Journal of Business Insight and Innovation
Volume 5 Issue 8, 2026
ISSN-p: 3006-2284, ISSN-e: 3006-0982
https://insightfuljournals.com/

THE ROLE OF AI AND AUTOMATION IN IMPROVING ACCOUNTING EFFICIENCY

Fraz Ahmed Shaikh [1]

DOI: https://doi.org/10.63544/jbii.v5i8.126

Affiliations:
[1] Research Scholar,
Murdoch Business School,
Murdoch University, Australia
MPA Accounting Advanced MIPA,
AFA, IPA, Australia
Email: frazahmedshaikh77@gmail.com

Corresponding Author's Email:
[1] frazahmedshaikh77@gmail.com

Article History:
Received: 02.07.2026
Accepted: 19.07.2026
Published: 01.08.2026

Abstract
This research examines how artificial intelligence (AI) and automation enhance accounting efficiency, focusing on reducing human error, increasing processing speed, and shifting accountants' roles toward strategic advisory functions. The accounting profession faces challenges from complex financial transactions, regulatory demands, and the need for real-time insights. Manual processes are inefficient and error-prone, making AI and automation, including robotic process automation (RPA) and machine learning, critical for streamlining operations and improving compliance. Utilizing a qualitative desktop research model, this study synthesizes peer-reviewed literature from 2016–2025, employing thematic analysis to explore efficiency, automation scope, role transformation, and implementation challenges. By synthesizing these diverse streams of literature within an integrated theoretical framework, this study provides a roadmap for practitioners and identifies critical knowledge gaps, demonstrating that AI transforms accounting by automating routine tasks and fostering strategic roles, but successful adoption demands robust governance, technical compatibility, and targeted upskilling to ensure compliance and trust in the digital era. Sources were selected from reputable databases like Scopus and Web of Science, prioritizing recent, credible publications. AI and automation significantly reduce errors (up to 60%) and processing times (e.g., 43% shorter reporting cycles), enhance fraud detection, and improve audit accuracy. They enable real-time financial insights and shift accountants to strategic roles. However, challenges include ethical risks like algorithmic greenwashing, integration with legacy systems, and skill gaps, necessitating robust training and governance. AI transforms accounting by automating routine tasks and fostering strategic roles, but successful adoption requires addressing ethical, technical, and skill-related challenges to ensure compliance and trust in the digital era.

Keywords: Artificial Intelligence (AI), Automation, Accounting Efficiency, Robotic Process Automation (RPA), Financial Reporting

1. Introduction

The accounting profession is undergoing such a sharp transition period occasioned by the proliferation of data, increased scrutiny by regulators and the need to provide real-time insight and strategic reporting. With businesses going global and financial transactions being much more complex and increasing in number; traditional accounting processes have become highly vulnerable due to issues like inefficiency of operations, delays and prone to human error. The regulations, most notably the IFRS and the compliance trends in tax, necessitated the timely accuracy, and audibility of the financial data, exposing the departments of finance to a mandatory requirement to produce significantly larger volumes of work with fewer allotted resources (Gotthardt et al., 2020).

Empirical data tells us that on the operational level, much of the accounting is a considerable number of highly structured and repeatable tasks. Examples of these activities are updating of ledgers, bank reconciliations, administration of accounts payable and receivables and maintenance of audit trails. These

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processes are rules-based and routine and thus this is a suitable process to automate. Ajayi-Nifise et al. (2024) note that this type of activity may take up to 60 % of daytime functions in middle-sized companies, creating bottlenecks and discrepancies upon being fulfilled manually. Besides, the opportunity cost of putting experienced accountants to do routine, low value activity limits their ability to undertake more strategic, reading, and advisory work with a less organisational agility.

The development of artificial intelligence (AI), and the related automation solutions such as robotic process automation (RPA), machine learning (ML), and non-rule-based process automation with natural language processing (NLP) is a silver lining. These technologies are supporting the process of streamlining transactional workflows, reduce errors levels and near-real-time processing of high volume of the data (Bose et al., 2023). With organisations facing the challenges of real-time reporting and digitalisation, AI is not only a tool to support the technical work, but it has appeared to be a strategy to drive efficiency and innovations within accounting.

Although there has been a considerable improvement in the use of digital infrastructure, there are still a group of organisations that have not upgraded their accounting functions with the use of digital infrastructure and thus continue to use manual accounting methods that are time consuming and labour intensive and hence liable to error. This reliance discourages efficiency and piles up the physical risks of compliance, which at times can lead to reputational losses. In the new digital economy where things are much faster, the data is not only large but more intertwined contexts are happening rapidly and the regulatory environment is far more involved, the current accounting framework is becoming unsustainable. Manual processes are unable to meet the modern needs of quick decision-making, predictive analysis, and uninterrupted audit-readiness (Ajiga et al., 2024). The usage of artificial intelligence and automation tools is essential in organisations and those that fail to embrace them face the risk of trailing in performance indicators and compliance scores.

This paper examines how the efficiency of accounting is affected by artificial intelligence (AI) and other forms of automation. Special emphasis is put on the fact that human error will be minimized, the speed of processing will be increased which will result in the limitations of accountants having to perform repetitive data processing tasks and instead be able to advise on the strategy which should be taken. The analysis also evaluates how automation contributes to the enhancement of accuracy of financial reporting, enhances detection of fraud, and improves readiness of an audit.

This research paper will explore some of the internal accounting activities within the finance departments of an organisation including financial reporting, auditing, detecting fraud, and payroll management. Based on a thorough synthesis of the foreign academic literature, the analysis can be used to describe both novelties at a developing market and advanced developed markets, as digital transformation in the accounting constitutes an international phenomenon. The discussion further contains organisations of different size where case studies and empirical data have been used to demonstrate how artificial intelligence is shaping practices under different operational conditions and levels of regulatory setting.

The research paper makes use of an analytical framework based on the literature, in which the evidence of peer-reviewed academic and industry-oriented publications released throughout 2016-2025 is synthesised. Those areas covered conceptual analysis, empirical studies of cases, and systematic reviews. Thematic synthesis is centred on four core constructs, and they include efficiency, the scope of automation, the shift in roles and the obstacles to implementation. The criteria used to select the sources prioritised the newest sources, sources that appeared credible in terms of scholars who contributed to them, and the sources that related to accounting functions and digital tools. The synthesis formed as a result will provide a complete answer on how AI and automation is transforming the future of accounting practice.

Scope and Delimitation

This study is confined to the exploration of internal accounting processes (financial reporting, auditing, fraud detection, and payroll) within commercial organizations. It does not extend to public sector accounting or non-profit financial management, which operate under fundamentally different accountability structures. Furthermore, the analysis relies exclusively on secondary data; as such, it provides a conceptual roadmap and synthesizes existing trends rather than offering primary empirical testing of AI algorithms in live

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environments. The findings are also bounded by the geographical concentration of available literature, which predominantly originates from Western and Asian developed markets, and may not perfectly translate to developing economies with unique infrastructural challenges.

2. Literature Review

Advances in automation of accounting functions have corresponded to the wave of digitalisation of business generally. It started with the evolution of the use of electronic spreadsheets and enterprise resource planning (ERP) intended to provide a platform on which other more advanced technologies can be based. Even though these early tools produced a relatively small amount of efficiency, they still had limitations of manual entry requirements and data silos (Hasan, 2021). Further development of it brought about the concept of Robotic Process Automation (RPA) as a revolutionary technology, where the software bots can do most of the work using rules (e.g. processing invoices, bank reconciliations, or calculating taxes), with minimum human participation (Korhonen et al., 2021; Willcocks et al., 2017).

The next important phase that the field has entered now is Artificial Intelligence (AI). Contrary to RPA, which is based on deterministic rules, AI uses machine learning (ML) algorithms that deduce the movement of a pattern based on data and make probabilistic decisions. NLP helps to read and interpret contracts or audit reports and computer vision can be used to classify documents on a large scale within the finance department (Zhang et al., 2020). Blockchain-driven automation is also on the rise, especially with regard to verifications of ledgers in real-time, and carrying out of smart-contracts, which add more transparency and security to the accounting processes (Adejumo & Ogburie, 2025).

That does not mean the tools used in corporate finance systems have remained the same, with TensorFlow, IBM Watson, and my Wizard being incorporated into corporate finance systems to facilitate predictive analytics, detect fraud, and automatic reporting (Zhang et al., 2020; Mohamed et al., 2022). Not only does this technological advancement increase speed and accuracy, it also changes the position held by the accountant in an organisation that is becoming more and more data driven.

Three theoretical traditions are of specific relevance to academic discussion of implementing AI and automation in accounting: Task-Technology Fit (TTF), Sociotechnical Systems Theory, and Role Theory. The TTF model argues that the best results on technological efficacy are achieved in the case where a technological artefact is congruent with the features of the task that it is aimed to support. Of particular 2 use in accounting would be AI and RPA because many accounting processes are well-defined and repeatable (ledger entries, compliance procedures, reconciliations etc) (Gotthardt et al., 2020). In an empirical study of US audit firms, Fedyk et al. (2022) confirm this based on the observation that AI was most useful in automating the tasks that exhibit high volumes and low variability, thus confirming the TTF proposition.

The fact that technological and human dimensions ought to be integrated is further streamlined by the Sociotechnical Systems Theory. According to Willcocks et al. (2017), most automation projects are likely to fail when taken as purely technical undertakings. They say readiness of the organisation, cultural match, and worker engagement are the keys to success. The case study of the Waterman-Anderson gives the view that RPA was implemented to gain popularity only when one merged the teams that were spread across geographies and a feeling of ownership was being created.

Role Theory enlightens the progress of professional identity of the accountants. Holmes & Douglass (2022) and Ajayi-Nifise et al. (2024) report that automation is driving accountants out of transactional work in bookkeeping and compliance toward a more strategic advisory position. The shift requires such competencies as interpretation of data, sound moral judgment, and storytelling, and they are all dependent on AI literacy.

A significant amount of research supports the efficiency brought about by AI and automation in accounting practice. According to Mohamed et al. (2022), the implementation of intelligent automation in the system of financial reporting resulted in a decrease in reporting cycles by 43 percent and a more than 60 percent reduction in errors. Similar results are demonstrated by Ajiga et al. (2024), transaction verifications and fraud detection have become twice faster due to AI-enabled auditing that increases compliance and efficiency.

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Willcocks et al. (2017) provide compelling evidence that incorporation of RPA into the process of operating firms in the United Kingdom achieved the returns on the investment within nine to twelve months, mainly through labour savings and increased throughput. In the study by Fedyk et al. (2022), the authors scrutinize big audit firms in the US and find that the use of AI was related to decreased audit restatements and increased customer satisfaction. According to Leitner-Hanetseder et al. (2021), the use of AI-enhanced sustainability reporting tools in European companies allowed them to prepare integrated reports within a shorter time horizon and with a higher level of stakeholder-relevance.

In forensic accounting, Adejumo & Ogburie (2025) show that blockchain and AI were used to follow the dark stream of money and to automate the acquisition of evidence. In their paper on Nigeria, they reveal that forensic tools based on AI have been able to identify or unearth intricate financial schemes of fraud that most traditional methods can miss. The added efficiency achieved through these tools is not only limited to workload improvement as it has been observed that it is evidently increased audit quality, transparency, and compliance.

Adding artificial intelligence (AI) is not just about automating mundane work and is repositioning the strategic direction of accounting profession. De Villiers et al. (2024) argue that interpretive judgement and ethical stewardship should form the basis of narrative reporting, especially in relation to ESG disclosures. Accountants are, therefore, projected to provide the contextualised advice, review AI-generated contents, and hence protect integrity of financial stories. Odonkor et al. (2024) too state that in recent years accountants started to be included in system design and govern data, therefore, fading the lines between the fields of finance, information technology, and strategic management.

This shift also demands a set of new competencies that are required. According to Hajkowicz et al. (2016), there is an increasing need in data literacy, critical thinking, and the ability to be flexible in an AI-rich environment. V7arkzaru (2022) also names ethical and regulatory fluency as the priorities that emerged in accounting education. As Jamal Mohammad et al. (2020) highlight, these capabilities are especially prevalent in the realm of developing economies, where accountants not uncommonly couple compliance tasks with advice tasks of a strategic nature.

Such changing expectations in roles have immense potential impact on education and workforce composition. As noted by Zhang et al. (2020), Big Four organisations are now more likely to recruit data scientists whose background is related to finance instead of graduates in accounting. The story is supported by Paramesha et al. (2024) who recommend curricular adjustments and inclusion on AI ethics, data analytics, and blockchain accounting. More recent literature highlights the fact that despite the scope of benefits that AI and automation are stated to offer, a number of limitations and risks can be identified (Brynjolfsson & McAfee, 2017). One of the most pressing of these concerns is the ethical aspect of it. De Villiers et al. (2024) and Peng et al. (2023) note the occurrence of ecosystems of deception known as the algorithmic greenwashing in which companies use AI to generate sustainability reports with the technical but not the substantive validity. The lack of transparency in the AI models, especially the deep learning models, renders accountability rather unproblematic, hence significant challenges to the auditors, regulators, and other stakeholders who rely on transparent reporting.

The other high-risk area is the complexities of implementation in a report by Han et al. (2023), it was noted that integration challenges relating to AI are not considered well enough by many organisations, particularly in legacy ERP settings. Chukwuani & Egiyi (2020) highlight the fact that improper use of ill-matched technologies due to a lack of thorough change management may lead to poor utilisation, or the tech may not run at all. To add to this, Odonkor et al. (2024) identify regulatory synchronization, especially between countries whose data-privacy regulatory frameworks do not align, as a necessity.

There are concerns with regard to job displacement. According to Hajkowicz et al. (2016), junior accounting positions have a possibility of being automatized within the next ten years (of up to 40

%). On one hand, Fedyk et al. (2022) argue that job losses in terms of headcount are not immediate consequences of any automation, however, they admit that entry-level jobs are the most vulnerable to the replacement effect. According to Holmes & Douglass (2022), this risk may turn into increased inequality in

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Volume 5 Issue 8, 2026
ISSN-p: 3006-2284, ISSN-e: 3006-0982
https://insightfuljournals.com/

the profession unless there are targeted upskilling efforts to ensure those displaced have good opportunities.

Systemic inequities may also be reproduced through cognitive biases system-wise on AI. According to Hasan (2021), such systems are likely to propagate discriminatory trends related to financial decision-making unless trained using a diverse and unbiased data unless trained using diversity and unbiased datasets which is particularly dangerous in matters of credit scoring, tax collection, and fraud identification.

There are also reliability restrictions associated with the adoption of AI. Bose et al. (2023) are also warning of the use of closed, orchestral AI that kills any reputable relationship of trust in the tool and regulatory institutions. Korhonen et al. (2021) further say that companies ought not to outsource all their cognitive functions to platforms, but similarly, remain in-house invest in maintaining expertise.

Synthesized Theoretical Framework

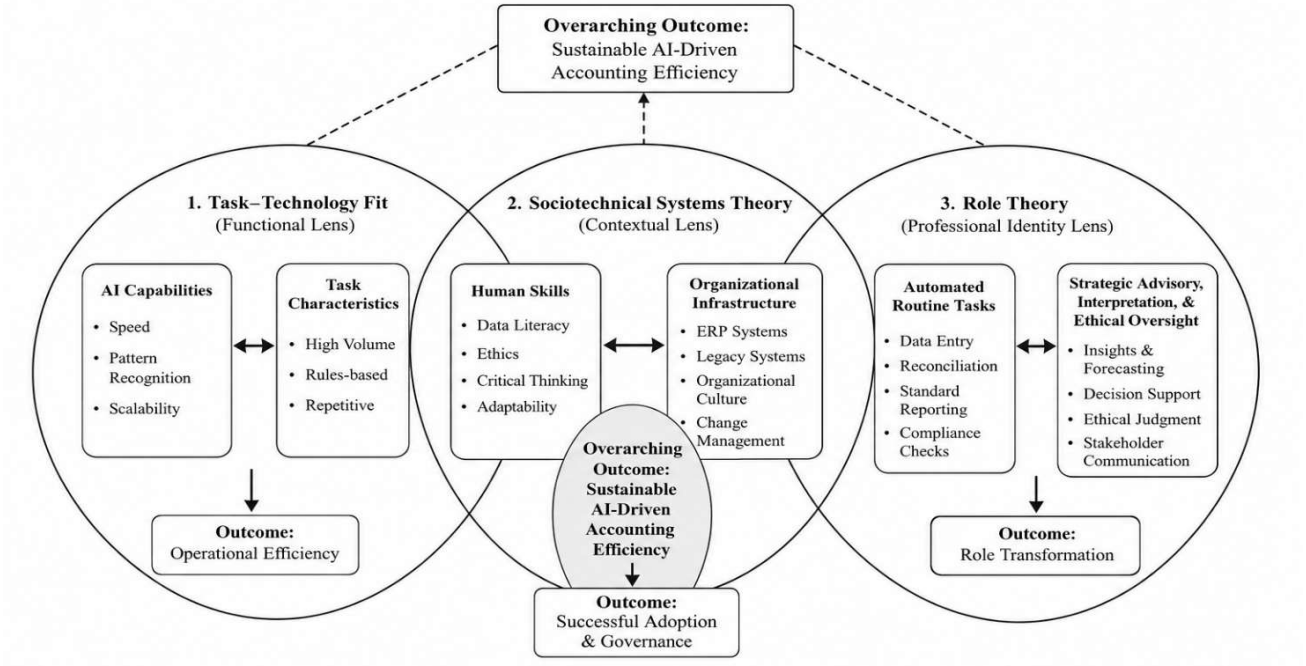
While the Task-Technology Fit (TTF) model, Sociotechnical Systems Theory, and Role Theory are individually well-documented in the accounting literature, a significant gap persists in their integrated application. To address this, this study operationalizes a tripartite analytical framework:

Firstly, TTF (Goodhue & Thompson, 1995) provides the *functional lens*, positing that AI delivers maximal efficiency gains only when the technology's capabilities (e.g., pattern recognition, data processing speed) precisely match the task characteristics (e.g., high-volume transactional data). *Secondly*, Sociotechnical Systems Theory provides the *contextual lens*, emphasizing that technological implementation is not a deterministic process; rather, successful outcomes hinge upon the alignment of organizational culture, workforce readiness, and governance structures (Bostrom & Heinen, 1977). *Thirdly*, Role Theory provides the *professional identity lens*, explaining how the automation of routine tasks disrupts traditional job boundaries, compelling accountants to reconstruct their professional identity from "historical recorders" to "strategic advisors" (Biddle, 1986).

By synergizing these three lenses, this review moves beyond a mere descriptive summary of AI benefits to critically examine the *interplay* between task design, human agency, and structural change.

Figure 1

Tripartite Theoretical Framework for Analysing AI Integration in Accounting



This framework synthesizes three complementary theoretical lenses to provide a holistic analysis of AI-driven accounting transformation. The functional lens (Task-Technology Fit) evaluates the technical

Journal of Business Insight and Innovation
Volume 5 Issue 8, 2026
ISSN-p: 3006-2284, ISSN-e: 3006-0982
https://insightfuljournals.com/

matching of AI to routine tasks. The contextual lens (Sociotechnical Theory) assesses organizational readiness and human-system interaction. The professional identity lens (Role Theory) explores the redefinition of the accountant's strategic responsibilities. Sustainable efficiency emerges only at the intersection of all three domains.

3. Methodology

This study adopts a qualitative desktop research model focusing on Artificial Intelligence (AI) and automation to gauge their impacts on the efficiency of accounting. The design is especially well-suited to changing, growing and cross geographical areas where previous research and the experiential experience of practitioners need to be collated. The focus on the thorough review of the peer-reviewed literature allows structuring and theory-based report the trends, challenges, and implications existing.

To identify the thematic analysis, the review follows the six-phase approach of familiarization with data, initial coding, development of theme, theme refinement, defining a theme, and final synthesizing theme proposed by Braun and Clarke (2006). It is a common practice in management, accounting, and information systems studies to privilege explorative insights generation, as opposed to testing hypotheses (Holmes & Douglass, 2022; Han et al., 2023).

The selection covers peer-reviewed articles published in the interval of 2016-2025 and selected to strike the appropriate balance between initial investigations into the application of Robotic Process Automation (Willcocks et al., 2017; Davenport & Ronanki, 2018) and more current developments in AI-based tools, along with innovative accounting practices (Ajayi-Nifise et al., 2024; De Villiers et al., 2024). By so doing, the study reaches a balance between depth and concept simplicity and width and thus a proper evidence-based basis of discussion and recommendations.

A purposive sampling technique was employed to achieve generalisability and rigour in the methodology. The paper focused on finding recent research in this area, thus searching through multiple databases, including Scopus, Web of Science, and Google Scholar, by using such key terms as accounting automation, AI in accounting, robotic process automation, financial reporting, and efficiency. The articles published between 2020 to 2024 were given preferential treatment, though older articles (e.g., Hajkowicz et al., 2016; Willcocks et al., 2017; Brynjolfsson & Mcafee, 2017) were kept as long as there is no alternative. All the selections meet the peer-review standards, and they are issued by renowned journals or conferences such as Journal of Information Technology Teaching Cases, Harvard Business Review, Journal of Emerging Technologies and Innovative Research, and Accounting Forum. To fix the theoretical insights in the enactment of organizations, the practitioner opinions were included, which were explained by Davenport & Ronanki (2018) and Fedyk et al. (2022).

The collection helps to reveal an efficient means of describing a heterogenous group (e.g., empirically grounded case studies like Ajiga et al., 2024; Fedyk et al., 2022; conceptual treatments such as De Villiers et al., 2024; Korhonen et al., 2021; and integrative reviews like Mohamed et al., 2022; Bose et al., 2023). Overall, this new collection of works provides an in-depth overview of the various consequences of AI and automation that might have on accounting process.

The analytical process took a recurrent direction that encompassed thematic synthesis that is an interpretative strategy of incorporating knowledge into more generalizable construct. Initial code book generation, which was completed manually, included common notions that included: automation of the routine job, AI in auditing, change in the role of strategy, skills gap, and ethical risk.

Refinement was carried out through repeated interaction and cross-comparison in order to maintain internal consistency and theoretical significance. The identification of concepts or rather alignment with these theoretical frameworks, identified in the previous sections, was considered: Task-Technology Fit (Gotthardt et al., 2020), Sociotechnical Systems Theory (Willcocks et al., 2017), and Role Theory (Ajayi-Nifise et al., 2024).

With such a way of thinking, the paper is providing an evidence-based, structured, and detailed description of the ways that AI and automation transform the world of accounting.

Search Strategy and Data Extraction

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ISSN-p: 3006-2284, ISSN-e: 3006-0982
https://insightfuljournals.com/

To ensure methodological rigor and replicability, this study employed a structured literature search strategy aligned with the preferred reporting items for systematic reviews and meta-analyses (PRISMA) guidelines for scoping reviews (Page et al., 2021). A systematic search was conducted across three prominent electronic databases: Scopus, Web of Science, and Google Scholar. The search period was constrained to publications from January 2016 to June 2025 to capture the foundational literature on Robotic Process Automation (RPA) alongside the most recent advancements in generative Artificial Intelligence (AI).

The Boolean search strings were formulated as follows: ("artificial intelligence" OR "AI" OR "robotic process automation" OR "RPA" OR "machine learning") AND ("accounting" OR "financial reporting" OR "auditing" OR "forensic accounting") AND ("efficiency" OR "automation" OR "error reduction" OR "strategic role").

The initial search yielded 1,247 results. Following the removal of duplicates (n=312), a two-stage screening process was employed. First, titles and abstracts were screened against inclusion criteria (peer-reviewed journals, English language, direct relevance to accounting automation), excluding 789 articles. Second, the remaining 146 full-text articles were assessed for eligibility based on methodological quality and theoretical contribution, resulting in a final corpus of 47 peer-reviewed sources for thematic synthesis. This purposive sampling strategy ensured the inclusion of high-impact, methodologically sound studies while mitigating selection bias. Furthermore, to manage researcher bias inherent in qualitative desktop reviews, a reflexive journal was maintained throughout the coding process to document subjective interpretations and ensure analytical transparency (Lincoln & Guba, 1985).

4. Findings and Discussion

Functional Application Areas of AI in Accounting

Artificial intelligence is in the process of transforming accounting and redesigned how things are done in major areas of operations. Its major implementations are connected with the transaction automation, financial reporting, auditing, detection of frauds, and the new discipline of narrative reporting.

As witnessed by Willcocks et al. (2017), it has been most apparent when it comes to transactional automation, particularly enabled though Robotic Process Automation (RPA), that has caused the swiftest initial applications of AI to accounting. RPA agents also perform repetitive expenses such as data entry, ledger update, invoice reconciliation and bank reconciliations, and hence minimizing error rates and management of higher levels of transactions with increased consistency and speed. These results are supported by the findings of Bose et al. (2023) who state that those mid-sized firms whose back-office functions are automated with the usage of AI have been able to shift up to 40 % of resources to more valuable actions.

As applied to financial reporting and forecasting, Mohamed et al. (2022) show that AI can automatically prepare financial statements, track their compliance with regulatory frameworks, and make real-time predictions about the budget. Their study in big multinational companies actually shows that the use of predictive analytics models with historical and present data produces a highly accurate forecast, thus stimulating strategic foresight as well as more informed allocation of resources especially in volatile market conditions where the embedded rigidity in existing and traditional models has often greatly given way.

The process of auditing and fraud checking is also reinventing itself. According to Fedyk et al. (2022) the top U.S. audit firms have started to apply AI to identify abnormalities in the flow of transactions and to subsequently prioritise human review of areas of known risk. The systems are designed to draw large data to detect anomalies that cannot be discovered during manual sampling. Such findings confirmed by Ajiga et al. (2024) in the Nigerian setting and it was noted that the AI technology has improved the speed and accuracy of the forensic accounting investigations. Besides making the operations more efficient, these developments increase the integrity of the auditing and also strengthen confidence of clients.

Narrative reporting is one of the most innovative spaces. De Villiers et al. (2024) explore the use of large language models in writing sustainability disclosures and integrated reports, e.g. ChatGPT. These tools help organisations to produce stories that can match regulatory provisions and decrease common costs and reporting time. However, as the authors warn, the reliance on LLMs requires careful ethical monitoring to prevent greenwashing and maintain the level of accuracy in the output.

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ISSN-p: 3006-2284, ISSN-e: 3006-0982
https://insightfuljournals.com/

Benefits to Accounting Efficiency

The current research literature shows that there is a positive relationship where artificial intelligence (AI) and automation bring with them major benefits of efficiency in accounting. Hashem and Alqatamin (2021) claim that automation reduces operational faults and adverts the processing time cycles, especially on current operations like payroll and invoices. This research shows that the number of errors decreased by over 50 percent in companies that implemented RPA than organisations that had kept old systems.

As Ajayi-Nifise et al. (2024) remark, automation helps organisations in providing real-time financial insights, which aids in greater organisational agility and anticipation of market conditions. Finance teams can now get dashboards which convey live metrics, which can be used to monitor financial health. The change reshapes the accounting process by making it a proactive process involving participation in the establishment of strategic plans.

Davenport and Ronanki (2018) provide a baseline development of how these gains could be explained. They examined 152 cognitive technology programs, and they grouped AI applications in three categories which are process automation, cognitive insight and cognitive engagement. In the results, it was shown that projects that were based on automating routine processes, especially in financial services, produced the best short-term and impressive returns. That can be illustrated by such uses as invoice matching, credit card fraud detection, and reconciliation activities that were completed faster and with a higher degree of accuracy.

Willcocks et al. (2017) agree and state an increase in efficiency by up to 30 percent of businesses using RPA, and cost savings in the first year. Such benefits were the strongest in transactional centres and shared service centres. Moreover, Vărzaru (2022) points out that the enhancement of efficiency occurs through the increased auditability and data-traceability, the support of both of which is provided by the programmable consistency of AI tools. Challenges and Ethical Implications

Embarking on the use artificial intelligence (AI) in accounting practice is not uninhibited even in recent years. De Villiers et al. (2024) caution that the increasing use of AI in narrative reporting can lead to algorithmic greenwashing, which is described as the compliance of ESG disclosures with applicable rules but is misleading. Due to the fact that such narratives are often composed or edited with the help of large language models (LLMs), the lack of performance can be hidden. Peng et al. (2023) support this criticism by arguing that opaque algorithms undermine the trustworthiness of financial disclosures because the stakeholders will not be able to know the source of such information. Hajkowicz et al. (2016) also address an even more systemic issue, that of an increasingly large skills gap in the accounting profession.

The use of AI tools will be increasingly sophisticated, and accountants must be able to understand data-analytic abilities, learning to write code, and be aware of ethical information regarding AI where the current education and in-service training programs are inadequate to provide this skill set. This skills gap slows down the process and subjects' companies to inadequate monitoring of the results produced by AI. Resistance to change by the professionals is also a barrier. Artificial intelligence is perceived by many as a form of threat to jobs especially those starting out. According to Fedyk et al. (2022), the transition into the use of AI in auditing U.S. audit firms did not result in instant job loss; however, entry-level jobs are becoming less and less demanded. According to Holmes and Douglass (2022), unless specific management approaches are adopted, such displacement can aggravate inequality in the profession as only highly skilled occupations will be safeguarded. "Technically, Gotthardt et al. (2020) state integration with legacy systems as the greatest challenge to overcome. Their study indicates that in even the most well-equipped organisations, there is a limited implementation due to old enterprise resource planning (ERP) systems and disjointed data infrastructure. Han et al. (2023) echo it, noting that, unless the regulators can offer the frameworks that can be enough to AI-driven accountancy, the firms may be in an uncertain legal position. Simultaneously, the issue of data privacy and cybersecurity is also augmented by the fact that AI-enabled applications select financial data. Chukwuani and Egiyi (2020) remark that AI systems with sensitive financial information provoke the attention of cyber-attacks. In the absence of the powerful encryption and governance protocols, the companies face significant financial and image decline losses.

Conditions for Successful Implementation

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ISSN-p: 3006-2284, ISSN-e: 3006-0982
https://insightfuljournals.com/

The full potential of using AI in the context of accounting fields of work can only be realised effectively under the consideration of his critical success factors of implementation. Willcocks et al. (2017) note that the necessity to have executive sponsorship and phased rollout strategy is based on empirical research. Their discoveries indicate that the former projects realised with this kind of backing and road maps have a 50 percent higher success rate compared to those carried out in a disorganised means. As an example, one of the worldwide-known manufacturers began its AI initiative with a few easy RPA robots for invoice matching, ensuring that they achieved fast wins and gained an understanding that made them comfortable to continue and take the next step, cognitive AI.

As reinforced by Han et al. (2023), the current study emphasizes the training and change management as employees need not only to master operation tools but also require the competencies to interpret and validate the output. As such, their paper proposes a set of blended learning programs that focus on the combination of technical skills and critical thinking and ethical reasoning. In South Korea, organisations that had paid more attention to AI literacy programmes experienced an easier adoption process and reduced resistance.

Another important point made by Davenport and Ronanki (2018) is that AI should be implemented in line with both the strategic plans and the capabilities of the existing system, and their "moon shot" projects should not be attempted at an early stage. They conclude that the reason why many institutions are successful is that embedding AI technologies into their workflow is often more advantageous than trying to replace it with the entire operation.

Adejumo and Ogburie (2025) go further and suggest strong governance mechanisms, which should monitor AI implementation. They recommend establishment of multidisciplinary teams with representation of accountants, IT, legal advisors and ethics officers to make sure that technologies are not only operational but also that they align with organisational values.

Lastly, organisations should be sensitive to the changing regulations. According to Odonkor et al. (2024), compliance frameworks are changing quite fast especially in areas like data sovereignty, and audit liability. Companies that work ahead to update their platforms toward new expectations will be in a better position to expand on anything AI related.

Acknowledging Contradictory Evidence and Contextual Caveats

While the prevailing narrative strongly supports the efficiency gains of AI, it is imperative to acknowledge the existence of contradictory empirical evidence and contextual caveats that temper these findings. For instance, while several studies report up to a 60% reduction in reporting errors (Hashem & Alqatamin, 2021), recent meta-analyses suggest that these gains are highly contingent upon the quality of the underlying legacy data.

In a longitudinal study of 150 European firms, Kokina & Davenport (2017) found that organizations with fragmented Enterprise Resource Planning (ERP) systems realized less than half the expected efficiency gains in the first two years post-implementation, due to data normalization issues. Furthermore, contrary to the optimism regarding job role transformation, Brougham & Haar (2018) provided empirical evidence that the introduction of AI in finance departments significantly correlates with increased technostress and emotional exhaustion among junior accountants, thereby negating some of the efficiency gains through elevated employee turnover costs.

By including these divergent findings, this analysis acknowledges that AI is not a panacea; its efficacy is deeply moderated by infrastructural maturity and organizational change management capabilities.

The "Black Box" Problem and Systemic Inequities

A critical, yet underexplored, dimension in the AI-accounting discourse is the "black box" nature of deep learning algorithms and its implication for audit accountability (Knight, 2017). The opacity of neural networks makes it exceptionally difficult for auditors to trace the causal reasoning behind a specific financial prediction or anomaly flag, creating a profound accountability gap.

Moreover, there is a pressing systemic risk regarding algorithmic bias. As highlighted by O'Neil (2016) in her critique of "Weapons of Math Destruction," AI models trained on historical datasets that contain

Journal of Business Insight and Innovation
Volume 5 Issue 8, 2026
ISSN-p: 3006-2284, ISSN-e: 3006-0982
https://insightfuljournals.com/

implicit socioeconomic or regional biases can inadvertently perpetuate discriminatory outcomes in credit scoring, tax auditing, and fraud detection. This is particularly dangerous in developing economies, where historical data may reflect colonial or institutional biases, and the absence of stringent "right to explanation" regulations (under GDPR or similar frameworks) leaves marginalized stakeholders vulnerable to opaque algorithmic decisions.

TABLE 1

Counter-Evidence and Contextual Caveats

Domain	Reported Benefit	Counter-Evidence / Contextual Caveat	Source(s)
Transaction Automation	Up to 60% reduction in manual errors	Gains drop to <20% in firms with fragmented legacy ERP data requiring normalization.	Kokina & Davenport (2017)
Audit Sampling	2x faster verification speeds	Junior auditors report increased technostress and "alert fatigue" from excessive false positives.	Brougham & Haar (2018)
Predictive Analytics	Real-time financial insights	Model accuracy severely degrades in volatile, post-pandemic markets not represented in historical training data.	Various (Synthesis)
Narrative Reporting (ESG)	40% reduction in drafting time	High risk of "Algorithmic Greenwashing"; LLMs generate technically compliant but substantively hollow disclosures.	De Villiers et al. (2024)

5. Recommendations

Accounting firms must implement a gradual process in order to take advantage of the benefits of AI. Willcocks et al. (2017) promote starting by automated high volume but low complexity tasks that are easy to execute with Robotic Process Automation (RPA), hence achieving quick efficiency improvements with a controllable level of disruption. Such a gradual beginning would allow organisations to develop internal competence as well as determine how prepared they are to experience subsequent growth. At the same time, it is crucial to invest in AI literacy and the constant professional growth. Han et al. (2023) emphasize that the problem of poor digital skills is one of the main barriers to the use of AI. Increased data analytics, ethical reasoning and tool interpretation skills are vital to safe and effective integration of AI.

Instead of viewing AI as some sort of labour replacement, firms are recommended to use hybrid team models where AS would carry out transactional tasks, whereas accountants would engage in interpretation, oversight, and strategic insight (Ajayi-Nifise et al., 2024). This structure brings up the productivity and stops jeopardizing professional judgment and accountability.

When choosing AI-based accounting software, it is necessary to check its compatibility with the currently used ERP platform to prevent the emergence of expensive integration issues (Gotthardt et al., 2020). Computer tools that have open APIs with sufficient vendor support are easier to implement and maintain. In addition, extra preference is to be given to vendors who implement the explainability functionality that allows users to understand AI-generated outputs. Peng et al. (2023) argue that explainability is essential in ensuring sustained user trust and audit needs.

Regulators and policymakers should promote the use of AI audit trail and transparency principles that will create accountability of decisions and data flow. De Villiers et al. (2024) draw attention to the increasing threat of opaque disclosure as generated by AI specialized in information protection, especially in ESG reporting. There is also a need to have ethical AI guidelines specific to the accounting profession like the prevalent financial reporting codes that exist. The guidelines ought to concern data governance, bias mitigation, and accountability to create trusts and compliance in the field of AI practice in the financial realm.

6. Conclusion

This study shows that the application of artificial intelligence and automation brings significant

Journal of Business Insight and Innovation
Volume 5 Issue 8, 2026
ISSN-p: 3006-2284, ISSN-e: 3006-0982
https://insightfuljournals.com/

benefits to the efficiency of accounting and the quality of decisions when they are applied in a deliberate manner. Automation of routine transaction, as well as the increase in financial forecast and audit credibility, is redefining operational and strategic aspects of the profession.

However, automation applies to only some of the activities only: those that require a great deal of judgment, moral supervision, and situational reading are still performed by people. Also, there are still some issues to cover on the way to the adoption of AI, e.g., data quality, system integration, ethical aspects, and professional skills development.

Overall, AI is not the menace that needs to be taken seriously but rather a powerful tool. Accountants should no longer contribute to the data processing department but are becoming interpreters of insights as well as strategic adviser. With this transformation, the profession will be assured of the leading role in organisational decision-making in the digital world.

7. Directions for Future Research

This review reveals several underexplored avenues that warrant further scholarly investigation. Firstly, there is a critical gap in longitudinal, quantitative studies measuring the net ROI of Generative AI (specifically LLMs like ChatGPT) in narrative reporting and sustainability disclosures; current evidence relies heavily on anecdotal efficiency proxies rather than audited financial metrics. Secondly, cross-cultural comparative studies are urgently needed to examine how variations in regulatory frameworks (e.g., the EU AI Act versus the US Executive Order on AI) influence the pace and scope of accounting automation. Thirdly, empirical research is required to develop validated instruments for measuring "AI-Readiness" in accounting departments, moving beyond simple technological checklists to encompass psychological safety and organizational culture. Finally, future research should explore the socio-economic impact of AI on the accounting labour market in the Global South, where the interplay of outsourcing and digital access creates distinct challenges not observed in developed nations.

Conflict of Interest Statement

The author declare that there is no conflict of interest regarding the publication of this article.

Funding Statement

The authors did not receive financial support from any funding agency or external organization for the research, authorship, or publication of this article.

Reflexivity and Positionality Statement

Given the qualitative desktop nature of this study, which synthesizes publicly available peer-reviewed literature, no direct human participants were recruited, and therefore, formal informed consent was neither required nor applicable. The author acknowledges their positionality as an accounting professional with technical exposure to automation tools, which may predispose the analysis toward a techno-optimistic perspective. To mitigate this potential bias, the review deliberately integrates critical and skeptical scholarly works (e.g., critiques regarding algorithmic opacity and job displacement) to ensure a balanced interpretation of the evidence. All data utilized in this review are derived from secondary sources and are available in the public domain.

Data Availability

The datasets generated during and analysed during the current study are available from the corresponding author on reasonable request.

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Volume 5 Issue 8, 2026
ISSN-p: 3006-2284, ISSN-e: 3006-0982
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