accountants increasingly utilize AI assistants to summarize amendments to tax legislation, draft tax memoranda, explain complex regulations, prepare compliance documentation, generate tax research summaries, and assist in responding to taxpayer inquiries. Rather than replacing tax professionals, generative AI functions as an intelligent assistant capable of accelerating knowledge acquisition and improving decision support. Nevertheless, researchers consistently emphasize that AI-generated outputs require human verification because language models may produce inaccurate interpretations, omit important legal exceptions, or generate plausible yet incorrect information—a phenomenon commonly referred to as AI hallucination (Dwivedi et al., 2023).

The evolution of AI has also transformed tax administration at the governmental level. Tax authorities worldwide increasingly recognize AI as a strategic instrument for improving compliance management and modernizing public services. According to the OECD (2025), tax administrations have adopted AI across multiple operational domains, including fraud detection, taxpayer risk profiling, compliance monitoring, virtual assistants, document classification, and predictive analytics. These applications contribute not only to administrative efficiency but also to more targeted enforcement strategies and improved taxpayer experiences through personalized digital services.

One of the most influential developments shaping AI adoption in taxation is the OECD's Tax Administration 3.0 initiative. This framework proposes a future tax ecosystem in which taxation becomes embedded within digital business processes through seamless data integration, automated compliance, and real-time information exchange. Instead of relying on traditional retrospective reporting, tax administrations are expected to utilize intelligent digital infrastructures capable of supporting proactive compliance management. Artificial intelligence plays a central role within this ecosystem by enabling continuous risk assessment, automated anomaly detection, and intelligent taxpayer assistance (OECD, 2025). Indonesia reflects this global transformation through the implementation of the Core Tax Administration System (Coretax). Coretax represents one of the most comprehensive digital modernization initiatives undertaken by the Directorate General of Taxes. The system integrates taxpayer registration, filing, payment, audit management, compliance monitoring, and administrative services into a unified digital platform. Beyond operational integration, Coretax establishes a digital foundation that enables advanced analytics, enhanced interoperability among government agencies, and future AI-driven compliance monitoring. Consequently, the modernization of Indonesian tax administration aligns with international trends emphasizing intelligent digital governance and evidence-based policymaking.

At the organizational level, AI adoption within tax accounting has evolved differently across industries. Large multinational corporations and global accounting firms have generally demonstrated higher levels of AI maturity due to greater financial resources, digital infrastructure, and access to specialized expertise. Firms such as Deloitte, PwC, EY, and KPMG have invested heavily in AI-powered tax technologies capable of automating document review, transfer pricing analysis, tax provision calculations, regulatory monitoring, and advisory services. These technologies allow tax professionals to process substantially larger datasets while delivering faster and more consistent recommendations. In contrast, small and medium-sized enterprises (SMEs) continue to experience barriers related to technological investment, organizational readiness, digital literacy, and implementation costs, resulting in uneven AI adoption across different organizational contexts.

The evolution of AI has simultaneously transformed the competencies required of tax accounting professionals. Historically, technical knowledge of taxation and accounting standards constituted the primary source of professional expertise. Today, however, tax professionals are increasingly expected to integrate accounting knowledge with digital competencies, including data analytics, AI literacy, information governance, cybersecurity awareness, and technology management. This transformation reflects a broader shift in professional identity from routine compliance execution toward strategic advisory and analytical problem solving. AI therefore complements rather than replaces professional expertise by automating standardized tasks while increasing demand for uniquely human capabilities such as ethical reasoning, contextual interpretation, professional skepticism, negotiation, and strategic decision-making (Zhao & Wang, 2024).

Despite these advances, the evolution of AI in tax accounting remains uneven across research domains. Existing literature demonstrates substantial growth in studies examining AI applications in financial reporting, auditing, fraud detection, and accounting education, whereas tax accounting continues to receive comparatively limited scholarly attention. Most tax-related research focuses on compliance technologies, digital tax administration, and fraud detection, while fewer studies investigate broader issues concerning professional transformation, ethical governance, organizational adaptation, and competency development. Furthermore, the emergence of generative AI introduces entirely new research questions regarding accountability, explainability, transparency, confidentiality of taxpayer information, and the preservation of professional judgment. These issues indicate that the evolution of AI in tax accounting extends beyond technological innovation and increasingly encompasses organizational governance, professional ethics, regulatory adaptation, and human–AI collaboration.

Overall, the literature suggests that the evolution of AI in tax accounting has progressed through four major stages: rule-based automation, machine learning and predictive analytics, intelligent process automation, and generative AI-assisted professional practice. Each stage has expanded the role of AI from operational efficiency toward strategic knowledge support and professional decision-making. Rather than representing a replacement for tax accountants, AI has fundamentally redefined the nature of tax accounting work, requiring professionals to combine technological proficiency with ethical responsibility, regulatory expertise, and critical judgment. As AI technologies continue to mature, future developments are expected to focus increasingly on explainable AI, trustworthy AI governance, human–AI collaboration, and responsible digital transformation within tax accounting.

Table 1
Evolution of AI in Tax Accounting

Period	Dominant AI Technology	Primary Applications in Tax Accounting	Impact on Professional Practice
Before 2010	Rule-based Expert Systems	Tax calculation, compliance checking	Automation of routine calculations
2010–2018	Machine Learning & Data Mining	Fraud detection, compliance prediction, taxpayer segmentation	Risk-based tax analysis
2018–2022	Robotic Process Automation (RPA), NLP	Tax reporting, document extraction, regulatory analysis	Increased efficiency and reduced manual work
2022–Present	Generative AI (ChatGPT, LLMs)	Tax research, regulation interpretation, document drafting, advisory support	Shift toward AI-assisted strategic tax advisory and human–AI collaboration

Opportunities of AI in Tax Accounting

1) Enhancing Operational Efficiency and Automation

One of the most widely recognized opportunities presented by artificial intelligence (AI) in tax accounting is its ability to enhance operational efficiency through

intelligent automation. Traditionally, tax accounting has been characterized by repetitive, rule-based, and document-intensive activities, including tax data collection, invoice verification, tax calculation, compliance reporting, reconciliation, and document preparation. These processes are often labor-intensive, time-consuming, and highly susceptible to human error, particularly when organizations operate across multiple jurisdictions with complex and frequently changing tax regulations. Consequently, AI has emerged as a transformative technology capable of automating routine tax processes while enabling tax professionals to allocate greater attention to higher-value analytical and strategic activities (Dwivedi et al., 2023).

The automation capability of AI extends beyond conventional software applications because contemporary AI systems can perform cognitive tasks that previously required human intervention. Through machine learning algorithms, robotic process automation (RPA), and natural language processing (NLP), AI systems are capable of extracting financial data from invoices, classifying tax-related transactions, validating taxpayer information, reconciling financial records, and preparing tax documentation with considerably higher speed and consistency than manual processing. Unlike traditional automation tools that rely on fixed programming rules, AI continuously improves its performance by learning from historical datasets and identifying hidden patterns within structured and unstructured information (Kokina & Davenport, 2017).

Robotic Process Automation has become one of the earliest AI-enabled technologies adopted in tax accounting. RPA automates repetitive administrative tasks such as transferring data between accounting systems, preparing tax returns, checking tax identification numbers, validating supporting documents, and generating standardized reports. These activities typically consume a substantial portion of tax professionals' working hours despite requiring relatively limited professional judgment. By automating repetitive workflows, organizations significantly reduce processing time, minimize operational costs, and improve reporting consistency while allowing tax specialists to concentrate on advisory functions and regulatory interpretation (Zhang et al., 2020).

Beyond process automation, AI substantially improves the speed of information processing. Modern tax environments generate enormous volumes of financial transactions, electronic invoices, digital receipts, contracts, transfer pricing documentation, customs declarations, and regulatory updates. Processing such information manually has become increasingly impractical as organizations expand globally and governments accelerate tax digitalization initiatives. AI-powered document intelligence systems are capable of reading thousands of tax-related documents within minutes, automatically extracting relevant information and organizing it into structured datasets suitable for further analysis. This capability substantially shortens tax preparation cycles while reducing administrative burdens associated with document management (OECD, 2025).

The emergence of Generative Artificial Intelligence has further expanded operational efficiency by enabling AI to support knowledge-intensive activities. Large Language Models (LLMs), such as ChatGPT, are increasingly used to summarize tax legislation, explain newly issued regulations, generate draft tax

memoranda, prepare correspondence, and assist professionals in interpreting complex legal provisions. Rather than replacing professional expertise, generative AI serves as a productivity-enhancing assistant that accelerates routine research and documentation processes. Consequently, tax professionals spend less time searching for information and more time evaluating tax strategies, assessing business implications, and exercising professional judgment (OpenAI, 2023; Dwivedi et al., 2023).

Operational efficiency is also reflected in improved accuracy. Manual tax processing is vulnerable to calculation errors, transcription mistakes, incomplete documentation, and inconsistencies across reporting periods. These errors may lead to regulatory penalties, financial losses, or reputational damage. AI systems reduce such risks by performing automated validation procedures, detecting inconsistencies, identifying duplicate records, and continuously comparing transactional data against predefined compliance rules. Machine learning algorithms further improve detection accuracy as they accumulate larger datasets over time, enabling organizations to identify anomalies that may remain undetected through conventional manual reviews (Zhao & Wang, 2024).

Another important contribution of AI concerns workflow integration across organizational functions. Modern enterprise resource planning (ERP) systems increasingly incorporate AI functionalities that connect finance, accounting, taxation, procurement, inventory management, and business operations into integrated digital ecosystems. Such integration minimizes redundant data entry while ensuring consistency between accounting records and tax reporting. Real-time synchronization also enables organizations to monitor tax positions continuously rather than relying solely on periodic reporting cycles. As a result, tax information becomes more timely, transparent, and responsive to organizational decision-making needs (OECD, 2025).

AI also enhances scalability within tax operations. As business organizations expand geographically, the volume and complexity of tax-related transactions increase substantially. Recruiting additional tax personnel may not always be economically feasible, particularly for multinational enterprises operating in numerous tax jurisdictions. AI allows organizations to process significantly larger transaction volumes without proportionally increasing human resources. Intelligent automation therefore provides organizations with greater operational flexibility while supporting sustainable business growth under increasingly complex regulatory environments.

The efficiency gains generated by AI extend beyond private organizations to tax administrations. Governments worldwide increasingly employ AI-powered technologies to automate taxpayer registration, process electronic filings, classify tax documents, manage digital correspondence, and provide virtual assistance through AI chatbots. These technologies reduce administrative workloads while improving taxpayer service quality through faster response times and continuous digital accessibility. The OECD (2025) argues that intelligent automation represents a fundamental component of modern digital tax administration because it enables tax authorities to process growing volumes of taxpayer information while maintaining operational effectiveness.

Indonesia's implementation of the Core Tax Administration System (Coretax) illustrates this broader transformation. By integrating taxpayer registration, payment, filing, audit management, and compliance monitoring into a unified digital platform, Coretax establishes the technological infrastructure necessary for intelligent automation across tax administration processes. Although the system remains under continuous development, its implementation demonstrates how digital transformation may significantly reduce manual administrative procedures, improve data consistency, and create opportunities for future AI-assisted tax services. As AI capabilities continue to mature, Coretax may further support automated compliance monitoring, predictive taxpayer assistance, and real-time tax analytics, thereby increasing administrative efficiency for both taxpayers and government authorities.

Despite these substantial efficiency gains, the literature consistently emphasizes that operational automation should not be interpreted as the replacement of tax professionals. Rather, AI automates standardized and repetitive processes while increasing demand for uniquely human competencies such as critical thinking, ethical reasoning, professional skepticism, negotiation, and strategic advisory. Automation therefore shifts the role of tax accountants from transactional execution toward analytical interpretation and value-added consulting. This transformation reflects the broader evolution of the accounting profession in which technological capabilities complement rather than substitute professional expertise (Sutton et al., 2016).

Overall, the reviewed literature demonstrates that AI substantially enhances operational efficiency through intelligent automation, faster information processing, improved accuracy, integrated digital workflows, and greater organizational scalability. These developments enable tax professionals to redirect their efforts from administrative compliance toward strategic activities that generate greater organizational value. Nevertheless, realizing these efficiency gains requires appropriate technological infrastructure, organizational readiness, digital competencies, and governance mechanisms that ensure AI systems remain transparent, reliable, and aligned with professional standards. Consequently, operational efficiency should be viewed not merely as a technological outcome but as a catalyst for the broader transformation of tax accounting practices in the digital era.

Table 2. Finding of Synthesis

Based on existing literature, the potential for AI to enhance operational efficiency can be categorized into five key dimensions.

AI Capability	Operational Contribution	Benefit for Tax Accounting
Robotic Process Automation (RPA)	Automates repetitive administrative tasks	Reduced processing time and operational costs
Machine Learning	Learns transaction patterns and detects anomalies	Improved accuracy and reduced human error
Natural Language Processing (NLP)	Processes tax regulations and legal documents	Faster regulatory interpretation
Generative AI (LLMs)	Generates reports, summaries, and tax documentation	Higher professional productivity

AI Capability	Operational Contribution	Benefit for Tax Accounting
Integrated AI Systems	Connects tax functions with ERP and financial systems	Real-time tax reporting and workflow integration

2) *Improving Tax Compliance and Risk Management*

Beyond improving operational efficiency, one of the most significant contributions of artificial intelligence (AI) in tax accounting lies in its ability to strengthen tax compliance and enhance tax risk management. Tax compliance has long been recognized as one of the most challenging aspects of taxation due to increasingly complex tax regulations, frequent legislative amendments, globalization of business activities, and the growing volume of digital transactions. Traditional compliance approaches largely depend on periodic manual reviews and retrospective assessments, making organizations vulnerable to reporting errors, regulatory non-compliance, and financial penalties. The integration of AI into tax accounting introduces a more proactive, predictive, and data-driven approach that enables organizations to identify compliance issues before they materialize into legal or financial risks (OECD, 2025).

Tax compliance involves more than the timely submission of tax returns; it encompasses the accurate calculation of tax liabilities, adherence to statutory regulations, proper documentation, and transparent reporting of taxable activities. Maintaining compliance has become increasingly difficult as governments continuously revise tax legislation to address emerging business models, cross-border transactions, digital economies, and international tax avoidance. Consequently, tax professionals must monitor vast amounts of regulatory information while simultaneously ensuring that organizational tax practices remain aligned with current legal requirements. AI significantly facilitates this process by continuously monitoring regulatory updates, identifying legislative changes, and automatically comparing organizational practices with applicable tax rules (Dwivedi et al., 2023).

One of AI's primary advantages in tax compliance is its predictive capability. Unlike traditional rule-based compliance systems that identify errors only after transactions have been recorded, machine learning algorithms analyze historical transaction data to predict potential compliance risks before tax filings are submitted. These predictive models recognize complex patterns associated with reporting inconsistencies, abnormal financial behavior, and potential tax irregularities that may not be immediately visible through manual examination. As machine learning algorithms continuously improve through exposure to larger datasets, their predictive performance becomes increasingly accurate, enabling organizations to implement preventive measures rather than merely responding to detected violations (Kokina & Davenport, 2017).

Risk management represents another critical area where AI has fundamentally transformed tax accounting. Tax risk refers to the possibility that an organization may incur financial losses, regulatory sanctions, reputational damage, or legal disputes arising from incorrect tax reporting or non-compliance with tax legislation. Traditionally, tax risk assessment relied heavily on professional judgment, manual sampling techniques, and retrospective audits. Although these approaches remain important, they often struggle to process the large volumes of

transactional data generated by modern organizations. AI-powered risk assessment systems overcome these limitations by continuously analyzing complete datasets rather than selected samples, thereby improving both the accuracy and comprehensiveness of tax risk identification (Zhang et al., 2020).

Machine learning algorithms are particularly effective in detecting anomalies that may indicate tax compliance risks. These algorithms compare current transactions with historical behavioral patterns, identifying unusual deviations in tax payments, invoice structures, expense recognition, transfer pricing arrangements, or value-added tax (VAT) reporting. Such anomalies may not necessarily indicate fraudulent behavior but serve as early warning signals requiring further professional investigation. Consequently, AI supports tax accountants by prioritizing high-risk transactions while reducing the time spent reviewing routine transactions with minimal compliance concerns (OECD, 2025). Natural language processing (NLP) further strengthens compliance management by enabling AI systems to process and interpret large volumes of legal and regulatory documents. Tax legislation is highly dynamic, with governments frequently issuing amendments, administrative guidance, judicial interpretations, and technical rulings. Manually reviewing these documents requires substantial time and specialized expertise. NLP technologies accelerate this process by automatically identifying relevant regulatory provisions, summarizing legislative updates, extracting legal obligations, and highlighting potential compliance implications for organizations. This capability enables tax professionals to respond more rapidly to regulatory changes while reducing the likelihood of overlooking critical legislative developments (Dwivedi et al., 2023).

The emergence of generative AI has further expanded compliance support through interactive knowledge assistance. Large Language Models (LLMs) can summarize tax regulations, explain legislative provisions in accessible language, draft compliance documentation, and assist professionals in understanding complex tax scenarios. These capabilities improve the efficiency of tax research and documentation while reducing the administrative burden associated with regulatory interpretation. However, the literature consistently emphasizes that generative AI should function as a decision-support tool rather than an autonomous decision-maker. Because AI-generated responses may contain factual inaccuracies or misinterpret legal provisions, tax professionals remain responsible for verifying AI outputs and ensuring that compliance decisions conform to applicable laws and professional standards (OpenAI, 2023; Dwivedi et al., 2023).

AI also enhances organizational tax governance by facilitating continuous compliance monitoring. Traditional compliance systems generally rely on periodic reviews conducted monthly, quarterly, or annually. In contrast, AI enables continuous monitoring by analyzing financial transactions in real time, immediately identifying deviations from expected compliance patterns. Continuous monitoring supports early intervention, allowing organizations to correct reporting errors before tax returns are finalized. This proactive approach reduces regulatory exposure while strengthening internal control systems and corporate governance practices (OECD, 2025).

The benefits of AI extend beyond corporate taxpayers to public tax administration. Tax authorities worldwide increasingly employ AI-powered compliance management systems to optimize audit selection, identify high-risk taxpayers, detect tax evasion, and improve voluntary compliance. Rather than conducting random audits, AI enables tax administrations to allocate enforcement resources strategically by prioritizing cases presenting the highest compliance risks. According to the OECD (2025), many tax administrations have adopted predictive analytics to improve compliance management while simultaneously reducing administrative burdens for compliant taxpayers. Such risk-based approaches contribute to more efficient tax administration, improved public service quality, and stronger trust between tax authorities and taxpayers.

Indonesia's ongoing tax administration modernization through the Core Tax Administration System (Coretax) also reflects this global transition toward data-driven compliance management. By integrating taxpayer information across multiple administrative processes, Coretax establishes a centralized digital infrastructure capable of supporting advanced analytics, automated compliance verification, and future AI-assisted risk assessment. Although the implementation of predictive AI capabilities remains in its developmental stages, the integrated architecture of Coretax creates opportunities for real-time compliance monitoring, improved audit targeting, and more responsive taxpayer services. These developments are expected to strengthen both administrative efficiency and voluntary tax compliance in the long term.

Despite these significant opportunities, the literature also highlights several prerequisites for effective AI-enabled compliance management. High-quality data, standardized reporting systems, robust cybersecurity frameworks, and effective governance mechanisms remain essential to ensure reliable AI performance. Predictive algorithms are highly dependent on the quality and representativeness of training data; inaccurate or incomplete datasets may generate misleading risk assessments and potentially produce discriminatory outcomes. Furthermore, excessive reliance on automated compliance systems may reduce professional skepticism if tax practitioners accept AI recommendations without sufficient critical evaluation. Consequently, AI should be regarded as an intelligent augmentation tool that enhances human expertise rather than replacing professional judgment in compliance decision-making (Sutton et al., 2016).

Overall, the reviewed literature demonstrates that AI significantly strengthens tax compliance and risk management by enabling predictive analytics, continuous monitoring, anomaly detection, intelligent regulatory interpretation, and risk-based decision support. These capabilities transform compliance from a reactive reporting function into a proactive governance mechanism capable of anticipating regulatory risks before they become material. As tax administrations continue their digital transformation and organizations increasingly adopt intelligent tax technologies, AI is expected to play an increasingly central role in building more transparent, adaptive, and resilient tax compliance systems. Nevertheless, maximizing these benefits requires a balanced integration of technological innovation, professional expertise, and responsible governance to ensure that AI-supported compliance remains accurate, accountable, and ethically sound.

Table 3
AI Contributions to Tax Compliance and Risk Management

AI Capability	Tax Compliance Function	Risk Management Contribution	Organizational Impact
Machine Learning	Predictive compliance analysis	Early identification of tax irregularities	Reduced regulatory penalties
Predictive Analytics	Compliance forecasting	Risk-based monitoring	Proactive tax planning
Natural Language Processing	Regulatory monitoring	Faster interpretation of tax legislation	Improved regulatory responsiveness
Generative AI (LLMs)	Tax research and documentation	Knowledge support for compliance decisions	Increased productivity of tax professionals
Continuous Monitoring Systems	Real-time compliance verification	Immediate anomaly detection	Stronger internal control and governance
AI-based Risk Scoring	Taxpayer risk profiling	Prioritized audit selection	Efficient allocation of organizational resources

3) *Strengthening Tax Advisory and Decision Support*

The evolution of artificial intelligence (AI) has fundamentally expanded the role of tax accounting beyond compliance and reporting toward strategic tax advisory and decision support. Traditionally, tax accountants were primarily responsible for calculating tax liabilities, preparing tax returns, maintaining compliance documentation, and responding to regulatory requirements. While these functions remain essential, the increasing complexity of global taxation, digital business models, cross-border transactions, and frequent regulatory changes have elevated the demand for strategic tax advisory services. In this context, AI has emerged not only as an automation technology but also as an intelligent decision-support system capable of assisting tax professionals in generating more informed, timely, and evidence-based recommendations (Dwivedi et al., 2023).

Strategic tax advisory requires professionals to evaluate multiple legal, financial, and operational considerations simultaneously. Unlike routine compliance activities, advisory services involve interpreting ambiguous regulations, assessing alternative tax treatments, evaluating business risks, and recommending optimal tax strategies that align with organizational objectives while remaining compliant with applicable laws. These tasks require the integration of technical knowledge with analytical reasoning and professional judgment. AI enhances this process by rapidly processing vast amounts of structured and unstructured information, enabling tax professionals to access relevant knowledge more efficiently and make better-informed decisions (Zhao & Wang, 2024).

One of the most significant contributions of AI to tax advisory lies in its ability to support tax research. Tax professionals routinely consult tax legislation, administrative guidance, judicial decisions, international tax treaties, and

accounting standards before providing recommendations to clients or management. The growing volume and complexity of tax regulations make manual legal research increasingly time-consuming. AI-powered search engines and natural language processing (NLP) technologies significantly reduce this burden by retrieving relevant legal sources, identifying applicable provisions, summarizing legislative amendments, and comparing multiple regulatory documents within a short period. Consequently, tax professionals can dedicate more time to analyzing the implications of tax rules rather than locating the relevant information itself (OECD, 2025).

The emergence of Generative Artificial Intelligence, particularly Large Language Models (LLMs), has further transformed tax advisory practices. Platforms such as ChatGPT, Microsoft Copilot, and Google Gemini enable professionals to interact with AI through natural language, allowing users to formulate tax-related questions, request explanations of complex regulations, draft technical memoranda, summarize policy updates, and generate preliminary analyses of taxation issues. Rather than replacing professional expertise, these technologies function as knowledge assistants that accelerate information synthesis and facilitate more efficient communication between tax professionals and organizational stakeholders (Dwivedi et al., 2023).

AI also improves decision quality through advanced analytical capabilities. Machine learning algorithms are capable of identifying relationships among financial variables, historical tax positions, industry practices, and regulatory trends that may not be immediately observable through conventional analysis. These insights support tax professionals in evaluating alternative tax planning strategies, estimating future tax liabilities, assessing the financial consequences of business restructuring, and forecasting the tax implications of investment decisions. By integrating predictive analytics into decision-making processes, organizations can develop more proactive tax strategies while reducing uncertainty associated with complex taxation environments (Kokina & Davenport, 2017).

Scenario analysis represents another important application of AI in tax advisory. Tax decisions often involve uncertainty arising from future regulatory changes, economic fluctuations, or organizational restructuring. AI enables tax professionals to simulate multiple taxation scenarios by incorporating historical data, economic indicators, and projected business performance into predictive models. For example, organizations may evaluate how changes in corporate income tax rates, value-added tax policies, transfer pricing regulations, or international tax agreements could affect future financial performance. These scenario analyses provide decision-makers with quantitative evidence to support strategic planning while improving organizational preparedness for regulatory uncertainty (Zhang et al., 2020).

The advisory role of AI extends beyond internal organizational decision-making to client relationship management. Accounting firms increasingly integrate AI into their advisory services to deliver faster, more personalized, and data-driven recommendations. Intelligent systems assist professionals in preparing customized tax reports, identifying tax-saving opportunities, monitoring

regulatory developments relevant to individual clients, and providing real-time responses to routine tax inquiries through AI-powered virtual assistants. Such capabilities improve service responsiveness while enabling tax advisors to focus on complex strategic consultations requiring professional expertise and contextual understanding.

AI also facilitates interdisciplinary decision-making by integrating taxation with broader organizational information systems. Modern enterprise resource planning (ERP) platforms increasingly incorporate AI functionalities that combine accounting, finance, supply chain management, procurement, human resources, and operational data into unified analytical environments. This integration enables tax professionals to evaluate taxation issues within broader business contexts rather than treating taxation as an isolated compliance function. Consequently, tax decisions become more closely aligned with corporate strategy, investment planning, financial management, and organizational risk governance, enhancing the strategic contribution of tax accounting within business organizations.

The modernization of tax administration similarly creates opportunities for AI-assisted decision support. Governments increasingly provide digital platforms that enable taxpayers to access personalized tax information, automated guidance, and electronic advisory services. Indonesia's implementation of the Core Tax Administration System (Coretax) reflects this transformation by establishing an integrated digital ecosystem capable of supporting future AI-enabled taxpayer assistance. Although current implementations primarily emphasize digital integration and administrative modernization, future developments may incorporate intelligent advisory functions capable of providing taxpayers with real-time guidance regarding filing obligations, payment procedures, regulatory updates, and compliance recommendations. Such developments would enhance both administrative efficiency and taxpayer experience while reducing informational asymmetries between taxpayers and tax authorities.

Despite these significant opportunities, the literature consistently emphasizes that AI should function as a decision-support technology rather than an autonomous decision-maker. Tax advisory frequently involves ambiguous legal provisions, conflicting judicial interpretations, ethical considerations, and contextual business factors that cannot be fully captured by algorithmic models. AI-generated recommendations are based on probabilistic reasoning derived from training data and therefore may produce inaccurate interpretations, omit critical legal nuances, or fail to account for unique organizational circumstances. Consequently, professional judgment remains indispensable in evaluating AI outputs before they are incorporated into strategic tax decisions (Sutton et al., 2016).

Furthermore, reliance on AI introduces new governance challenges related to transparency, explainability, accountability, and confidentiality. Tax professionals must understand the underlying logic of AI-generated recommendations sufficiently to explain and justify their decisions to clients, auditors, regulators, and courts when necessary. Explainable AI therefore becomes increasingly

important within tax advisory because professional accountability cannot be delegated to technological systems. Instead, AI should enhance human reasoning by providing analytical insights while leaving final decision-making authority under the responsibility of qualified tax professionals (OECD, 2025).

The reviewed literature therefore suggests that AI is reshaping the role of tax accountants from technical compliance specialists into strategic business advisors. Rather than replacing advisory expertise, AI augments professionals' analytical capabilities by accelerating research, improving access to regulatory knowledge, strengthening predictive analysis, supporting scenario planning, and facilitating evidence-based decision-making. These developments allow tax professionals to create greater organizational value through strategic consultation while simultaneously responding to increasingly complex taxation environments. As AI technologies continue to evolve, the future of tax advisory will likely depend on effective collaboration between intelligent technologies and human expertise, where AI provides computational intelligence and tax professionals contribute contextual interpretation, ethical reasoning, and professional accountability.

Table 4
AI Contributions to Tax Advisory and Decision Support

AI Capability	Advisory Function	Decision Support Contribution	Value for Tax Professionals
Natural Language Processing (NLP)	Tax regulation analysis	Rapid retrieval and interpretation of legislation	Faster legal research
Generative AI (LLMs)	Drafting memoranda, explaining regulations, preparing documentation	Knowledge assistance and communication	Higher advisory productivity
Machine Learning	Tax planning analysis	Pattern recognition and predictive insights	More accurate strategic recommendations
Predictive Analytics	Scenario simulation	Forecasting tax consequences under different assumptions	Better strategic planning
AI-Integrated ERP Systems	Cross-functional tax analysis	Integration of accounting, finance, and taxation data	Holistic organizational decision-making
Intelligent Virtual Assistants	Taxpayer and client support	Real-time responses to routine inquiries	Improved client service quality

Challenges of AI Implementation

Although artificial intelligence (AI) presents significant opportunities to enhance operational efficiency, tax compliance, and strategic decision-making, its successful implementation within tax accounting remains accompanied by numerous technical, organizational, regulatory, and human challenges. The

literature consistently suggests that the value generated by AI is not solely determined by technological sophistication but also by an organization's ability to integrate AI into existing accounting processes, establish appropriate governance mechanisms, and cultivate the competencies required to effectively collaborate with intelligent systems (Dwivedi et al., 2023; OECD, 2025). Consequently, AI implementation should be understood as a comprehensive organizational transformation rather than merely a technological upgrade.

One of the most frequently discussed challenges concerns data quality and data availability. Artificial intelligence systems are fundamentally data-driven, meaning that their performance depends heavily on the completeness, consistency, accuracy, and representativeness of the underlying datasets. In tax accounting, data originate from multiple internal and external sources, including accounting records, invoices, tax returns, financial statements, customs documents, payroll systems, and regulatory databases. These datasets often vary in structure, quality, and formatting, making data integration particularly challenging. Poor-quality or incomplete data may result in inaccurate predictions, incorrect tax classifications, misleading compliance assessments, and unreliable decision support (Kokina & Davenport, 2017). As emphasized by the OECD (2025), high-quality digital data constitute the fundamental prerequisite for successful AI adoption in tax administration and corporate taxation.

Closely related to data quality is the issue of system integration. Many organizations continue to operate fragmented accounting information systems developed over different periods and using incompatible technological architectures. Tax accounting frequently relies on multiple software platforms for bookkeeping, enterprise resource planning (ERP), payroll, inventory management, electronic invoicing, and tax reporting. Integrating AI solutions into these heterogeneous environments often requires substantial investments in digital infrastructure, standardized data governance, and application programming interfaces (APIs). Without effective system interoperability, organizations may fail to realize the full benefits of AI despite investing significantly in advanced technologies.

Another major challenge involves the dynamic nature of tax regulations. Tax legislation is among the most frequently revised legal domains, with governments continuously introducing amendments, administrative guidance, judicial interpretations, and policy reforms. Unlike financial accounting standards, tax regulations differ considerably across jurisdictions and are subject to political, economic, and social influences. Consequently, AI systems trained on historical legal information may quickly become outdated if they are not continuously updated with current legislative developments. This challenge is particularly relevant for generative AI systems, which may inadvertently generate responses based on obsolete regulations or fail to recognize newly enacted legal provisions. Therefore, maintaining AI systems within taxation requires continuous model updating, regulatory monitoring, and professional oversight (Dwivedi et al., 2023). The rapid emergence of Generative Artificial Intelligence (GenAI) has introduced additional technical limitations associated with the reliability of AI-generated outputs. Large Language Models (LLMs), including ChatGPT, Gemini, and similar conversational AI systems, generate responses based on probabilistic language

prediction rather than legal reasoning. As a result, these models may produce factually incorrect statements, fabricate references, misinterpret legislative provisions, or provide overly generalized recommendations. This phenomenon, commonly referred to as AI hallucination, poses significant risks within tax accounting because inaccurate legal interpretations may lead to non-compliance, financial penalties, and reputational consequences. Accordingly, several scholars emphasize that AI-generated outputs should always be independently verified by qualified tax professionals before being incorporated into professional advice or organizational decision-making (Dwivedi et al., 2023; OpenAI, 2023).

Cybersecurity and data privacy constitute another critical implementation challenge. Tax accounting involves highly sensitive financial information, including taxpayer identification numbers, corporate financial records, payroll data, transfer pricing documentation, and confidential business strategies. The increasing reliance on cloud computing, AI platforms, and interconnected digital systems expands the potential exposure to cyberattacks, unauthorized access, and data breaches. In addition to financial losses, cybersecurity incidents may undermine taxpayer trust, damage organizational reputation, and violate data protection regulations. Consequently, organizations implementing AI must establish comprehensive cybersecurity frameworks encompassing encryption, access control, authentication mechanisms, continuous monitoring, and incident response procedures to safeguard confidential taxpayer information (OECD, 2025).

The literature also identifies algorithmic transparency and explainability as significant barriers to AI implementation. Many advanced AI models, particularly deep learning algorithms and large language models, function as "black-box" systems whose internal reasoning processes are difficult to interpret. While these systems may produce highly accurate predictions, tax professionals often struggle to explain how specific recommendations or classifications were generated. This lack of explainability creates challenges for accountability because tax decisions frequently require justification before auditors, regulators, courts, and organizational stakeholders. Explainable Artificial Intelligence (XAI) has therefore emerged as an important research area seeking to improve transparency by enabling users to understand the rationale underlying AI-generated outputs (Adadi & Berrada, 2018). Within tax accounting, explainability is particularly important because legal compliance depends not only on obtaining correct outcomes but also on demonstrating the reasoning supporting those outcomes.

Beyond technical considerations, organizational readiness represents a decisive factor influencing AI implementation. Organizations differ substantially in terms of technological infrastructure, financial resources, digital maturity, leadership commitment, and innovation culture. Large multinational corporations and international accounting firms generally possess greater capacity to invest in AI technologies, recruit specialized personnel, and redesign business processes. In contrast, small and medium-sized enterprises (SMEs) often encounter financial constraints, limited technological expertise, and insufficient digital infrastructure that hinder AI adoption. Consequently, AI implementation across the tax accounting profession remains uneven, potentially widening the technological gap between large and smaller organizations.

Another organizational challenge relates to employee resistance and change management. The implementation of AI frequently alters established workflows, professional responsibilities, and organizational structures. Tax professionals may perceive AI as a threat to employment security, professional identity, or career development, leading to resistance toward technological adoption. Such concerns are particularly common when organizations introduce AI primarily as a cost-reduction initiative rather than as a tool for professional augmentation. Previous research consistently indicates that successful AI implementation requires effective leadership, transparent communication, continuous training, and employee participation throughout the digital transformation process (Vial, 2019). Organizations that emphasize collaboration between human expertise and AI systems are generally more successful in achieving sustainable technological adoption than those relying solely on automation objectives.

The shortage of AI-related competencies among tax professionals further complicates implementation. Although accountants possess extensive knowledge of taxation and financial reporting, many professionals have limited experience with machine learning, data analytics, programming concepts, or AI governance. As AI increasingly becomes integrated into tax accounting practice, professionals must develop broader digital competencies to effectively evaluate AI outputs, interpret predictive analyses, and identify potential technological limitations. Without sufficient AI literacy, organizations risk either underutilizing available technologies or relying excessively on automated recommendations without appropriate critical evaluation.

The implementation of AI is further complicated by regulatory and governance uncertainty. While governments worldwide encourage digital transformation, legal frameworks governing AI remain under continuous development. Questions concerning liability, intellectual property, algorithmic accountability, automated decision-making, and cross-border data transfers remain unresolved in many jurisdictions. Tax professionals therefore operate within an evolving regulatory environment where technological capabilities often advance more rapidly than legal and professional standards. This regulatory uncertainty creates implementation risks for organizations seeking to integrate AI into professional tax services while maintaining compliance with both taxation laws and emerging AI governance principles (OECD, 2025).

Another challenge concerns the potential for algorithmic bias. Machine learning systems learn patterns from historical datasets that may contain inherent biases resulting from previous administrative practices, organizational behavior, or incomplete information. If these biases remain undetected, AI may generate discriminatory or systematically inaccurate recommendations affecting certain taxpayer groups or organizational decisions. Within tax administration, biased risk assessment algorithms could unintentionally prioritize particular industries, regions, or taxpayer categories without objective justification. Consequently, organizations must regularly validate AI models, evaluate algorithmic fairness, and implement governance mechanisms capable of identifying unintended discriminatory outcomes.

Finally, AI implementation raises broader concerns regarding the balance between technological dependence and professional judgment. As AI systems become increasingly sophisticated, there is a growing risk that tax professionals may rely excessively on automated recommendations while reducing independent analytical reasoning. Such "automation bias" may weaken professional skepticism, particularly when AI outputs appear highly accurate or authoritative. Tax accounting, however, frequently requires contextual interpretation, ethical consideration, and legal reasoning that extend beyond algorithmic computation. Therefore, the literature consistently emphasizes that AI should augment rather than replace professional expertise, ensuring that final accountability for tax decisions remains with qualified human professionals (Sutton et al., 2016).

Overall, the reviewed literature indicates that AI implementation within tax accounting is a multidimensional challenge involving technological capability, organizational transformation, professional competency, regulatory adaptation, and governance maturity. While AI offers considerable opportunities to improve taxation processes, these benefits cannot be realized without addressing issues related to data quality, system interoperability, cybersecurity, explainability, organizational readiness, digital skills, regulatory uncertainty, and responsible AI governance. Consequently, successful AI implementation requires a holistic approach that integrates technological innovation with human expertise, institutional capacity, and ethical oversight. These implementation challenges also provide the foundation for examining the broader ethical implications of AI adoption within the tax accounting profession, which are discussed in the following section.

Table 5
Major Challenges of AI Implementation in Tax Accounting

Challenge	Description	Implications for Tax Accounting
Data Quality	Incomplete, inconsistent, or inaccurate tax data	Reduced prediction accuracy and unreliable compliance analysis
System Integration	Legacy systems and fragmented digital infrastructure	Difficult AI deployment and inefficient workflows
Dynamic Tax Regulations	Frequent legal amendments	Continuous AI model updating required
AI Hallucination	Incorrect or fabricated AI-generated information	Risk of inaccurate tax advice and non-compliance
Cybersecurity & Privacy	Exposure of confidential taxpayer data	Increased legal, financial, and reputational risks
Explainability	Black-box AI models	Difficulty justifying AI-supported tax decisions
Organizational Readiness	Limited digital maturity and infrastructure	Uneven adoption across organizations
Human Resistance	Employee concerns regarding automation	Slower implementation and change management challenges
Digital Competency	Limited AI literacy among tax professionals	Underutilization or misuse of AI systems

Challenge	Description	Implications for Tax Accounting
Gap		
Regulatory Uncertainty	Evolving AI governance frameworks	Ambiguity regarding accountability and legal responsibility
Algorithmic Bias	Biased training datasets	Potential unfairness in compliance and risk assessment
Automation Bias	Overreliance on AI recommendations	Reduced professional skepticism and critical judgment

Ethical Implications for Tax Accounting Professionals

The increasing integration of artificial intelligence (AI) into tax accounting extends beyond technological transformation and operational efficiency; it also introduces profound ethical challenges that fundamentally reshape professional responsibilities. Tax accounting is inherently grounded in ethical principles because tax professionals are entrusted with safeguarding the integrity of financial reporting, ensuring legal compliance, protecting confidential taxpayer information, and maintaining public trust. Unlike many administrative technologies, AI increasingly participates in knowledge-intensive tasks such as interpreting tax regulations, assessing compliance risks, generating advisory recommendations, and supporting strategic tax planning. Consequently, ethical considerations have become central to discussions regarding responsible AI adoption within the tax accounting profession (OECD, 2024; Dwivedi et al., 2023). Professional accounting ethics have traditionally been guided by principles such as integrity, objectivity, professional competence and due care, confidentiality, and professional behavior, as articulated in the *International Code of Ethics for Professional Accountants* issued by the International Ethics Standards Board for Accountants (IESBA, 2023). These principles remain fully applicable in AI-assisted environments; however, AI introduces new ethical dilemmas because intelligent systems increasingly influence professional judgments without themselves bearing legal or moral responsibility. Consequently, accountability for AI-supported tax decisions ultimately remains with human professionals rather than technological systems.

One of the most significant ethical concerns involves professional accountability. AI systems are capable of generating tax analyses, summarizing regulations, identifying potential compliance issues, and recommending tax strategies with remarkable speed and sophistication. Nevertheless, AI does not possess legal responsibility, ethical awareness, or professional judgment. Therefore, tax professionals remain accountable for evaluating, validating, and approving every AI-generated recommendation before it is incorporated into professional advice or organizational decision-making. This principle aligns with the concept of human oversight, which has become a fundamental component of responsible AI governance. As emphasized by the OECD (2024), AI should support rather than replace human decision-makers, particularly in high-impact professional contexts where decisions may have significant legal and financial consequences.

The rapid adoption of Generative Artificial Intelligence (GenAI) has intensified concerns regarding the reliability of AI-generated information. Large Language Models (LLMs), including ChatGPT and similar conversational AI systems,

generate responses based on probabilistic language modeling rather than legal reasoning or factual verification. Consequently, these systems may produce inaccurate legal interpretations, fabricate references, omit critical regulatory provisions, or generate responses that appear highly convincing despite containing substantive errors. This phenomenon, commonly referred to as AI hallucination, presents substantial ethical risks in tax accounting because inaccurate advice may expose taxpayers to financial penalties, regulatory sanctions, or litigation. Therefore, ethical tax practice requires professionals to exercise professional skepticism and independently verify AI outputs before relying upon them in advisory or compliance activities (Dwivedi et al., 2023).

Closely related to accountability is the issue of professional judgment. Tax accounting frequently involves situations where multiple legally acceptable interpretations coexist, particularly in areas such as transfer pricing, international taxation, tax incentives, business restructuring, and tax planning. AI systems generally identify statistically probable responses based on historical training data rather than evaluating contextual business circumstances or exercising normative judgment. Consequently, AI cannot fully replace the contextual reasoning, ethical deliberation, and professional skepticism required in complex tax decision-making. Rather than functioning as autonomous decision-makers, AI systems should be regarded as analytical tools that support—but do not substitute—professional expertise.

Another major ethical issue concerns confidentiality and data privacy. Tax professionals routinely handle highly sensitive information, including financial statements, taxpayer identification numbers, payroll records, business contracts, transfer pricing documentation, and strategic corporate information. The use of cloud-based AI platforms introduces additional concerns regarding data storage, cross-border data transfers, unauthorized access, and potential misuse of confidential information. Inputting sensitive taxpayer information into publicly accessible AI systems may unintentionally expose confidential data to external processing environments beyond the organization's direct control. Consequently, organizations must establish strict policies governing AI usage, including data anonymization, encryption, access control, and compliance with applicable privacy regulations. Maintaining taxpayer confidentiality therefore remains not only a legal obligation but also a fundamental ethical responsibility of tax professionals (IESBA, 2023).

The ethical implications of AI also extend to algorithmic bias and fairness. Machine learning models derive their predictive capabilities from historical datasets, which may contain implicit biases resulting from previous administrative decisions, institutional practices, or incomplete data representation. If these biases remain uncorrected, AI systems may generate discriminatory recommendations affecting particular taxpayer groups, industries, or organizational categories. Within tax administration, biased algorithms could disproportionately classify certain taxpayers as high-risk despite the absence of objective evidence. Such outcomes undermine principles of fairness, transparency, and equal treatment that constitute fundamental values of modern tax systems. Consequently, organizations and tax authorities must continuously evaluate AI systems for algorithmic fairness while ensuring that automated

decisions remain subject to independent human review (European Commission, 2021).

Transparency and explainability represent another central ethical consideration. Ethical tax practice requires professionals to justify the rationale underlying tax advice, compliance decisions, and financial reporting. However, many advanced AI models operate as "black-box" systems whose internal decision-making processes are difficult to interpret. While these systems may produce accurate predictions, tax professionals often struggle to explain why particular recommendations were generated. This lack of transparency creates ethical challenges because professional accountability depends upon the ability to provide clear explanations to clients, auditors, regulators, and judicial authorities. Explainable Artificial Intelligence (XAI) has therefore become increasingly important as a mechanism for enhancing transparency by enabling users to understand the reasoning processes underlying AI-generated outputs (Adadi & Berrada, 2018). Within tax accounting, explainability supports both ethical accountability and legal defensibility.

AI adoption also raises ethical questions concerning the appropriate boundaries of tax planning. AI significantly enhances the analytical capabilities available to tax professionals by identifying tax optimization opportunities across multiple jurisdictions and complex regulatory environments. Although tax planning is generally recognized as a legitimate business activity when conducted within applicable legal frameworks, highly sophisticated AI systems may facilitate increasingly aggressive tax avoidance strategies that exploit legal loopholes while technically remaining compliant with statutory requirements. Such practices raise broader ethical concerns regarding corporate social responsibility, fiscal fairness, and the distinction between lawful tax planning and ethically questionable tax avoidance. Consequently, tax professionals must evaluate AI-generated tax strategies not only according to legal permissibility but also according to broader ethical principles of fairness, public interest, and responsible corporate citizenship.

The emergence of AI similarly affects professional independence and objectivity. AI systems frequently provide recommendations with a high degree of apparent confidence, potentially creating an "automation bias" in which professionals over-rely on algorithmic outputs while reducing independent critical evaluation. Excessive dependence on AI may weaken professional skepticism, particularly among less experienced practitioners who perceive AI-generated responses as inherently objective or authoritative. Ethical practice therefore requires professionals to maintain intellectual independence by critically evaluating AI recommendations, considering alternative interpretations, and exercising independent judgment before making final tax decisions (Sutton et al., 2016). In this context, AI should enhance rather than diminish professional autonomy.

Beyond individual professional responsibilities, AI introduces broader ethical considerations concerning organizational governance. Effective AI governance requires organizations to establish formal policies addressing AI procurement, model validation, risk assessment, monitoring, documentation, accountability, and continuous performance evaluation. Several international organizations—

including the OECD (2024), UNESCO (2021), and the European Commission (2021)—have proposed principles for trustworthy AI emphasizing human oversight, transparency, accountability, fairness, robustness, and respect for human rights. These principles are highly relevant to tax accounting because taxation directly influences public revenue, corporate governance, and social trust. Integrating responsible AI governance into organizational tax functions therefore becomes essential for ensuring that technological innovation remains aligned with professional ethics and societal expectations.

The reviewed literature consistently suggests that ethical challenges should not be viewed as barriers to AI adoption but rather as guiding principles for its responsible implementation. Responsible AI requires continuous collaboration between technology developers, tax professionals, regulators, accounting educators, and professional bodies to establish standards that balance innovation with ethical accountability. Human expertise remains indispensable because ethical reasoning, contextual interpretation, and professional responsibility cannot be delegated entirely to algorithmic systems. AI may substantially improve analytical capability and operational performance, but ethical legitimacy ultimately depends upon human judgment.

Overall, AI transforms the ethical landscape of tax accounting by expanding both the opportunities and responsibilities of tax professionals. Rather than diminishing the relevance of professional ethics, AI amplifies the importance of integrity, accountability, confidentiality, transparency, fairness, and professional skepticism within increasingly digitalized taxation environments. The future of AI-assisted tax accounting therefore depends not only on technological advancement but also on the development of governance frameworks and ethical competencies that ensure AI remains a trustworthy partner in professional decision-making rather than an autonomous substitute for human responsibility.

Table 6. Ethical Implications of AI in Tax Accounting

Ethical Dimension	AI-Related Issue	Implications for Tax Professionals	Recommended Governance Response
Accountability	AI-generated recommendations	Professionals remain legally and ethically responsible for final decisions	Human oversight and documented review procedures
Professional Judgment	Overreliance on AI outputs	Reduced professional skepticism and contextual reasoning	Maintain independent professional evaluation
Confidentiality	Use of cloud-based AI platforms	Exposure of sensitive taxpayer information	Data governance, encryption, and controlled AI usage
Transparency	Black-box AI algorithms	Difficulty explaining AI-supported tax decisions	Adoption of Explainable AI (XAI)
Fairness	Algorithmic bias	Unequal treatment of	Continuous bias

Ethical Dimension	AI-Related Issue	Implications for Tax Professionals	Recommended Governance Response
		taxpayers or inaccurate risk assessment	monitoring and algorithm validation
Integrity	AI-assisted aggressive tax planning	Potential conflict between legal compliance and ethical responsibility	Ethical review aligned with professional codes
Objectivity	Automation bias	Reduced critical evaluation of AI recommendations	Professional skepticism and dual-review mechanisms
Governance	Lack of AI policies	Unclear responsibility and inconsistent AI practices	Responsible AI governance framework

Future Competencies of Tax Accounting Professionals

The rapid advancement of artificial intelligence (AI) is fundamentally reshaping the competency profile required of tax accounting professionals. As AI increasingly automates repetitive compliance activities, processes large volumes of financial information, and supports tax-related decision-making, the professional value of tax accountants is shifting away from routine technical execution toward analytical, strategic, and advisory functions. Consequently, future tax professionals are expected not only to possess strong expertise in taxation and accounting but also to demonstrate digital competencies, interdisciplinary knowledge, ethical reasoning, and the ability to collaborate effectively with intelligent technologies. This transformation reflects a broader evolution of the accounting profession in which human expertise and AI operate as complementary rather than competing capabilities (IFAC, 2023; OECD, 2025).

Traditionally, tax accountants were primarily evaluated based on their ability to prepare tax returns, calculate tax liabilities, interpret tax legislation, and ensure regulatory compliance. While these competencies remain fundamental, advances in AI have automated many routine activities that previously consumed substantial professional time. Robotic Process Automation (RPA), machine learning, and generative AI now perform tasks such as document classification, tax calculation, regulatory searches, reconciliation, and compliance reporting with increasing efficiency and accuracy. As a result, the comparative advantage of tax professionals is progressively shifting toward competencies that AI cannot easily replicate, including critical thinking, contextual interpretation, ethical judgment, negotiation, and strategic advisory (Sutton et al., 2016).

One of the most frequently discussed competencies in the literature is AI literacy. AI literacy refers to the ability to understand the capabilities, limitations, risks, and appropriate applications of AI technologies within professional practice. Tax professionals do not necessarily need to become programmers or AI engineers; however, they must understand how AI systems generate outputs, recognize the limitations of machine learning models, evaluate the reliability of AI-generated

analyses, and determine when human intervention is required. AI literacy also enables professionals to communicate effectively with information technology specialists, participate in AI implementation projects, and make informed decisions regarding the selection and governance of AI solutions (IFAC, 2023).

Closely related to AI literacy is the growing importance of data analytics competency. Modern tax accounting increasingly relies on large volumes of structured and unstructured financial information generated from enterprise systems, digital transactions, electronic invoices, and government platforms. AI technologies generate valuable insights only when professionals are capable of interpreting analytical outputs and transforming them into meaningful business recommendations. Consequently, tax accountants must develop competencies in data interpretation, visualization, statistical reasoning, and evidence-based decision-making. Rather than simply reviewing tax reports, future professionals will increasingly evaluate predictive models, analyze compliance patterns, and translate analytical findings into strategic tax planning and organizational decision-making (Kokina & Davenport, 2017).

The digital transformation of taxation also requires professionals to strengthen their understanding of digital taxation technologies. Contemporary tax administration increasingly incorporates electronic invoicing, cloud accounting, blockchain, integrated Enterprise Resource Planning (ERP) systems, digital reporting platforms, and AI-assisted compliance management. Indonesia's implementation of the Core Tax Administration System (Coretax) illustrates this transformation by establishing a unified digital ecosystem that integrates taxpayer registration, filing, payment, and compliance monitoring. Accordingly, tax professionals must develop sufficient technological competence to operate effectively within digitally integrated tax environments while understanding how AI interacts with broader information systems supporting taxation processes (OECD, 2025).

Despite the growing importance of technological capabilities, the literature consistently argues that critical thinking and professional judgment remain the most essential competencies distinguishing human professionals from AI systems. Tax accounting frequently involves situations characterized by regulatory ambiguity, conflicting legal interpretations, and unique organizational circumstances that cannot be fully resolved through algorithmic analysis. AI may rapidly process information and generate recommendations; however, evaluating legal nuances, balancing competing interests, and making ethically defensible decisions continue to require human reasoning. Consequently, future tax accountants must strengthen their ability to critically evaluate AI-generated outputs, challenge automated recommendations when appropriate, and integrate contextual knowledge into professional decision-making (Dwivedi et al., 2023).

Equally important is the development of ethical reasoning. As discussed in the previous section, AI introduces ethical challenges concerning accountability, transparency, confidentiality, algorithmic bias, and automation bias. Therefore, tax professionals must possess not only technical competence but also the ethical capacity to evaluate the implications of AI-supported decisions. Ethical reasoning enables professionals to determine whether AI-generated tax strategies align with

legal requirements, professional standards, and broader societal expectations. It also reinforces the principle that responsibility for tax advice remains with qualified professionals rather than technological systems. Consequently, ethical competence should be viewed as a core professional capability rather than an auxiliary skill in AI-assisted tax accounting environments (IESBA, 2023).

Another emerging competency concerns digital communication and interdisciplinary collaboration. AI implementation frequently involves collaboration among accountants, tax specialists, legal experts, data scientists, software developers, cybersecurity professionals, and organizational leaders. Tax professionals therefore require effective communication skills to explain taxation issues to non-specialists, interpret AI-generated analyses for decision-makers, and participate in multidisciplinary technology projects. Interdisciplinary collaboration also facilitates the responsible development of AI solutions by ensuring that technological innovation remains aligned with accounting principles, legal requirements, and organizational objectives (IFAC, 2023).

The reviewed literature also highlights the growing importance of continuous learning and adaptability. AI technologies evolve rapidly, with new models, regulatory requirements, and digital platforms emerging continuously. Competencies acquired during formal accounting education may therefore become outdated if professionals do not engage in lifelong learning. Professional development programs, certifications, continuing professional education (CPE), and organizational training initiatives are increasingly necessary to ensure that tax professionals remain capable of adapting to technological change. Adaptability is particularly important because future AI developments—including explainable AI, autonomous agents, and predictive tax analytics—will continue to reshape taxation practices over the coming years (OECD, 2025).

Professional accounting bodies have similarly recognized the need to redefine competency frameworks for the digital era. The International Federation of Accountants (IFAC) emphasizes that future accountants must combine technical accounting expertise with digital skills, strategic thinking, leadership, and ethical competence. Likewise, the Association of Chartered Certified Accountants (ACCA) identifies digital intelligence, innovation, data analytics, and professional skepticism as essential capabilities for accountants operating within technology-enabled business environments. These competency frameworks suggest that technological proficiency alone is insufficient; rather, future professional success depends upon integrating technical knowledge with human-centered capabilities that AI cannot easily replicate.

Overall, the literature indicates that AI is redefining—not eliminating—the professional role of tax accountants. The future profession will increasingly emphasize collaboration between human intelligence and artificial intelligence, where AI performs computationally intensive tasks while tax professionals provide contextual interpretation, ethical oversight, strategic judgment, and stakeholder communication. Consequently, the future competency profile of tax accountants can be conceptualized as an integration of four mutually reinforcing dimensions: digital competence, analytical competence, ethical competence, and strategic competence. Professionals who successfully develop these competencies will be

better positioned to leverage AI as a tool for enhancing organizational value while maintaining the integrity, accountability, and public trust that remain central to the tax accounting profession.

Table 7
Future Competencies of Tax Accounting Professionals in the AI Era

Competency Dimension	Core Competencies	Contribution to AI-Assisted Tax Accounting
Digital Competence	AI literacy, digital taxation systems, ERP, Coretax, data governance	Effective utilization and governance of AI technologies
Analytical Competence	Data analytics, predictive analysis, critical thinking, problem solving	Interpretation of AI outputs and evidence-based decision-making
Ethical Competence	Professional ethics, accountability, confidentiality, AI governance	Responsible and trustworthy AI-assisted tax practice
Strategic Competence	Tax advisory, business acumen, communication, interdisciplinary collaboration	Strategic tax planning and organizational decision support
Adaptive Competence	Continuous learning, innovation, change management	Sustained professional relevance in rapidly evolving technological environments

Conclusion

Artificial intelligence (AI) is fundamentally reshaping the landscape of tax accounting by transforming how tax-related activities are performed, how decisions are supported, and how professional value is created. Based on the systematic review of the literature, this study demonstrates that AI has evolved beyond its traditional role as an automation tool and is increasingly functioning as an intelligent partner that enhances tax compliance, strengthens risk management, and supports strategic tax advisory. Technologies such as machine learning, robotic process automation (RPA), natural language processing (NLP), predictive analytics, and generative AI have collectively expanded the analytical capabilities of tax professionals while improving the efficiency, accuracy, and responsiveness of tax accounting processes.

However, the findings also indicate that the successful implementation of AI extends beyond technological capability. Organizations continue to face significant challenges related to data quality, system interoperability, cybersecurity, regulatory uncertainty, organizational readiness, explainability, algorithmic bias, and the shortage of AI-related competencies. These challenges highlight that AI adoption should be viewed as a socio-technical transformation requiring the simultaneous development of technological infrastructure, organizational governance, and human capabilities rather than as a purely technical innovation.

The review further reveals that ethical considerations have become increasingly central to AI-assisted tax accounting. While AI can substantially improve analytical performance, it cannot assume professional accountability, exercise contextual judgment, or make ethically informed decisions. Consequently, principles such as human oversight, transparency, explainability, fairness, confidentiality, and accountability remain indispensable in ensuring that AI is implemented responsibly. The findings reinforce the view that ethical governance should accompany technological innovation to preserve taxpayer trust, professional integrity, and compliance with legal and professional standards.

An equally important contribution of this review concerns the evolving competency profile of tax accounting professionals. Rather than replacing accountants, AI is redefining their professional role from routine compliance specialists to strategic advisors capable of integrating technological insights with business understanding and ethical reasoning. Future tax professionals will therefore require an integrated competency portfolio comprising AI literacy, data analytics, digital taxation knowledge, critical thinking, ethical judgment, strategic advisory capability, interdisciplinary collaboration, and continuous learning. These competencies enable professionals to critically evaluate AI-generated outputs while maintaining responsibility for final tax decisions.

Drawing together these findings, this review proposes that the future of tax accounting lies in human–AI collaboration rather than technological substitution. AI should be viewed as a complementary technology that augments professional expertise by performing computationally intensive tasks while allowing tax professionals to focus on activities that require interpretation, judgment, communication, and strategic value creation. Accordingly, sustainable AI adoption depends on achieving an appropriate balance between technological innovation and professional responsibility.

From a theoretical perspective, this study contributes to the growing body of AI and accounting literature by integrating fragmented evidence into a comprehensive framework linking AI opportunities, implementation challenges, ethical governance, and future professional competencies. Unlike previous studies that primarily examine these dimensions separately, this review demonstrates that they are highly interconnected and collectively determine the effectiveness of AI adoption within tax accounting. The proposed conceptual framework provides a foundation for understanding AI implementation as an integrated organizational and professional transformation.

From a practical perspective, the findings provide several implications for organizations, professional accounting bodies, higher education institutions, and policymakers. Organizations should complement AI investments with robust governance frameworks, cybersecurity measures, data management strategies, and continuous workforce development. Professional accounting organizations should update competency standards and continuing professional education programs to incorporate AI literacy, responsible AI governance, and digital analytical skills. Universities should redesign accounting curricula by integrating taxation, artificial intelligence, data analytics, ethics, and digital governance to prepare graduates for increasingly AI-enabled professional environments.

Meanwhile, policymakers and tax authorities should continue developing regulatory frameworks that encourage innovation while ensuring transparency, accountability, fairness, and public trust in AI-assisted taxation.

Despite these contributions, this review has several limitations. First, the study relies exclusively on published literature retrieved from selected academic databases and therefore may not fully capture emerging evidence from industry reports, government publications, or rapidly evolving AI applications. Second, the findings are conceptual in nature and do not empirically test the proposed relationships among AI capabilities, governance mechanisms, and professional competencies. Third, because AI technologies continue to evolve rapidly, some implementation practices and regulatory developments may change over time, requiring continuous updates to the evidence base.

Future research should therefore move beyond descriptive examinations of AI adoption by empirically validating the conceptual framework proposed in this study. Quantitative studies employing structural equation modeling, longitudinal research investigating organizational AI maturity, comparative analyses across jurisdictions, and case studies examining AI governance in tax organizations would significantly advance current understanding. Additionally, future investigations should explore emerging topics such as explainable AI (XAI), AI governance maturity models, autonomous AI agents, generative AI regulation, and the impact of AI on taxpayer behavior and public trust.

In conclusion, AI is not redefining tax accounting by replacing professionals, but by transforming how professional expertise is created and applied. The long-term success of AI in taxation will ultimately depend not on the sophistication of algorithms alone, but on the ability of tax accounting professionals and organizations to integrate technological innovation with ethical governance, continuous learning, and responsible human judgment. Under these conditions, AI has the potential to become a strategic enabler of a more efficient, transparent, accountable, and sustainable tax accounting profession.

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