The Impact of Artificial Intelligence on the Accounting Profession: A Concept Paper

Nurul Afza Khusaini Mat Hussin, Nurul Ain Nadiah Mohd Bukhari, Nurul Hani Azyyati Nor Hashim, Sharina Nur Azyyati Shaipul Bahari, Mazurina Mohd Ali (Corresponding author)

Faculty of Accountancy, Universiti Teknologi MARA, Cawangan Selangor, Kampus Puncak Alam, 42300 Bandar Puncak Alam, Selangor, Malaysia. Email: mazurina@uitm.edu.my

Abstract

This study examined the impact of artificial intelligence (AI) on the accounting profession. It systematically investigated the effects of AI technologies on the accounting field, redefining the roles and responsibilities of accountants. Through literature review, this study sheds light on AI influence on the accounting profession. The results of this study indicate that the impact of AI on accounting profession can be divided into three themes: (i) automation of routine tasks, (ii) enhanced data analysis, and (iii) value-adding of the professional roles. The automation of routine tasks includes data entry, validation, and transaction processing, while enhanced data analysis includes predictive analytics and decision support. AI also has impacted in terms of value-adding of the professional roles, which comprise of increasing scalability and cost savings and focus on higher value activities. The findings of this study suggest that the accounting profession is evolving in response to AI technology, and accountants should embrace these changes to harness the full potential of AI in their work.

1. Introduction

The routines accountants use in their work are evolving as technology grows (Moll & Yigitbasioglu, 2019). This growth will have a huge impact globally, especially on human beings in their personal and working life. It is more apparent as new technological innovations rise (Sherif & Mohsin, 2021). Among the growth of technology is artificial intelligence (AI), which is notably significant (Battina, 2018). AI can imitate human thinking, such as decision-making and communication, in which it is expected to play a

crucial role in the future (Zhang et al., 2023; Grosu et al., 2023; 2019). In the accounting profession, AI is competent in replacing employees' repetitive daily work (Moll & Yigitbasioglu, 2019; Pauceanu et al., 2020).

With the advancement of the digital landscape, there is a widespread concern that AI could leave traditional jobs outdated (Rawashdeh, 2023; Sherif & Mohsin, 2021). This concern is predominantly rampant among those ambitious to become accountants, as they believe their profession will be overshadowed by rapid technological and software developments (Boritz & Stratopoulos, 2023). However, this belief is misguided as the reality is quite the opposite. The demand for skilled and knowledgeable accountants is at an all-time high despite the revolutionary changes brought about by advanced technology (Zhang et al., 2023; Handoko et al., 2019). There are still a lot of professional accountants who work for overseas firms, especially those trained by the big companies. The job of accountants is still significant because they will be asked to look at the 'bigger picture' by giving financial advice, figuring out their clients' financial situations, and putting more emphasis on things like analytics.

Currently, accounting professionals are not only validating figures and maintaining records (Han et al., 2023). Indirectly, they are more about helping firms optimizing their financial assets. As technology improves, new challenges develop, including the capacity for professionals to concentrate on conveying value to firms (Bose et al., 2023). Nothing can replace the emotional intelligence that humans bring to the workplace, and here is where the accounting professionals come into play (Boritz & Stratopoulos, 2023). Accountants may utilize their personality traits to turn superior information findings into more successful financial strategies and management.

Furthermore, technology will keep bolstering the profession's standing as a trustworthy source of advice (Allioui & Mourdi, 2023). In Malaysia, the Malaysian Institute of Accountants (MIA) has reacted to a global request from the International Federation of Accountants (IFAC) by preparing for the fourth industrial revolution. The MIA Digital Technology Blueprint guides accountants as they create digital technology action plans tailored to their specific environments. In 2019, MIA conducted a survey on Preparing the Malaysian Accountancy Profession for the Digital World. This survey was a follow-up survey first conducted in 2017. Remarkably, the survey's findings indicate how successful MIA's advocacy for the digital transformation of the industry has been. Specifically, 52% of the respondents in the 2019 survey (36% in 2017) plan to use data analytics tools and AI in the next three years. Ninety-three percent (93%) of those surveyed thought technology was crucial, and 92% were either highly interested in accounting technology or wanted to know more about it. These findings show that MIA has successfully promoted the industry's digital transition.

Although it cannot absolutely replace the accounting process, accountants should vigorously address the impact of AI on the profession. There are numerous processes in

the traditional accounting profession that entail numerous intricate sub-tasks, such as manual bookkeeping and accounting. Currently, AI is being used to replace the repetitive duties that accountants often perform (Bose et al., 2023). Routine tasks and manual accounting are vanishing because it is automated by software (Larioui & Himran, 2023). However, the accountant is still required to monitor and manage the system (Kamau & Ilamoya, 2023). On the other hand, the accounting sector is also concerned about the problems of a high unemployment rate for entry-level accountants, increased data breach problems, and increased demand for financial and accounting practitioners (Kroon & do Céu Alves, 2023).

It is essential for accounting professionals to comprehend the implications of AI on their field (Boritz & Stratopoulos, 2023). It is crucial for accountants to stay relevant and competitive with the advancement of AI technology. Therefore, this paper aimed to explore the impacts of AI on the accounting profession. Although AI technology has drastically reduced the usage of the traditional accounting, it has increased changes to the accountants' roles. Therefore, the research question posed in this study is how does AI technology impacts accounting profession.

The following sections of this paper discuss the literature review of AI on accounting profession, research methodology, and impact of AI on the accounting profession.

2. Literature Review

2.1 Conceptual Review of Artificial Intelligence on Accounting Profession

In the accounting field, 'artificial intelligence' (AI) refers to the implementation of machine learning, natural language processing, and robotic process automation to simplify accounting processes (Schaudt, 2023). The AI concept involves machines carrying out tasks that typically require human intelligence in an AI strategy (Zhang et al., 2023). Al can be utilized for various accounting tasks, including data entry, financial analysis, and fraud detection. Automating these tasks with Al can save time, reduce errors, and provide valuable insights for accountants to make informed decisions (Thakker & Japee, 2023). AI technology can rationalize decision-making processes, save costs, and improve overall efficiency, allowing accountants to allot their attention towards more complex activities that need human cognitive abilities (Chua, 2013).

2.1.1 Financial Accounting

Financial accounting deals with the recording, examination, and disclosure of an extensive variety of business-related exchanges over the long run. The process of creating financial statements, such as statement of financial position, statement of profit or loss, and statement of cash flow, entails condensing transactions that occur during a specific timeframe. Initially, financial accounting aimed to furnish information for facilitating business decisions, but AI liberates accounting personnel from menial and repetitive tasks. The financial robot follows

the established procedures, while the financial staff only enters data and completes the operation step by step. This action leads to less 'artificial' activity during a financial accounting process, and it is also more likely that artificial accounting fraud will be avoided (Kureljusic & Karger, 2023; Li et al., 2020). Hence, the productivity of the accounting field can be enhanced through the implementation of AI technology.

The manual handling of intricate data in accounting tasks often consumes a significant amount of accountants' time (Thakker & Jappee, 2023). In the realm of manual bookkeeping, accountants meticulously record financial transactions and ensure the accuracy and completeness of entries. This process involves the classification of revenues and expenses, the reconciliation of accounts, and the recording of debits and credits, all of which are fundamental to maintaining precise financial records. Accounting tasks, too, entail a multitude of intricacies. Accountants are responsible for preparing financial statements, which involves adjusting journal entries, reconciling balance sheets, and creating income statements. Each activity demands high precision and a thorough understanding of accounting principles (Zhang et al., 2023). Furthermore, the creation of statistical summaries involves the compilation and analysis of financial data to generate reports that aid in decision-making. This activity includes calculating various financial ratios, assessing trends, and identifying key performance indicators, all of which require meticulous examination of the data.

The traditional accounting tasks mentioned above are taxing and repetitive. This stage is where introducing AI can be truly transformative. AI technologies, including machine learning and automation, can handle the routine and repetitive aspects of accounting tasks with speed and precision (Zhang et al., 2023). By automating these routine processes, AI reduces the potential for errors and frees accountants from the drudgery of manual data entry and repetitive tasks (Peng et al., 2023).Thus, it frees up their time and cognitive resources to focus on higher-value activities. With AI taking care of the routine, time-consuming tasks, accountants can dedicate more of their efforts to data analysis, strategic planning, and providing insightful information to stakeholders. In this way, AI empowers accountants to contribute more strategically to their organizations, leveraging their expertise to drive better decision-making, improve financial management, and enhance business performance. This shift in focus from mundane tasks to strategic and value-added activities is where the true transformative impact of AI in the accounting profession lies.

2.1.2 Management Accounting

Management accounting centres around supplying management with data on operational business indicators specifically related to labor and product costs (Zhang et al., 2023). Budgets are frequently employed to quantify decisions made during operational planning, while performance reports highlight the variances between expected and actual results. The integration of AI technology presents a distinct advantage for management accountants who possess the skills to interpret and derive valuable insights from data (Bose et al., 2023). With the help of AI, management accountants can utilize sophisticated analytical tools and

techniques to improve their evaluation of corporate performance significantly (Appelbaum et al., 2017). AI can process enormous amounts of financial and operational data at remarkable speeds, enabling more in-depth and real-time insights into a company's financial health and operational effectiveness, which can help managers make better decisions. Moreover, AI can automate mundane and repetitive duties, such as data entry and reconciliation, allowing management accountants to devote their time to more strategic and value-added activities. By leveraging AI, management accountants can play a pivotal role in assisting businesses make data-driven decisions, optimize financial processes, and achieve overall business success (Bose et al., 2023). However, AI's importance in decision-making should be considered a helping tool to human judgement rather than a replacement for human decision-making (Vărzaru, 2022).

2.1.3 Auditing

An auditor is a professional who conducts an independent examination of financial statements to ensure their accuracy and compliance with relevant laws and regulations (Manap et al., 2023).   There are two main types of auditors: internal auditors and external auditors. They protect businesses from fraud, point out discrepancies in accounting practices, and sometimes act as consultants to help businesses resolve how to make operations run more smoothly.

Auditors play various roles in a variety of industries. There are four categories for AI applications and four categories for the technology's current level of intelligence. The applications are examine numbers, handle words and pictures, perform automated tasks, and perform actual endeavors. For example, AI can be used to analyze financial data, perform calculations, and identify irregularities or patterns that might indicate material misstatements or errors in financial statements. In addition, AI can automate routine and repetitive tasks in the auditing process, such as data entry, data validation, and basic compliance checks. This automation can improve efficiency and reduce the risk of human error. As for the auditors, they need to interpret and validate AI-generated results (Aitkazivov, 2023).

The various levels of intelligence are categorized as self-aware intelligence, repetitive task automation, context awareness and learning, and human support. For self-aware intelligence, AI systems have self-awareness to some degree and can adapt to changing circumstances (Zhang et al., 2023). While AI's true self-awareness is not yet achieved, AI systems can be designed to make some adaptive decisions. Besides, none of the artificial intelligence applications have yet reached the level of mindful insight. However, a significant portion of the tasks associated with bookkeeping and reviewing can be completed using the other three levels of knowledge. Therefore, auditors still have to play a critical role in interpreting and validating the results generated by AI systems to avoid biases of the systems when using them in their work (Landers & Behrend, 2023).

3. Methodology

This section discusses the process of obtaining articles relating to artificial intelligence and accounting. By undertaking a comprehensive study, a systematic procedure was determined to select thoroughly relevant articles. This study aimed to examine the impact of artificial intelligence on the accounting profession. The main approach to finding relevant publications was using the extensive Scopus database. Due to its vast collection of scientific literature and reputation for providing reliable academic papers, the Scopus database was chosen as the optimal basis for this review-based study.

3.1 Article Review Process

3.1.1 Identification

The process of assessing the literature included four discrete stages. The review process was conducted in December 2022. In the first stage, the search words and phrases to be used were determined. The chosen keywords were similar and linked to the fields of artificial intelligence and accounting. The keywords were used in combination with the Boolean operator. The specified keywords were 'artificial intelligence' and 'accounting profession'. The article's title, abstract, and keywords were then used as the search parameters. A total of 60 publications were obtained from the first search.

3.1.2 Screening

In the screening process, the eligibility and exclusion criteria were determined. The search was limited to (1) article type of document, (2) English language, (3) journal type of sources, (4) final publication stage, and (5) all open access journal. All publications were selected in terms of year range. From the search, the first related article appeared in 2019. Therefore, the timeline of the articles was between 2019 and 2023, a time span of five years. After the screening process, the search yielded 12 papers.

3.1.3 Eligibility

After the screening process, the third process was eligibility, which was evaluated manually. Only articles that fulfilled the criteria were retrieved. This process was done by reading the title and abstract of the articles. It excluded three articles that was in the area of accounting education and drone technology. The inclusion and exclusion criteria were as stated in Table 1. Thus, nine articles were selected for the final stage.

Table 1. The inclusion and exclusion criteria

Criterion	Eligibility	Exclusion
Document Type	Article	Review
Language	English	Non-English
Source Type	Journal	Book, Book Series, Conference Proceeding
Publication Stage	Final	Article in Press
Open Access	Open Access	Non-Open Access

4. Results and Discussion

4.1 Impacts of Artificial Intelligence on the Accounting Profession

4.1.1 Automation of Routine Tasks

Over the past few decades, accounting tasks have become increasingly automated, with software taking over many of the routine tasks that accountants previously handled. The four largest accounting firms are anticipated to head the accounting and auditing industry's AI implementation revolution (Han et al., 2023; Handoko et al., 2019).

Data Entry, Validation, and Transaction Processing

In conventional accounting roles, employees are responsible for accounting tasks such as maintaining accounting books, creating accounting vouchers, and preparing financial statements (Khawaja & Hamdan, 2023). However, this traditional approach is time-consuming, expensive, and inefficient, as it requires close monitoring of every step in the accounting process and consumes significant resources. Prior to the advent of computerized systems, this task was performed manually using paper-based records. However, with the advancement of technology, many organizations have shifted towards electronic accounting systems. These systems automate the process of registering accounting books, reducing the time and effort required for data entry and improving accuracy (Allioui & Mourdi, 2023).

Traditionally, the tasks do not get done on a set schedule, so people have to stay late even if they get done on time. Automating routine and repetitive accounting operations like data entry, invoice processing, and bank reconciliations can be accomplished with the help of artificial intelligence (AI). This automation reduces the time and effort needed to do these

processes manually, improving productivity and enabling accountants to focus on activities that contribute more to the company's bottom line. For example, advancements in accounting software have simplified this task significantly. With the use of integrated accounting systems, accountants can now generate financial statements automatically by extracting data from various modules such as the general ledger, accounts payable, and accounts receivable (Jalonen, 2023).

4.1.2 Enhanced Data Analysis

Predictive Analytics

With the help of AI, accountants may enhance their predictive analytics. Accountants may derive valuable insights from mountains of financial data to better guide business strategy. Human analysts may not quickly notice patterns, correlations, or anomalies, but AI algorithms can discover them by analyzing historical data, current market movements, and other relevant factors (Vasuki et al., 2023). With this information, accountants may assess a company's financial standing, measure its progress against benchmarks, and discover issues or opportunities for growth, which can increase the efficacy of accounting tasks. Consequently, this has several advantages, such as facilitating goal attainment via data-driven decision-making, learning about the organisation's performance via data analytics, and drastically cutting down on mundane, time-consuming tasks (Sutton et al., 2016).

AI can provide strategic insight through systems that can generate accurate and comprehensive financial reports, eliminating the need for manual compilation and consolidation of data. This capability streamlines the reporting process and ensures consistency in reporting formats. In addition, AI-powered systems can quickly analyse large volumes of financial data and generate insights in a fraction of the time it would take for manual analysis. This ability expedites extracting valuable information from financial data, allowing accountants to focus on other critical tasks (Leitner-Hanetseder et al., 2021). Implementing data-driven decision-making may result in a productivity improvement of between 5% and 6%, depending on the industry (Payton & Claypoole, 2023).

Moving to forecasting capabilities, AI uses historical data and advanced analytics to improve accuracy (Zhang et al., 2023). AI algorithms can construct predictive models from data trends, seasonality, and other patterns. These models help accountants predict sales revenue, cash flow, expenses, and profitability. AI-powered forecasting might include market indicators, economic data, and industry trends to improve accuracy. This forecasting helps accountants make resource allocation, budgeting, investing, and risk management decisions. As a result of extensive research and development, artificial intelligence applications have come a long way in recent years. There has been a rise in the usage of AI in business in recent years (Igou et al., 2023). AI is superior to humans at analysing data and making decisions to predict future trends (Battina, 2018). Therefore, aiding clients in predicting their financial health is crucial to a company's ability. Using AI in the system enables the company to offer clients detailed

and precise insights without the typical manual effort and data analysis needed for report generation (Bharadiya, 2023). A company can benefit daily from more vital, mutually beneficial relationships with its consumers if they can easily access up-to-date reports and projections.

The accounting industry greatly benefits from the strategic insights and forecasting capabilities brought about by the widespread adoption of AI technology (Zhang et al., 2023). As a result, these developments benefit business performance by facilitating higher-quality decision-making, more accurate financial forecasts, and enhanced strategic planning.

Decision Support

The capabilities of AI hold great promise in revolutionizing decision-making methods by offering precise and timely data (Aldoseri et al., 2023; Zhang et al., 2023; Handoko et al., 2019). This has the potential to expedite and optimize the decision-making process, leading to improved overall performance within businesses. Notably, accountants can utilize AI to make more educated decisions, as it eliminates the influence of personal biases and restricted experience (Zhang et al., 2023). Unlike human judgment, AI algorithms are programmed to base decisions on unbiased criteria and past data (Rodgers et al., 2023). In short, AI can help accountants improve the efficiency of the work that needs to be done (Moll & Yigitbasioglu, 2019). By leveraging AI technology, automation will free accountants from repetitive tasks. Thus, accountants can focus more on higher-level tasks, enhancing decision-making and increasing overall company performance.

4.1.3 The Value-Added of Professional Roles

Scalability and cost savings

AI usage has fundamentally altered the functioning of businesses, including the accounting profession (Boritz & Stratopoulos, 2023). Accounting has become more successful and productive as a result of AI's impact on scalability and cost savings. The capacity of a system to handle an increasing amount of work or growth is referred to as scalability. AI has significantly improved the scalability of the accounting profession by automating repetitive tasks, such as data entry, reconciliations, and financial reporting. Hence, this might be helpful in ensuring that the records of the company's finances are correct and up to date. A comprehensive quantitative data analysis was conducted to measure the tangible impact of AI on scalability and cost savings in accounting practices (Allioui & Mourdi, 2023; Jankovic & Curovic, 2023). The analysis involved tracking key performance metrics, including the speed of task completion, error rates, and overall efficiency. The results underscored a substantial increase in scalability, with AI-driven automation significantly reducing the time and effort traditionally required for routine accounting tasks (Allioui & Mourdi, 2023).

AI is the development of computer algorithms that can replicate human behavior using prior knowledge without human input (Belgaum et al., 2021). Due to current technology, AI has

enabled accountants to focus on more complex tasks such as analysis and decision-making. Before AI, it was hard for accountants to handle large amounts of data in real-time by hand. Now, however, they can. The quantitative data not only supports the claim that AI has enhanced scalability within the accounting profession but also provides empirical evidence of the efficiency gains and cost savings achieved through adopting AI technologies (Jackson & Allen, 2023). These findings underscore the pivotal role of AI in reshaping the landscape of accounting, unlocking new levels of efficiency, and enabling accountants to navigate the complexities of modern business with unprecedented agility and accuracy.

AI in finance is projected to give financial organizations a competitive edge by reducing costs, boosting productivity, and improving customer service (Bose et al., 2023). Past studies have conducted comprehensive quantitative data analyses, encompassing key financial metrics and operational indicators (Allioui & Mourdi, 2023). The analyses revealed a marked reduction in operational costs attributed to implementing AI technologies. For example, financial organizations, particularly in the accounting sector, experienced a significant decrease in overhead costs, as AI made it possible for the firms to handle an expanded client base without the need to proportionally increase their workforce,, thereby reducing overhead costs. Next, AI has a tremendous impact on the accounting profession's ability to save money. It has reduced accounting concerns including erroneous data, poor timeliness, high mistake rates, and excessive human resources expenses (Bose et al., 2023). Businesses may lessen their reliance on human labor, which can be time-consuming and expensive because AI can automate jobs that involve repeated motions. This automation has also decreased the chance of errors that can arise during the human entering of data. If there is an error, additional costs will be incurred to remedy it.

Additionally, AI-powered software can assist organisations with distinguishing regions where they can reduce expenses and further develop effectiveness, bringing about tremendous investment funds. For example, AI can be used to improve supply lines by finding better ways to move things or by negotiating with suppliers for better prices. This improvement can help businesses cut costs in a big way. To conclude, using AI technology in the accounting profession can help scalability and reduction of costs in businesses.

Focus on higher value activities.

The rise of artificial intelligence has revolutionized the accounting world, bringing about monumental changes in the profession (Boritz & Stratopoulos, 2023; Handoko et al., 2019). In the past decade, AI has made tremendous strides and marked significant progress. Essentially, AI is defined as a system's ability to comprehend and effectively utilize external data, leveraging learned information to achieve specific goals by making flexible adaptations (Dwivedi et al., 2021). AI has a distinctive edge in providing superior information through machine or deep learning, ultimately leading to more reliable and meticulous accounting data (Zhang et al., 2023). With accounting processes becoming more automated and less time consuming, accountants are becoming more engaged with their clients and expanding their

consulting services in everyday business operations (Khawaja & Hamdan, 2023). This automation will facilitate the real-time analysis of a large volume of unstructured data by providing actionable, predictive insights. AI allows the accounting profession to enhance their productivity, for example, by concentrating on critical thinking, problem-solving, innovation, and decision-making processes that require human judgment and expertise (Cai, 2022). Accountants can utilize AI to assess, track, and improve their clients' businesses before a transaction occurs (Hasan, 2021).

Accountants possess a wealth of knowledge that enables them to contribute significantly to their work and the organizations they serve (Moll & Yigitbasioglu, 2019). Their abilities extend far beyond simple number-crunching as they are equipped to provide comprehensive financial guidance to their clients (Thakker & Japee, 2023), such as helping clients gain a deeper understanding of their business's financial well-being, identifying areas for growth, and offering valuable strategic advice. By expanding the scope of their services, accountants can establish themselves as reliable and knowledgeable advisors to their customers. The scope might include financial planning, tax optimization, or even business consulting. Offering a broader spectrum of services can strengthen the accountant-client relationship. Additionally, integrating AI into the accountants' work can enhance their capabilities (Moll & Yigitbasioglu, 2019; (Zhang et al., 2023). AI can assist in data analysis, automation of routine tasks, and providing relevant data for decision-making, leading to increased efficiency and reduced error risk (Jackson et al., 2023).

Figure 1 below shows the conceptual framework for this study, which summarizes the effect of AI on the accounting profession.
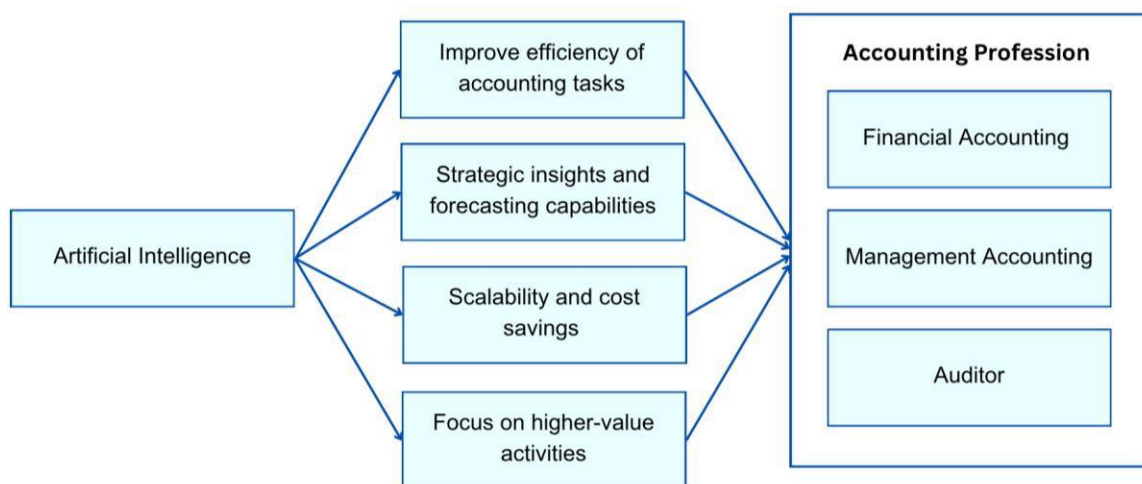

Figure 1. The Conceptual Framework of the Study (Source: Author)

5. Conclusion

The application of artificial intelligence (AI) is becoming increasingly important, specifically in the accounting field. Many accounting software solutions leverage AI for automating

routine tasks, such as data entry and reconciliations. For example, companies using AI-driven accounting platforms have reported significant reductions in processing time and a decrease in error rates compared to traditional methods. AI tools enable accountants to analyze vast amounts of financial data quickly and accurately, providing valuable insights for strategic decision-making. For example, businesses employing AI for financial analysis can identify trends, forecast future performance, and make informed decisions regarding resource allocation and investment strategies.

Therefore, technology is an absolute necessity for companies to implement, especially when they plan to remain in business over the long run. Reports from industry analysts highlight the increasing adoption of AI in accounting and the broader business landscape (Zhang et al., 2023). Surveys conducted among accounting professionals in industry and academia reveal a growing awareness of the benefits of AI and a willingness to invest in technology to stay competitive (Boritz & Stratopoulos, 2023). No other technology so far can equal the productivity, velocity, and precision of AI. It is important for accountants to participate in order to make the most of the technology in terms of both their professional output and its utility (Boritz & Stratopoulos, 2023). Those who work in accounting must keep up with the latest technological developments and remain vigilant regarding any changes (Moll & Yigitbasioglu, 2019), which will be an extremely beneficial accounting procedure for their customers due to AI usage. The performance of businesses also benefits from AI implementation.

However, there is a lot of disagreement about how AI will affect the accounting profession, such as financial accountants, management accountants, and auditors. They worry that AI could make their jobs useless. On the other hand, others think that technology could help change the accounting business for the better (Zhang et al., 2023). AI can handle routine tasks like data entry, invoice handling, bank reconciliation, and tax calculations, so accountants can spend more time on more important tasks . AI can also make it easier to examine data and improve the way data is analyzed, but people still need to consider the results and choose the best course of action. In addition, accounting tasks that require deliberate thinking, in-depth study, and human opinion are less likely to be done by machines than other accounting tasks (Zhang et al., 2023). In general, it is expected that AI will change the accounting field by automating regular and repetitive tasks and raising accountants' status in areas that require more strategic thought, analysis, and human opinion (Zhang et al., 2023).

This study is not without limitations. First, although literature reviews are crucial, there is a potential bias in the chosen sources as only SCOPUS was utilized as the platform to search for the literature. Secondly, this study relied heavily on published articles. Considering these limitations, future research could employ other databases, such as Web of Science, Science Direct, and Elsevier, to extend the findings of this study.

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Competing interests

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Data sharing statement

No additional data are available.

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References

Aitkazinov, A. (2023). The role of artificial intelligence in auditing: opportunities and challenges. *International Journal of Research in Engineering, Science, and Management*, *6*(6), 117-119.

Aldoseri, A., Al-Khalifa, K. N., & Hamouda, A. M. (2023). Re-thinking data strategy and integration for artificial intelligence: concepts, opportunities, and challenges. *Applied Sciences*, *13*(12), 7082. https://doi.org/10.3390/app13127082

Allioui, H., & Mourdi, Y. (2023). Exploring the full potentials of iot for better financial growth and stability: a comprehensive survey. *Sensors*, *23*(19), 8015.). https://doi.org/10.3390/s23198015

Appelbaum, D., Kogan, A., Vasarhelyi, M., & Yan, Z. (2017). Impact of business analytics and enterprise systems on managerial accounting. *International Journal of Accounting Information Systems*, *25*, 29-44. https://doi.org/10.1016/j.accinf.2017.03.003

Battina, D. S. (2018). The future of artificial intelligence at work: A review on effects of decision automation and augmentation on workers targeted by algorithms and third-party observers. *International Journal of Innovations in Engineering Research and Technology*, *5*(7).

Bharadiya, J. P. (2023). Machine learning and AI in business intelligence: Trends and opportunities. *International Journal of Computer (IJC)*, *48*(1), 123-134.

Belgaum, M. R., Alansari, Z., Musa, S., Alam, M. M., & Mazliham, M. S. (2021). Role of artificial intelligence in cloud computing, IoT and SDN: Reliability and scalability issues. *International Journal of Electrical and Computer Engineering*, *11*(5), 4458. https://doi.org/10.11591/ijece.v11i5.pp4458-4470

Boritz, J. E., & Stratopoulos, T. C. (2023). AI and the accounting profession: views from industry and academia. *Journal of Information Systems*, 1-9. https://doi.org/10.2308/ISYS-2023-054

Bose, S., Dey, S. K., & Bhattacharjee, S. (2023). Big data, data analytics, and artificial intelligence in accounting: An overview. *Handbook of Big Data Research Methods: 0*, 32. https://doi.org/10.4337/9781800888555.00007

Cai, C. (2022). Training mode of innovative accounting talents in colleges using artificial intelligence. *Mobile Information Systems*, *2022*. https://doi.org/10.1155/2022/6516658

Chua, F. (2013). Technology trends: Their impact on the global accountancy profession. *The Association of Chartered Certified Accountants*. Retrieved from https://www.accaglobal.com/content/dam/acca/global/PDF-technical/futures/pol-af-ttti.pdf

Dwivedi, Y. K., Hughes, L., Ismagilova, E., Aarts, G., Coombs, C., Crick, T., ... & Williams, M. D. (2021). Artificial Intelligence (AI): Multidisciplinary perspectives on emerging challenges, opportunities, and agenda for research, practice, and policy. *International Journal of Information Management*, *57*, 101994. https://doi.org/10.1016/j.ijinfomgt.2019.08.002

Grosu, V., Cosmulese, C. G., Socoliuc, M., Ciubotariu, M. S., & Mihaila, S. (2023). Testing accountants' perceptions of the digitization of the profession and profiling the future professional. *Technological Forecasting and Social Change*, *193*, 122630. https://doi.org/10.1016/j.techfore.2023.122630

Han, H., Shiwakoti, R. K., Jarvis, R., Mordi, C., & Botchie, D. (2023). Accounting and auditing with blockchain technology and Artificial Intelligence: A literature review. *International Journal of Accounting Information Systems*, *48*, 100598. https://doi.org/10.1016/j.accinf.2022.100598

Handoko, B. L., Mulyawan, A. N., Samuel, J., Rianty, K. K., & Gunawa, S. (2019). Facing industry revolution 4.0 for millennial accountants. *International Journal of Innovative Technology and Exploring Engineering (IJITEE)*, *9*(1), 1037-1041. https://doi.org/10.35940/ijitee.A4681.119119

Hasan, A. R. (2021). Artificial intelligence (AI) in accounting & auditing: a literature review. *Open Journal of Business and Management*, *10*(1), 440-465.

Igou, A., Power, D. J., Brosnan, S., & Heavin, C. (2023). Digital futures for accountants. *Journal of Emerging Technologies in Accounting*, *20*(1), 39-57. https://doi.org/10.2308/JETA-2020-088

Jackson, D., & Allen, C. (2023). Technology adoption in accounting: The role of staff perceptions and organisational context. *Journal of Accounting & Organizational Change*. https://doi.org/10.1108/JAOC-01-2023-0007

Jackson, D., Michelson, G., & Munir, R. (2023). Developing accountants for the future: New technology, skills, and the role of stakeholders. *Accounting Education*, *32*(2), 150-177. https://doi.org/10.1080/09639284.2022.2057195

Jalonen, J. (2023). Artificial intelligence as a part of financial management development: automation of accounts payable processes.

Jankovic, S. D., & Curovic, D. M. (2023). Strategic integration of artificial intelligence for sustainable businesses: Implications for data management and human user engagement in the digital era. *Sustainability*, *15*(21), 15208. https://doi.org/10.3390/su152115208

Kamau, C. G., & Ilamoya, S. L. (2023). Accounting profession: African perspective review of steps into the future. *Multidisciplinary Journal of TUM*, *2*(1), 19-26. https://doi.org/10.48039/mjtum.v2i1.43

Khawaja, N., & Hamdan, A. (2023). The moderation effect of digital leadership on the relationship between artificial intelligence and accounting profession: a review. *Emerging Trends and Innovation in Business and Finance*, 803-818. https://doi.org/10.1007/978-981-99-6101-6_60

Kroon, N., & do Céu Alves, M. (2023). Examining the fit between supply and demand of the accounting professional's competencies: A systematic literature review. *The International Journal of Management Education*, *21*(3), 100872. https://doi.org/10.1016/j.ijme.2023.100872

Kureljusic, M., & Karger, E. (2023). Forecasting in financial accounting with artificial intelligence–A systematic literature review and future research agenda. *Journal of Applied Accounting Research*. https://doi.org/10.1108/JAAR-06-2022-0146

Landers, R. N., & Behrend, T. S. (2023). Auditing the AI auditors: A framework for evaluating fairness and bias in high stakes AI predictive models. *American Psychologist*, *78*(1), 36. https://doi.org/10.1037/amp0000972

Larioui, A., & Himran, M. (2023). Impact of artificial intelligence on operational management and accounting. *La Revue des Sciences Commerciales*, *22*(1), 22-44.).

Li, C., Haohao, S. & Ming, F. (2020). Research on the impact of artificial intelligence technology on accounting. journal of physics: conference series, 1486 032042. https://doi.org/10.1088/1742-6596/1486/3/032042

Manap, A., Sasmiyati, R. Y., Edy, N., Buana, L. S. A., & Rachmad, Y. E. (2023). The role of auditor ethics as moderating variable in relationship between auditor accountability and quality of the audit. *Jurnal EMT KITA*, *7*(2), 382-388. https://doi.org/10.35870/emt.v7i2.1040

Marques, S., Gonçalves, R., da Costa, R. L., Pereira, L. F., & Dias, A. L. (2023). The impact of intelligent systems on management accounting. *International Journal of Intelligent Information Technologies (IJIIT)*, *19*(1), 1-32. https://doi.org/10.4018/IJIIT.324601

Moll, J., & Yigitbasioglu, O. (2019). The role of internet-related technologies in shaping the work of accountants: New directions for accounting research. *The British Accounting Review*, *51*(6), 100833. https://doi.org/10.1016/j.bar.2019.04.002

Pauceanu, A. M., Rabie, N., & Moustafa, A. (2020). Employability under the fourth industrial revolution. *Economics & Sociology*, *13*(3), 269. https://doi.org/10.14254/2071-789X.2020/13-3/17

Payton, T., & Claypoole, T. (2023). *Privacy in the age of big data: Recognizing threats,*

defending your rights, and protecting your family. Rowman & Littlefield.

Peng, Y., Ahmad, S. F., Ahmad, A. Y. B., Al Shaikh, M. S., Daoud, M. K., & Alhamdi, F. M. H. (2023). Riding the waves of artificial intelligence in advancing accounting and its implications for sustainable development goals. *Sustainability*, *15*(19), 14165. https://doi.org/10.3390/su151914165

Rawashdeh, A. (2023). The consequences of artificial intelligence: An investigation into the impact of AI on job displacement in accounting. *Journal of Science and Technology Policy Management*.https://doi.org/10.1108/JSTPM-02-2023-0030

Rodgers, W., Murray, J. M., Stefanidis, A., Degbey, W. Y., & Tarba, S. Y. (2023). An artificial intelligence algorithmic approach to ethical decision-making in human resource management processes. *Human Resource Management Review*, *33*(1), 100925. https://doi.org/10.1016/j.hrmr.2022.100925

Schaudt, C. L. (2023, October). Combining Robotic Process Automation with Artificial Intelligence: Applications, Terminology, Benefits, and Challenges Lewin Schaudt and Dennis Schlegel. In *Eurasian Business and Economics Perspectives: Proceedings of the 38th Eurasia Business and Economics Society Conference* (Vol. 25, p. 83). Springer Nature. https://doi.org/10.1007/978-3-031-36286-6_5

Sherif, K., & Mohsin, H. (2021). The effect of emergent technologies on accountants' ethical blindness. https://doi.org/10.4192/1577-8517-v21_3

Sutton, S. G., Holt, M., & Arnold, V. (2016). "The reports of my death are greatly exaggerated"—Artificial intelligence research in accounting. *International Journal of Accounting Information Systems*, *22*, 60-73. https://doi.org/10.1016/j.accinf.2016.07.005

Thakker, P., & Japee, G. (2023). Emerging technologies in accountancy and finance: a comprehensive review. *European Economic Letters (EEL)*, *13*(3), 993-1011.

Vărzaru, A. A. (2022). Assessing artificial intelligence technology acceptance in managerial accounting. *Electronics*, *11*(14), 2256. https://doi.org/10.3390/electronics11142256

Vasuki, M., Victoire, T. A., Karunamurthy, A., & Priyadharshini, B. (2023). Harnessing the power of artificial intelligence in stock market trading. *International Journal of Research in Engineering, Science and Management*, *6*(6), 167-182.

Zhang, Y., Xiong, F., Xie, Y., Fan, X., & Gu, H. (2020). The impact of artificial intelligence and blockchain on the accounting profession. *IEEE Access*, *8*, 110461-110477. https://doi.org/10.1109/ACCESS.2020.3000505

Zhang, C., Zhu, W., Dai, J., Wu, Y., & Chen, X. (2023). Ethical impact of artificial intelligence in managerial accounting. *International Journal of Accounting Information Systems*, *49*, 100619. https://doi.org/10.1016/j.accinf.2023.100619