

The opportunities and Challenges brought by AI Tools to the Accounting Industry

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Abstract. In the digital age, Artificial Intelligence (AI) is transforming the accounting industry by automating processes, increasing accuracy and improving decision making. AI-powered technologies such as machine learning, robotic process automation (RPA) and AI audit tools are revolutionizing financial operations. However, this rapid adoption has raised concerns about job losses, ethical implications, and data security. This study aims to explore the benefits and challenges of AI in accounting, focusing on regulatory considerations and financial integrity. By analyzing academic literature and industry case studies, this study provides insight into how accountants are adapting to an AI-driven environment. The findings highlight the potential of AI to optimize efficiency, while also emphasizing the importance of ethical governance and human oversight. In addition, the thesis explores how AI can be responsibly integrated to ensure a safe, transparent and efficient financial environment. Ultimately, the study provides guidance for policymakers and professionals on the transition to AI-based accounting practices.

1 Introduction

1.1 Research background

In this current age, artificial intelligence (AI) has been prevalent in many fields progressively, particularly in accounting and finance industry, and this can demonstrate the disruptive technology. In Accounting, the AI-driven systems like machine learning algorithms, robotic process automation (RPA) and AI-powered audit & compliance tools are transforming the traditional accounting environment thoroughly. These advanced technologies allow firms to automate repetitive operations, including data input, reconciliation, auditing, and fraud detection, thereby improving productivity and reducing human mistakes [1]. As firms pursue enhanced accuracy and compliance in financial reporting, AI's ability to analyze extensive

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data rapidly offers accountants profound analytical insights, hence promoting improved decision-making [2].

However, the increasing use of AI in accounting industry has caused some problems, such as the fear about job losses, ethical issues, and the security of data. According to estimates, automation may replace up to 50% of traditional accounting positions within the next 20 years, even if AI improves operational efficiency [3]. The truth that AI is gradually appearing in accounting industry and replacing some jobs has caused the concerns about algorithmic bias, cybersecurity risks, and regulatory compliance. Moffitt, Rozario, and Vasarhelyi emphasize that although AI improves fraud detection, it also poses new concerns, such as an excessive dependence on machine-generated insights without sufficient human monitoring [4]. Furthermore, because businesses find it is difficult to keep up with the pace of technological progress especially given data privacy violations and transparency obscure audited financial work, there are more and more discussion on the ethical implications of AI in accounting industry.

Moreover, it is difficult to increase the efficiency of business by using AI. It is essential to consider how AI may influence the accounting industry more extensively as it has both positive and negative effects. To do this, business and accounting industry should inspect the pros and cons of AI and then compare the result with data collected before using AI. As AI becomes more prevalent, corporations also should investigate how accountants change their mindset to adapt to their new role at work.

1.2 Research purpose

The purpose of this research is to do a thorough inspection of the role of AI in accounting industry. This research strives for investigating the AI's functions in improving the efficiency and compliance of financial activities in addition to resolving the concerns about cybersecurity, legal hazards, and employee churn. Besides, this essay will provide some insightful views on the connection between AI and accounting industry by studying academic literature and traditional accounting industry cases.

Additionally, this research also attempts to evaluate the prospect of accounting industry under the premise of using AI. As traditional accounting industry becomes more and more automated, there are some gaps left by the rapid progress of AI. In order to fill these gaps, professional accountants must learn new skills, such as data analytics, AI governance, and strategic decision-making tools. This essay will discuss the strategy of adapting the current accounting industry and emphasize the value of multidisciplinary knowledge.

Moreover, the essay will consider ethical and regulatory issues to investigate how corporations use AI more ethically and efficiently while maintaining the credit in enterprises. The main purpose of this essay is to provide some valuable advice and guidance for enterprise professionals, especially during the period of the transition from traditional accounting pattern to AI-driven accounting pattern. The accounting industry can respond to these new or potential problems actively by optimizing the benefits of AI while reducing its harms, and finally ensure a more efficient, ethical, and safe financial environment.

2 Opportunities brought by AI tools

Integrating AI into the accounting industry has ushered in a new era of increased efficiency and strategic capabilities. For example, it has both impacted and transformed the accounting industry while increasing efficiency through big data analytics, enhancing decision-making capabilities, strengthening compliance, and optimizing cost control. This section will explore the key opportunities that AI presents in the accounting space.

2.1 Improve the efficiency of accounting work

Therefore, enhancing accounting efficiency. Traditional accounting methods include manual data input, reconciliation, and report preparation, however, are labor-intensive and rather error-prone. Conversely, AI including RPA and optical character recognition (OCR) may automatically sort, data input, and invoice identification, thereby saving as much as forty percent or more of human labor time. For instance, Siemens is building a worldwide invoicing automation system using UiPath RPA and ABBYY OCR technologies. This data reveals that the automated system improved Through big data analytics, AI automates time-consuming, repetitive chores, efficiency by 87% by cutting the processing time for one invoice from 15 to 2 minutes. The data entry error rate dropped from 5% for manual labor to less than 0.1% [5]. There is also a local case: UFIDA, which has set up RPA+OCR intelligent financial centers for several big companies to help value-added tax (VAT) invoicing be automated across the board [6]. According to the statistics, the finance team cuts 200 hours of manual operation per month while the automation rate of invoice verification, re-checking, and accounting is 90%. By means of automated tax rules and invoice calibration driven by AI, the risk of tax compliance dropped by 80%. On the one hand, thanks to deep thinking and thorough analysis, the fast evolution of AI is automating mundane jobs and providing strategic suggestions and ideas. Conversely, it also enables accountants to provide more time to high value-added activities such as strategic consulting.

2.2 Enhanced data analysis and decision support

AI is capable of accurately processing and analyzing large data sets at unparalleled speeds. These are some of the most important contributions to the accounting industry, and through these few capabilities, they are driving change and influencing the rapid evolution of new-age accounting. AI can analyze terabytes of financial data (e.g., transaction records, invoices, market trends) in real-time, reducing tasks that traditionally took weeks manually to the minute level. It makes better predictions than traditional models about things like corporate cash flow and revenue changes by looking for patterns in past data through machine learning. For example, JPMorgan Chase's model for predicting cash flow analyzes ten years of historical financial data and macroeconomic indicators. Compared with the traditional time series model, the accuracy of its cash flow predictions increased by 32% [7]. Moreover, it can identify potential funding gap risks six months in advance and help enterprises optimize capital scheduling. In addition, multimodal AI (e.g., Sora) transforms complex data conversations into visual charts that can be clearer, more accurate, and faster to understand.

As a result, these technologies allow accountants to upgrade from the previous single record keeper to a strategic advisor with more decision-making power. AI quantifies risks and benefits by simulating different decision-making scenarios (e.g., investment, and cost-cutting) to assist in formulating the optimal plan. There is also real-time monitoring of internal and external data (e.g., supply chains, and policy changes) to provide early warnings of financial compliance or liquidity risks. For example, Ernst & Young's AI Tax Compliance Advisor is used to monitor tax compliance and improve efficiency. It has reduced the time needed to develop cross-border tax programs by 70% and increased compliance risk coverage from 65% to 95% [8]. In the past, an accountant's job was to record and reconcile data, make cyclical reports, respond to risks when they happened, and make sure that standard procedures were followed. Now, an accountant's job is to analyze data, help people make decisions in real-time, predict and manage risks before they happen, and plan how to best use resources.

2.3 Enhanced financial compliance and risk management

AI has an important role to play in financial compliance and risk mitigation, which are at the core of the accounting function. Advanced NLP algorithms are now able to scan and interpret large volumes of regulatory text and company policies to constantly update them to meet the latest legal requirements. For example, generative AI from firms such as Deloitte and KPMG use machine learning to detect fraudulent transactions, identify suspicious activity, and assess financial risk at the same time [9, 10]. It also tracks changes in global financial regulations and data platforms in real-time, automatically updating knowledge and avoiding fines and reputational damage caused by factors such as lagging regulation, such as manual time lag.

2.4 Optimize enterprise cost control

AI saves businesses financial expenses by reducing labor dependency and the cost of errors. The AI-powered budgeting and expense-tracking tools reduce many unnecessary costs. For example, an accounts receivable management AI assistant can reduce accounts receivable periods by 22% and improve collection efficiency by 30%, directly improving cash flow. Companies using AI for cost control reduce operating expenses by 15%, and there are also some small and medium-sized businesses that have reduced a large percentage of their tax filing costs through AI tax software, reducing the risk of tax penalties due to manual errors in a very timely manner, and also improving overall financial efficiency [11].

2.5 Promoting transformation and innovation in the accounting profession

The integration of AI is continuously reshaping the professional form and technological ecology of the accounting industry. No longer a single accounting role as before, by shifting like an intelligent type, practitioners are required to go for introducing innovative accounting practices, AI tool operations, data analytics, and other composite skills. For example, ACCA reports that in the next five years, the demand for technological literacy among accountants will grow by 33%, with creative thinking and analytical skills becoming core competencies [12]. Industry innovation is also reflected in technology convergence, such as natural language processing (NLP) combined with blockchain and audit transparency. All these transformations have increased the efficiency of the industry while adding emerging careers such as data analysts and AI operations.

2.6 Promote cross-sectoral collaboration and financial sharing

AI links accounting to other business functions by enabling real-time data sharing and integration, all very seamlessly. Traditional accounting systems limit the closeness and coordination between departments. But centralizing financial big data analysis driven by AI is strengthening cross-departmental communication and breaking down the information silos between departments. For example, the integration of the Enterprise Resource Planning (ERP) system with the AI assistant provides a unified data platform so that finance, procurement, sales, and other departments can share information in real-time, and collaboration efficiency increased by 40% [13, 14]. For example, SAP S/4HANA and Microsoft Dynamics 365 integrate financial data with sales, procurement, and HR functions. These platforms leverage AI collaboration models to optimize resource allocation and enhance the agility of overall business operations.

3 Risks and challenges

Over the past decade, significant progress has been made in developing the potential opportunities of AI. The industry has become inseparable from all aspects of life and it has gradually become an indispensable part of business decision making. The application of AI has contributed to the great achievements of major companies around the world [15]. According to the annual Global CEO Survey conducted by PricewaterhouseCoopers (PwC), the use of AI will significantly increase global GDP by \$15.7 trillion by 2030, which is a very large number. Along with this success come new risks and challenges. Some of the key aspects are discussed below.

3.1 Work data-related risks

One of the main challenges is the privacy and security of data as well as the issue of truthfulness and reliability. Once the accounting industry uses AI tools to calculate or record data, it is inevitable that these data will leave a trail. If it involves sensitive data, it can easily be stolen by others through the network, thereby greatly increasing the risk of privacy and security of data.

Here's a case study on data security issues: one of the world's Big Four accounting firms, Deloitte, suffered a major cyberattack in 2017 that resulted in the leakage of client information and the data of about 244,000 employees. Attackers gained access to sensitive information such as usernames, passwords, IP addresses, and more by hacking into Deloitte's Microsoft Azure cloud service. The data breach exposed vulnerabilities in its cybersecurity, jeopardized the trust of clients and the public, and affected the company's brand reputation.

This example highlights the importance of data privacy security in the accounting industry.

Secondly, data reliability, the source of big data is very diverse and may come from a variety of internal and external systems [16]. The truthfulness, accuracy, and timeliness of the data are not verified, so it is likely that there is a mixture of true and false information, thus confusing the public. Moreover, decisions made by AI are highly dependent on high quality and relevant data, so if a company chooses to utilize AI to make a decision, the likelihood of being misled by erroneous data and thus leading to a wrong decision is high [17].

3.2 Threats to related employees

The use of AI tools has also had a profound impact on employees in related industries. One of the biggest concerns is technological unemployment. Which results from the replacement of manual labor by AI tools [18]. AI systems can automate repetitive or less technical tasks, such as data registration, control, and auditing. This automation threatens the employment of workers in roles like auditors [19].

This is a case of technological unemployment in the accounting industry due to the use of ai tools: In 2017, PwC introduced RPA solutions that utilize intelligent software to replace repetitive tasks and workflows that would otherwise be performed manually. These financial robots are capable of performing a large number of time-consuming business processes, such as bank reconciliation, incoming payment confirmation, VAT bookkeeping reconciliation, and VAT invoice checking and validation, around the clock and without interruption. Taking bank reconciliation as an example, the financial robots automatically complete the reconciliation of multiple bank accounts and the printing of reconciliations on a daily basis, without human intervention throughout the process. The application of such automation reduces the need for manual operations, leading to technical unemployment in some finance and accounting positions

In addition, the senior staff of a firm may prefer AI for their tasks because AI is many times more accurate than humans in terms of both computational accuracy and processing speed, and its use as well as maintenance costs are lower in the long run compared to the cost of human labor [15]. This will result in a reduction in the number of employees needed by a business or accounting firm, which will reduce their total costs, but will also be an obstacle for those working in the accounting industry as well as those seeking employment [15]. For those job seekers who are preparing to step into the industry, the job providers may demand more, such as requiring proficiency in the use of ai tools to accomplish some of their work. This makes the job seekers acquire more and more skills, and at the same time, it is more difficult to obtain a position.

3.3 Challenges to existing systems

For many organizations, their existing systems are not suited to handle massive amounts of data, or are not inherently capable of doing so [20]. The extent of AI use is broadly proportional to company size, with larger companies more likely to use AI to engage in production, but the opposite is true for smaller companies [21]. Existing accounting systems (e.g., ERP systems) are usually designed based on traditional architectures, but AI tools require modern data interfaces, and the accounting industry is inseparable from a large amount of data processing, which requires the processing system to have powerful analytical software and high-performance computing capabilities, so the existing system and AI tools may be technically incompatible, which leads to the possibility of incomplete data higher [22]. In addition to this aspect, the introduction of AI tools may cause great changes in the original workflow, which may lead to the integration or deletion of many steps, thus disrupting the original conventional order of work, and this change will affect the company's production plan, in order to find the lowest cost of production and the optimal allocation of production resources to the plan, the capitalist will spend more time and effort on the production of the company's production. In order to find the plan that minimizes production costs and optimizes resource allocation, and companies will spend more time and energy on reorganizing the system.

Here's a case in point: GE plans to integrate AI tools into its SAP ERP system to optimize financial forecasting and supply chain management. However, the following problems were encountered: the data structure of the SAP ERP system and the data requirements of the AI tool did not match, resulting in difficulties in data extraction and transformation; the real-time processing requirements of the AI tool were incompatible with the batch processing architecture of SAP ERP. This led to a six-month delay in the project schedule, resulting in the plan for financial forecasting and supply chain optimization not being implemented on time, and the company invested an additional approximately \$5 million in the development of middleware and data conversion tools.

There are several possible root causes for these problems: First, differences in technical architectures: the SAP ERP system was designed based on a traditional batch-processing architecture, while the AI tools require real-time data processing. The mismatch in technology architecture was at the heart of the problem. However, this incompatibility was not recognized at the beginning of the project, which can be seen in the lack of adequate technical evaluation due to GE's insufficient understanding of AI tools. Second, inadequate data governance: the mismatch in data architecture may reflect GE's inadequacy in data governance. Perhaps it is due to the lack of a unified data standard and data management strategy, which results in the data in the ERP system not being directly available for the AI tool. Third, project planning deficiencies: project delays may be due to the fact that the complexity of technology integration was not adequately considered during the project planning phase. The importance of cross-departmental collaboration in the project planning

process was overlooked because the compatibility of ERP systems and AI tools was not adequately assessed.

3.4 Fraudulent

Although AI tools are used for the purpose of improving efficiency and accuracy, the use of AI tools does pose a risk of fraud and misuse. For example, generative AI (e.g., GAN, big language models) can be misused to create false credentials and identities, which cheaters use to generate realistic invoices, scanned copies of contracts or e-signatures, or to falsify customer information. Another example is the use of AI tools by technicians to tamper with outputs, which then collude with finance staff in cooperation with the loophole to obtain ill-gotten gains. High levels of complexity and opacity characterize AI systems and are often the source of questions and concerns about them. This high level of complexity makes it more difficult to understand the data processing principles behind them [17]. Accountants should try to use systems with a high degree of operational process visualization to establish basic trust, followed by a rigorous system of accountability [23].

Despite the significant risks and challenges associated with the integration of AI in the accounting industry, the potential benefits cannot be overlooked. When properly implemented, AI tools can transform accounting practices, bringing about increased efficiency, enhanced decision-making capabilities, and improved compliance.

4 Countermeasure and feasibility analysis

4.1 Optimization of accounting information systems

4.1.1 Countermeasure

Companies should upgrade their accounting information system to incorporate AI tools. By doing so, AI can handle tedious and repetitive tasks such as data entry, analysis, which allows accountants to invest more time in more important strategy decision-making based on data analysis, and improve work efficiency and quality, thus better seizing the opportunities of AI in the accounting industry [24]. For example, companies can introduce expert systems that the most advanced AI in the accounting field and automation of the data process to enable accountants to obtain the latest information more quickly, thereby improving the accuracy and timeliness of decision, and simplifying the process of subsequent revision, bring higher efficiency and value to accounting work [25]. In addition, Accenture has developed a platform called SynOps to analyze various data input sources and automate processes such as finance, marketing, accounting, and procurement. Synops can automatically process orders, generate invoices, verify contract content, correct errors, and send the results to customers. Accenture has successfully redeployed approximately 40000 employees, reduced manual tasks and improved overall efficiency. About 100 Accenture clients have used the system for procurement process optimization, and 20 clients have tested financial products [26].

Companies need to adopt encryption technology to prevent data leakage. In order to address the risk of information leakage caused by the input and training of AI tools in the accounting field, companies should use relatively encryption technologies to protect important data. For instance, in their study, Li Z, Liu Y, Li J, et al. present VAEFL, a federated learning (FL) framework that employs Variational Autoencoders (VAEs) to preserve model performance while safeguarding data privacy. To avoid data leaking and preserve high prediction accuracy, it divides the model into a private encoder and a public

decoder [27]. This strategy balances data privacy and utility, and it works especially well in privacy-sensitive sectors like finance and accounting [27].

4.1.2 Feasibility analysis

From a technical perspective, AI and encryption technology are now relatively mature, therefore, it is accessible for companies to find specific technologies to upgrade their accounting systems and strengthen data protection based on their own scale and business needs. From an economic perspective, although the initial investment in system upgrades and security protection is relatively large, in the long run, it can bring great benefits to enterprises. For example, the research findings from Neeraj Kripalani's AI in Financial Strategy Continuous Monitoring for Enhanced Profitability suggest that the multi-faceted analysis reveals that successful implementation of AI-driven financial monitoring can lead to a 15-20% reduction in operational costs, 93% accuracy in spending categorization, and 25-30% improvement in financial decision-making accuracy [28].

4.2 Personnel and policy, law adjustment

4.2.1 Countermeasure

Companies and schools should provide AI related skills training for accounting professionals and accounting students. As Susanne Leitner-Hanetseder et al point out, with the birth and development of AI tools, the demand for basic accounting personnel on society will greatly decrease; What society needs will be management accountants who understand how to make decisions and judgments through analyzing data, and these personnel often need to rely on AI systems to assist them in completing their tasks [29]. Therefore, relevant companies and university should provide training and education on relevant AI skills for accountant and accounting students. For example, universities and colleges in Connecticut, such as UConn, Sacred Heart University, and Quinnipiac University, have incorporated business analysis and data science courses into accounting courses in order to adjust to the continually developing role of accountants. This has enabled accountants to become more than just numerical calculators; it has transformed their roles into those of business consultants [30]. In addition, Accenture has partnered with Stanford University to launch a generative AI learning project, supported by Stanford's online course content, aimed at enhancing Accenture employees' skills in data analysis and AI tool operation [31].

Governments should update accounting standards and laws. As Sylvie Michel, Marc Bidan, and Sylvie Gerbaix said, it is a human being who creates the algorithms. And the rules included in the algorithms are in his image and that of the society. The rules and the social behaviors, are found in the algorithms. Algorithms are not neutral and convey the conscious and unconscious values of the developers, the organization, the companies [32]. Algorithms inevitably bring about bias's issues, and this often leads to some unfavorable outcomes. For example, in accounting, certain financial data may reflect past preferences for certain industries or discrimination against certain groups. If AI models are trained based on this data, they may perpetuate these biases in future decisions, which may hinder companies from making truly objective, comprehensive, and wise decisions. At the same time, if the algorithm is opaque, it will make it difficult for accountants to verify the fairness and accuracy of the algorithm. For example, during the audit process, accountants may have doubts about the output results of AI systems, but lack the means to verify their fairness, which may affect the correctness of the results. Therefore, it is crucial for government to develop corresponding policies and laws to address this phenomenon. In the research of Sylvie Michel, Marc Bidan,

and Sylvie Gerbaix, they mention The Holographic Principle and accountability, which stated that the rules and norms entangled in algorithms should be transparent, so that there can be a very clear process of how an algorithm processes information. At the same time, all participants from algorithm design to usage are responsible for the legality and moral correctness of the algorithm [21]. The relevant laws should also specify the boundaries of algorithm accessibility and the code of conduct for practitioners.

4.2.2 Feasibility analysis

From the perspective of personnel training, many universities are gradually integrating AI skills training into traditional accounting teaching, and some companies also actively cooperate with universities, such as the University of Michigan has partnered with Google to integrate specialized courses in AI and data analysis into accounting courses in the United States [30]. At the same time, some schools also offer short-term master's programs for working staff. For example, the online accounting analysis graduate certificate and other courses at the University of Connecticut are helping students develop skills in fintech, cryptocurrency, blockchain, and data modeling [30]. All of these measures can effectively enhance the competitiveness of accountants. Therefore, from the perspective of educational resources, it can provide abundant channels for accounting professionals and accounting students to enhance their ability to use AI related technologies. From a legal perspective, many countries and international organizations are gradually developing laws targeting AI. For example, in May 2024, the European Commission adopted Europe's Framework Convention on AI and Human Rights, which emphasizes methods and implementation mechanisms for comprehensive regulation of AI [33]. It can be seen that gradually updating accounting standards and laws to better adapt to the arrival of the AI era is not a problem.

5 Conclusion

5.1 Research summary

This research focuses on the advantages and disadvantages of utilizing AI in accounting industry. Because of AI, many works like data analysis, fraud detections, audit procedures, and financial reporting become more efficient. AI increases the accuracy and reduces the mistakes while maintaining regulatory compliance by processing and analyzing large amount of financial data at once. Moreover, AI enables professional accountants to transition from traditional accounting positions to strategic advisory positions by providing corporations with more accurate predictive analytics and more professional financial insights. Some advanced technologies like machine learning and RPA have proven to be effective tools for simplifying accounting tasks, cutting unnecessary expenses, and improving the overall efficiency.

Despite these benefits, the research also finds some problems when using AI in accounting industry. Technology may replace a sizable percentage of accounting positions in the ensuing decades, making the replacement of conventional accounting functions a critical concern. The employment problems will be gradually worsened as these occupations are replaced. Ethical and regulatory issues can also cause serious harm, as AI-driven decision-making tools can easily lead to algorithmic bias, cybersecurity vulnerabilities, and compliance difficulties. Furthermore, it is critical to maintain accountability, transparency, and human supervision to reduce the potential for financial reporting errors and data breaches.

Accountants must adopt a proactive approach to addressing these challenges. It is necessary to master new skills in data analysis, AI ethics, and regulatory compliance to be

better prepare for the coming changes brought about by AI-driven industry. Moreover, corporations and lawmakers must also work together to establish a reasonable and uniform AI governance framework to ensure uniform ethical procedures and responsibilities when applying AI in accounting industry.

5.2 Research limitations and future research directions

While this study provides valuable information about how AI could impact the accounting profession, its limitations must be acknowledged. First, the long-term impact of AI on accounting industry is unknown because AI is currently evolving rapidly. Future technological advances and improvements have the potential to lead to disruptive changes which is possible to transform entire industries, although this essay focuses primarily on current patterns and influences of AI. In addition, different departments, businesses, and geographical locations adopt AI have completely different degrees of AI adoption. This may lead to a difference in the impact of AI on accounting. Therefore, future investigations need to be combined with specific industry assessments to more accurately evaluate the long-term effects of AI on accounting.

In addition, it is necessary to take a closer look at how the smart governance framework will evolve in the future although this research raises concerns about ethics and regulatory issues. As AI becomes more prevalent in accounting, authorities should focus on how to guarantee open and transparent data security while maintaining financial integrity. In-depth study of the effective normative application of AI in accounting business can also provide a more comprehensive insight into the future development of AI in the accounting industry.

Another major factor that needs to be studied in the future is the synergy between human and AI in accounting industry. Despite AI is able to automate everyday tasks, human skills are still necessary for complex financial and data analysis, ethical oversight, and strategic decision-making. Further research should not discuss how to replace the role of humans, but rather examine how accountants can use advanced technology like AI to improve the accuracy and efficiency of themselves. Moreover, professional AI training projects and courses are specifically equipping accountants with the skills they will need in the future where AI is ubiquitous. For example, many universities now require business students to complete one or two courses related to AI.

This study did not specifically examine the impact of AI on SMEs, but it is critical to recognize that they will still be affected by AI. SMEs may encounter some special problems when using AI for accounting, because they are even worried about some basic issues like scalability, technological know-how, and limited financial resources, etc. However, AI can provide many benefits for SMEs such as improved productivity, simplified automated repetitive processes, and better decision-making. Future studies should focus on creating accessible and affordable AI solutions for SMEs and investigating some specific strategies such as industry partnerships, government policies, and focused training programs to promote AI adoption. If SMEs want to ensure that corporations of all different sizes benefit from AI, they must learn how SMEs can successfully incorporate AI.

In conclusion, the accounting industry faces both significant obstacles and transformative potential due to the occurrence of AI. AI can improve productivity, data processing accuracy, and decision-making ability, but it can also lead to some serious problems like job displacement, ethical risks, and regulatory compliance. The accounting profession can proactively resolve these issues through ethical AI governance, human and AI collaboration, and continuous learning to effectively manage the obstacles brought by AI transformation from traditional accounting patterns to modern advanced accounting patterns. Professional accountants must embrace innovation while persisting in the values of accountability,

transparency and financial integrity with the further development of advanced technology, especially AI.

Authors Contribution

All the authors contributed equally and their names were listed in alphabetical order.

References

1. B. Odonkor, S. Kaggwa, P. Uwaoma, A. Hassan, O. Farayola, The impact of AI on accounting practices: A review: Exploring how artificial intelligence is transforming traditional accounting methods and financial reporting, *World J. Adv. Res. Rev.* **21**, 172-188 (2024) [10.30574/wjarr.2024.21.1.2721](https://doi.org/10.30574/wjarr.2024.21.1.2721).
2. V. Kanaparathi, Exploring the impact of blockchain, AI, and ML on financial accounting efficiency and transformation, *arXiv* **2401.15715** (2024) <https://doi.org/10.48550/arXiv.2401.15715>.
3. S. Taha, The effect of automation on employment within the accounting industry: A case study in Deloitte San Francisco, Dissertation presented to the faculty of the School of Management and Leadership, Alliant International University (2021)
4. Y. Cong, H. Du, M. Vasarhelyi, Technological disruption in accounting and auditing, *J. Emerg. Technol. Account.*, **15**, 1-10 (2018) <https://doi.org/10.2308/jeta-10640>
5. Siemens, UiPath RPA and ABBYY OCR: AI-powered invoicing automation, Siemens Financial Innovations, <https://www.uipath.com/resources/automation-case-studies/siemens-gbs-optimizes-china-business-operations-with-rpa>
6. J. Ma, T. Qi, "AI+RPA" and the intelligent development of enterprise financial shared service centers, *Journal of Artificial Intelligence Practice*, Clausius Scientific Press, Canada (2024) DOI: 10.23977/jaip.2024.070311 ISSN 2371-8412 Vol. 7 Num. 3
7. A. Hernandez-Martinez, Revolutionizing cash flow forecasting with AI, *Industry Solutions*, J.P. Morgan (2024) <https://www.jpmorgan.com/insights/treasury/liquidity-management/ai-driven-cash-flow-forecasting-the-future-of-treasury>
8. S. Mah, EY, EY launching EY.ai Agentic Platform, created with NVIDIA AI, to drive multi-sector transformation starting with tax, risk and finance domains (2025) https://www.ey.com/en_sg/newsroom/2025/03/ey-launching-ey-ai-agentic-platform-created-with-nvidia-ai-to-drive-multi-sector-transformation-starting-with-tax-risk-and-finance-domains
9. Deloitte Center for Financial Services, Generative AI is expected to magnify the risk of deepfakes and other fraud in banking (2024) <https://www2.deloitte.com/us/en/insights/industry/financial-services/financial-services-industry-predictions/2024/deepfake-banking-fraud-risk-on-the-rise.html>
10. KPMG, KPMG global AI in finance report, <https://assets.kpmg.com/content/dam/kpmg/au/pdf/2025/kpmg-global-ai-in-finance.pdf>
11. D. Burke, J. Brunelli, A. Pathak, BCG, Five Ways to Make Supply Chains More Cost Efficient (2025) <https://www.bcg.com/publications/2025/ways-make-supply-chains-cost-efficient>
12. ACCA, The future of accounting with AI, <https://www.accaglobal.com/gb/en/technical-activities/uk-tech/in-practice-ezine-archive/In-Practice-archive-2025/February/The-future-of-accounting-with-AI.html>

13. SAP, SAP Business AI in Action: case studies, challenges and a practical guide to implementations (2025) <https://tech-transformation.com/saas/sap-business-ai-in-action-case-studies-challenges-and-a-practical-guide-to-implementation/>
14. Microsoft, TechTalk: Microsoft Copilot for Finance (2024) <https://learn.microsoft.com/en-us/dynamics365/guidance/techtalks/microsoft-copilot-finance>
15. S. J. Mohammad, A. K. Hamad, H. Borgi, P. M. Thu, M. S. Sial, A. A. Alhadidi, How Artificial Intelligence changes the future of accounting industry, *International Journal of Economics and Business Administration*, **VIII(3)**, 478-488 (2020)
16. R. Spanò, M. Massaro, L. Ferri, J. Dumay, J. Schmitz, Blockchain in accounting, accountability and assurance: an overview. *Accounting, Auditing and Accountability Journal*, **35(7)**, 1493-1506 (2022) doi:10.1108/AAAJ-06-2022-5850
17. N. Sreseli, Use of Artificial Intelligence for accounting and financial reporting purposes: A review of the key issues, *American International Journal of Business Management (AIJBM)*, **6(8)**, 72-83 (2023) ISSN: 2379-106X
18. S. Yoon, The impact of new technology on ethics in accounting: Opportunities, threats, and ethical concerns. *Korean Academic Society of Business Administration Korean Management Review*, **49(10)**, 983-1010 (2020) DOI : 10.17287/kmr.2020.49.4.983
19. L. Dagilienė, L. Klovienė, Motivation to use big data and big data analytics in external auditing. *Managerial Auditing Journal*, **34(7)**, 750-782 (2019) doi:10.1108/MAJ-01-2018-1773
20. L. Theodorakopoulos, G. Thanass, C. Halkiopoulou, Implications of big data in accounting: Challenges and opportunities, *Emerging Science Journal*, **8(3)**, 1201-1214 (2024) doi:10.28991/ESJ-2024-08-03-024
21. M. S. Stancu, A. Dutescu, The impact of Artificial Intelligence on the accounting profession: A literature's assessment, in *Proceedings of the 15th International Conference on Business Excellence 2021*, 749-758 (2021) doi: 10.2478/picbe-2021-0070
22. Y. A. A. Hezam, L. Anthonysamy, S. D. K. Suppiah, Big data analytics and auditing: A review and synthesis of literature, *Emerging Science Journal*, **7(2)**, 629-642 (2023) doi:10.28991/ESJ-2023-07-02-023
23. B. Schweitzer, Artificial Intelligence (AI) ethics in accounting, *Journal of Accounting, Ethics & Public Policy*, **25(1)**, ISSN: 1089652X (2024) Doi: 10.60154/jaapp.2024.v25n1p67
24. L. Ionescu, Big data, blockchain, and Artificial Intelligence in cloud-based accounting information systems, *Analysis and Metaphysics*, **(18)**, 44-49 (2019)
25. T. Davenport, Innovation in audit takes the analytics, ai routes. Deloitte University Press (2016) https://www2.deloitte.com/content/dam/insights/us/articles/audit-analytics-artificial-intelligence/Davenport_Innovation-in-audit-takes-the-analytics-AI-route.pdf
26. Best Practice Artificial Intelligence Ltd, Accenture redeploys after automating tasks with RPA system, https://www.bestpractice.ai/ai-case-study-best-practice/accenture_redeploys_after_automating_tasks_with_rpa_system
27. Z. Li, Y. Liu, J. Li, et al., VAEFL: Integrating variational autoencoders for privacy preservation and performance retention in federated learning, *Security and Safety* 2024, **3**, 2024005-2024005 (2024)

28. K. Neeraj, AI in Financial Strategy Continuous Monitoring for Enhanced Profitability. *International Journal for Multidisciplinary Research (IJFMR)*, **Volume 6**, Issue 6 (2024)
29. S. Leitner-Hanetseder, O. Lehner, C. Eisl, C. Forstenlechner, A profession in transition: Actors, tasks and roles in AI-based accounting. *Journal of Applied Accounting Research*, **22(3)**, 539 – 556 (2021)
30. A. Mohamed, Adapting accountants to the AI revolution: university strategies for skill enhancement, job security and competence in accounting. *Higher Education Skills and Work-Based Learning*, **2042-3896** (2024)
31. C. Harper, J. Francis, Accenture Launches On-Demand Gen AI Learning Program, Powered by Content from Stanford Online, Accenture (2024)
<https://newsroom.accenture.com/news/2024/accenture-launches-on-demand-gen-ai-learning-program-powered-by-content-from-stanford-online>
32. S. Michel, M. Bidan and S. Gerbaix, A proposal for a conceptual framework challenging the complexity of ethical and responsibility issues in algorithms systems, 2024 10th International Conference on Control, Decision and Information Technologies (CoDIT), Vallette, Malta, 2024, pp. 658-663 (2024) doi: 10.1109/CoDIT62066.2024.10708575
33. K. Chang, The First Global AI Treaty. *Illinois Law Review* (2024)
<https://illinoislawreview.org/online/the-first-global-ai-treaty/>