The Impact of Artificial Intelligence (AI) in Accounting Profession : A Concept Paper

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Abstract
Artificial Intelligence is a machine system that is able to perform a cognitive function similar to human things such as learning, perceiving, reasoning and problems solving. It involves the application of algorithms and machine learning to give machines the ability to carry out operations that would typically require human intelligence, such as speech, image, and pattern recognition. The main issues of AI towards the accounting profession are quick adoption of AI technologies has the potential to threaten the foundational elements of accounting procedures and change accountants' roles. This paper explores the impacts of AI in the accounting profession. Three impacts are found which are technological, organisational and environmental. The practitioners need to be prepared and ready to implement AI in the accounting industry in order to sustain their career growth.
Keywords: Artificial Intelligence, Accounting Profession, Technological, Organisational, Environmental

Introduction
In the digitalisation era, many technologies have changed our work lifestyles. Artificial intelligence is one of the rapidly developing fields of computer science that is set to bring in a new era of technological advancement through the development of intelligent machines. It can build intelligent machines that think and act like people and are capable of making decisions. Artificial intelligence is now widespread in our world. It is currently working on a range of subfields, from general to specific, including self-driving cars, playing chess, proving theorems and playing music.

The use of AI makes it possible to examine every accounting transaction in existence, enhancing audit quality and generating more audit evidence on a larger scale. AI eliminates sampling risk by providing audit evidence gleaned from looking at 100% of the transactions. By concentrating on unusual or suspicious transactions, it also enables auditors to conduct audits more effectively. By utilising AI technology, fewer hours are spent on repetitive tasks, which also reduces the chance of human error. By giving people the opportunity to reflect deeply on the company and the implications of its accounting practices, it increases the value of the work that humans do.

Technology that is intelligent has the potential to maximizes efficiency and produce unmatched insights. The world of accounting is being shaped by this on a daily basis, and accountants' roles may change as a result. There is no better way to prepare for this bright, AI-supported future for accountants than to acquire a variety of skills outside of accounting (Amita, 2022). This contributes to the fact that the Certified Management Accountant designation has expanded significantly over the past few years and remains to be a powerful way to differentiate from the pack.

Problem Statement

Based on the market analysis, artificial intelligence in the accounting market was valued at USD 0.87 billion in the previous year and is expected to register of 32.58%, reaching USD 11.0 billion by the next five years (Mordor, 2023). The accounting profession is facing significant changes in line with the advancement of technology in recent years. The development of technology has changed the accounting landscape such as the way accountants carry out their duties, workflow involving processing financial information, policies and standards. The advancements continue to reshape various industries, the accounting profession stands on the precipice of a transformative era with the emergence of Artificial Intelligence (AI). The rapid adaptation of AI technologies has potential to threaten fundamentals of accounting practices and disrupt the roles of accountants. However, the full extent and implications of AI's impact towards the accounting profession has not fully been discovered yet.

This concept paper aims to address what extent does the adaptation of AI give impacts to the accounting profession and discuss ways for accountants to adapt to leverage the potential benefits of technologies while addressing the challenges. This study is to provide valuable insights and understanding into the potential impacts of AI on the accounting profession due to emerging technologies nowadays as most industries are highly reliant on the usage of AI. Therefore, the issue about how AI has left big impacts on the industry, especially the accounting profession, is highly relevant and timely. Thorough understanding on the implications whether on positive or negative perspective of AI in accounting is crucial for professionals and organisations to adapt, innovate and remain competitive in an evolving digital landscape.

Research Gap

Technology advancements, particularly AI has revolutionised the accounting field. Accounting practices are progressively incorporating AI technologies, leverage the opportunities and at the same time arise difficulties. As businesses strive to enhance efficiency, accuracy, and

decision-making capabilities, the integration of AI technologies into accounting practices has become increasingly prevalent.

AI has a wide range of effects on the accounting industry. Rather than displacing jobs, AI has the potential to improve and alter the accounting sector, allowing accountants to focus on more creative and meaningful work while providing more advantages to businesses (Nathan Liao, 2023). By addressing inefficiencies, enhancing decision-making, and automating repetitive processes, AI has the technological capacity to revolutionise the business. Implementing AI can free up accountants from boring jobs and let them concentrate on more strategic work, thereby attracting younger people interested in technology and innovation to the field of accounting (Jeff Dernavich, 2023). Although there is issue about employment being lost, AI can strengthen accountants' functions and draw in younger professionals who are interested in technology and innovation. AI also has a huge environmental impact since technology makes it possible for businesses to gather and analyse data for more precise environmental sustainability accounting, making it easier to put mitigation plans into action and encourage environmentally good behavior.

The existing studies have explored the general impacts of AI in the accounting profession, particularly examining the specific effects of AI in terms of its technological, organisational, and environmental impacts. There is still a large research gap in thoroughly examining the specific potential and consequences of AI from technological, organisational and environmental perspectives. Further research and understanding on these impacts are crucial for accountants, organisations, and policymakers to harness the potential of AI effectively and to navigate the associated changes.

Literature Review
Factors influenced usage of Artificial Intelligence in the Accounting Profession
Quality

Humans are subject to making mistakes and committing errors. However, AI can improve accuracy by reducing human errors and biases while also detecting and flagging data problems and inconsistencies. This improves the dependability and quality of accounting information and services. These activities are handled more efficiently and precisely with AI, allowing accounting personnel to focus on other critical tasks (Ahmed Rizvan, 2022). It is critical to guarantee that the data used to train and test AI models is comprehensive, consistent, relevant, precise, and up to date. This is because even when an accountant enters financial data into accounting software systems, AI can detect and flag problems, boosting the quality of accounting data even further (Ahmed Rizvan, 2022).

Moreover, accountants manage cash flow and bookkeeping in traditional accounting systems, which can lead to financial accounting issues and fraud (Pradip Kumar, 2021). It also requires an enormous amount of manpower and resources, which can lead to dissatisfaction and errors. Control over internal processes by management may be insufficient, exposing to a risk. To overcome this, computers may do complex accounting duties while accounting professionals review the results (Pradip Kumar, 2021). At the end of a term, AI can automate bill settlement and update the trial balance. However, financial

fraud can still occur since accounting systems may fail to detect it completely. People must make adjustments with oversight. Accounting employees provide their expertise, while AI improves efficiency by completing jobs on time (Pradip Kumar, 2021).

Based on study by Oliver Griffin (2019), KPMG expects a rise in AI and consultative work, which will result in better business outcomes for customers. In the accounting profession, there is an increasing demand for data analysts and business consultants, particularly those who can interpret corporate and sustainability reporting data. Effective communication skills are regarded as critical for accountants to succeed in efficiently utilising AI (Oliver Griffin, 2019). While the Big Four firms handle the majority of key AI projects, smaller practices must also adapt to technological changes in order to remain relevant. KPMG has been collaborating with IBM Watson to use AI technology for auditing purposes, with the goal of improving audit quality, efficiency, and insights (Oliver Griffin, 2019). The emergence of the gig economy and remote working may also affect the future of professional services, with project-based teams becoming increasingly common (Oliver Griffin, 2019).

Skill Gap
By automating tasks and reducing errors, delays, and manual interventions, AI can improve efficiency. AI might boost accountant productivity by 40% by year 2023, benefiting company growth (Blockchain Council, 2023). However, the skills gap is a concern because accountants must learn new skills such as data literacy, critical thinking, problem-solving, and communication in order to operate effectively with AI systems. They must also keep their subject expertise up to date and be aware of AI-related changes and opportunities (Blockchain Council, 2023).

For instance, a Decision Support System (DSS) is a computer-based system that helps with decision-making by addressing non-structured management issues and offering alternative options and outcomes. It aims to improve decision-making while without replacing human decision-makers (Ahmed Rizvan, 2022). Expert Systems (ES), on the other hand, are intended to automate decision-making and potentially replace humans (Ahmed Rizvan, 2022). In unstructured accounting and audit responsibilities, DSS is usually utilised. Machine Learning (ML), an aspect of AI, focuses on recognising patterns in data and enabling computers to learn and complete tasks without explicit programming (Ahmed Rizvan, 2022). Transaction classification for control functions is one of the many uses of machine learning. Deep Learning, a subclass of machine learning, employs brain-inspired architectures to enable computers to think and learn (Ahmed Rizvan, 2022).

AI will likely reduce the need for accountants, particularly in repeated bookkeeping and based on processes jobs. Accounting departments will most certainly be eliminated as a result of automation, allowing accountants to focus on more important objectives. With the rise of the fourth industrial revolution, the World Economic Forum (WEF) forecasts substantial changes in work and employment due to technology advancements (Oliver Griffin, 2019). While there are fears about technological unemployment, the impact on the accounting profession may be less severe. Accountants' abilities are expected to change,

and there is a need to create opportunities for junior accountants to gain experience and develop more strategic positions. While there is some fear and hype around AI, there is also potential for growth and advancement. Overall, AI is expected to bring about a shift within the accounting profession, demanding a broad education as well as adaptation to new technology (Oliver Griffin, 2019).

Integration
The integration of AI into accounting practices involves leveraging AI technologies and algorithms to automate tasks, enhance data analysis, and improve decision-making in the field of accounting. Due to the development of artificial intelligence, it is common in the industry, especially the accounting industry which depends a lot on the use of software such as SQL, ERP accounting, Desktop Pro and many more to make changes in adapting with the use of AI. As the significant changes are a crucial process that aims to facilitate the successful integration of new technologies within the organisation. The integration of AI into the accounting process or workflow can bring change in the way tasks are performed, roles and responsibilities defined, information processed and analysed.

The implementation of AI requires a redesign of accounting workflows. The duties and responsibilities of accountants need to be redefined, and accounting management has to examine present processes and identify jobs that might be automated or optimised by AI. This can entail automating repetitive operations, speeding data entry, and incorporating AI-powered tools for reporting and data analysis. The use of robotic process automation (RPA) in automating routine accounting tasks, such as data entry and reconciliation. It found that RPA can result in significant time savings and cost reductions, enabling accountants to redirect their efforts towards more strategic activities. By identifying that by keeping abreast of continuous improvements of AI in the field of accounting and auditing, accountants as well as firms will eventually be able to reduce the accounting costs, add value to the accounting industry by moving the focus of accountants from the existing monotonous tasks to data-driven and analytics-based decision (Mohammad et al., 2020)

For example, AI can categorise transactions, balance accounts, and produce financial reports automatically, freeing up accountants to work on more difficult jobs like strategic financial planning and analysis. Taking an illustration, a multinational firm uses AI-powered software for the examination of financial data. The software uses machine learning and natural language processing to extract pertinent data from financial documents including bank statements, invoices, and receipts. This automatic data extraction procedure speeds up data processing, minimizes human error, and requires less manual labor. Accountants can therefore concentrate on duties that have a higher economic value, like financial analysis and strategic decision-making.

The Impact of AI in Accounting Profession
Technological Impact
By addressing inefficiencies and creating value, AI has the potential to transform the accounting business. Since year 2016, top accounting firms such as Deloitte, KPMG, EY, and PwC have adopted AI efforts, recognising its revolutionary impact. AI, along with other

technologies such as big data, cloud computing, and blockchain, has been considered as a catalyst for change in accounting practices (Nathan Liao, 2023). Working together, AI, RPA, and ML deliver more relevant information for decision-making, resulting in improved business outcomes. Rather than displacing jobs, AI has the potential to improve and alter the accounting sector, allowing accountants to focus on more creative and meaningful work while providing more advantages to businesses (Nathan Liao, 2023).

Accounting software that uses AI automates data processing and management saves time and labor. It delivers data in an understandable way so that accountants may utilise it. Businesses may gain a competitive edge by utilising AI platforms and assistants, and forward-thinking companies have already adopted these technologies. For instance, the use of ChatGPT and AI in accounting has both potential and risk (Nathan Liao, 2023). ChatGPT may be used in office environments to respond to complicated financial questions, freeing up human accountants to focus on more strategic work (Nathan Liao, 2023). It could also prove to be a useful tool for those managing their taxes and financial planning (Nathan Liao, 2023).

Although AI has the potential to transform the accounting sector, it won't completely replace accountants (Jeff Dernavich, 2023). Although AI will alter the way accountants operate, those who can use AI software to increase their productivity and effectiveness are more likely to succeed in their careers. The lack of qualified workers in the industry is what accountants should be most concerned about. Implementing AI can free up accountants from boring jobs and let them concentrate on more strategic work, thereby attracting younger people interested in technology and innovation to the field of accounting (Jeff Dernavich, 2023).

However, the research by Eleonora (2018) examines the Three Laws of Robotics' protective character and identifies examples of when robots in popular culture go beyond acceptable ethical bounds. The risks of AI are then discussed by Stephen Hawking, Elon Musk, and Bill Gates. Hawking emphasizes the effect of AI on unemployment while expressing concern about the probable end of mankind. Musk has similar concerns and urges the creation of new jobs for people who are displaced. Rob Enderle shares similar worries, speculating on a dire outcome in which AI takes over all human occupations. Thus, the concern is that eventually, the role of accountant will be taken over by AI (Eleonora, 2018).

Organizational Impact

In almost every industry, AI is used in a wide variety of applications. The accounting industry is also undergoing significant change, particularly in the areas of auditing, financial reporting, and bookkeeping. Data entry and other repetitive tasks can be automated by AI technologies, allowing accounting professionals to work on more important tasks. A significant example in this area belongs to a cloud-based accounting software company that has implemented AI technologies to improve its bookkeeping capabilities. They use machine learning algorithms to automate many repetitive tasks associated with bookkeeping, such as data entry and categorisation. This has significantly reduced the time and effort required

for bookkeeping, allowing accounting professionals to focus on more strategic initiatives (Paulo, 2023).

Work positions in normal accounting are not separated from the accounting department. Thus, it will lead all finance personnel to have access to both the bookkeeping and cash flow. There is a lack of organisation, which could lead to financial fraud because it allows self-serving criminals to benefit themselves. However, with the inclusion of artificial intelligence, computers will handle a large portion of accounting and other related work; accounting personnel will only need to enter instructions and review them. In the accounting system, each accounting personnel has unique privileges (fingerprint scanner, retina scanner, etc.), as well as different passwords and accounts, resulting in a clear separation of responsibilities, which reduces the possibility of financial fraud to some extent. The accounting system, however, cannot completely prevent financial fraud because systems still require human personnel to control it, but it is a good start, especially because digital footprints can be tracked and monitored (Jedrzejka, 2019).

The skill sets required to work with these emerging technologies differ at the organisational resource level. AI has already started to influence hiring practices in the Big Four firms, which prefer individuals with fundamental accounting knowledge, programming skills, and data management skills (Cooper et al., 2019). Adoption of AI, could improve auditors' technical skills, such as coding and visualisation, allowing them to understand and manipulate massive amounts of data from both internal and external sources (Deloitte, 2018). AI will assist in achieving this goal by enabling data-driven decision making, data analytics to derive actionable insights, and freeing up accountants to work on value-added tasks rather than being swamped by tedious grunt work (Goh et al., 2019).

Environmental Impact

An important part of improving environmental sustainability accounting for organisations is artificial intelligence (Marcin Frackiewicz, 2023). It makes possible to automate data collecting for environmental aspects including waste development, water use, and usage of energy, which results in more precise estimates of an organisation's environmental effect. This data is subjected to AI analysis to find patterns and trends that help organisations discover areas in need of better sustainability practices. AI aids in the creation of complex models of accounting for environmental sustainability. Accurate environmental effect predictions are made possible by AI, enabling businesses to actively plan and implement mitigation strategies (Marcin Frackiewicz, 2023).

AI is becoming a critical tool for businesses seeking to raise their environmental consciousness (Marcin Frackiewicz, 2023). AI can detect abnormalities and identify areas for improvement, allowing businesses to address possible concerns sooner. Furthermore, AI monitors the supply chain and product sustainability, allowing for adjustments to lessen environmental effects. AI-assisted real-time monitoring aids in the fast resolution of environmental concerns, making it a vital tool for businesses aiming to be more ecologically responsible (Marcin Frackiewicz, 2023).

By implementing AI urge the idea of The ARIES (UN, 2021). The concern of ARIES for SEEA Explorer (Environmental-Economic Accounting) is an open-source digital tool that enables global ecosystem accounting. It allows physical and monetary monitoring of ecosystems and their services, as well as assisting broader environmental and sustainability evaluations. The tool is compliant with the UN Statistical Commission's SEEA Ecosystem Accounting worldwide standard for natural capital accounting. It includes the most recent data and models, making it accessible and user-friendly to a wide range of users, including those with less spatial modeling knowledge. Through a fair modeling approach, the tool supports model reuse and customisation, enabling knowledge exchange and informed decision-making regarding resources from nature.

However, in order to operate an AI, there are specific requirements needed such as a processor, which lead to the greenhouse gas emissions caused by systems, processes, and resources being converted into a carbon dioxide equivalent (Luise, 2022). The author emphasizes the value of carbon accounting in data science, particularly as it relates to AI systems. Therefore, making Carbon accounting helps to emphasize how crucial it is to monitor and assess the carbon footprint of AI applications in order to promote sustainability and constructive development (Luise, 2022). Businesses may evaluate the possible influence on carbon emissions by changing settings in tools. For instance, reducing emissions can be achieved by scheduling model training during times when server demand is low, such as on weekend. Companies may understand the environmental effect of their AI applications, take action to reduce emissions, and promote sustainable AI design by using carbon accounting, which supports corporate sustainability goals (Luise, 2022).
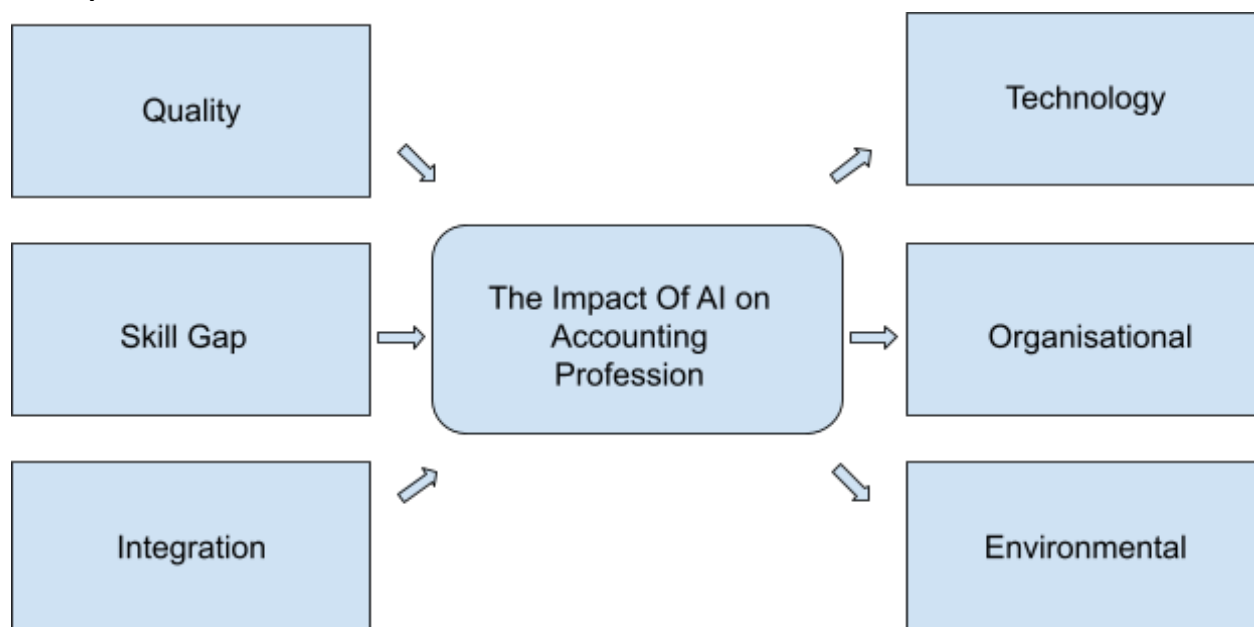
Conceptual Framework

Figure 1 : *Framework of The Impact Of AI on Accounting Profession*

Recommendations
Implement AI to Enhance Accountant's Work

The way accounting tasks are carried out could be significantly affected by the adoption of artificial intelligence in the accounting profession. There are many suggestions regarding the impact of technology on the application of AI in the accounting profession, including fraud detection and risk management, improved accuracy, and reduced errors. Although AI can automate a variety of tasks, it is important to keep in mind that accountants still play a crucial role in providing professional judgment, ethical considerations, and strategic advice. As opposed to replacing accountants' knowledge, AI should be viewed as a tool to support and enhance their work.

Capability to Boost Accounting Efficiency

The primary goal of a business is frequently to improve workflow performance. Artificial intelligence will play an important role by automating routine processes such as financialartificial intelligence to quickly crunch large volumes of data to provide critical feedback on business-related issues. For instance, an auditor will be able to carry out an audit quickly and effectively because it constantly has access to relevant data rather than having to conduct research and gather the data for the audit. As a result, audits are more accurate and effective because they can cover all of a company's financial activities rather than just a sample of them.

Implement AI for Environmental Sustainability

Artificial intelligence should be used by businesses to automate data collecting and analysis for environmental factors like waste development, water use, and energy use. By utilising AI technology, businesses may automate the gathering and analysis of information on environmental factors including trash generation, water use, and energy consumption. AI has the capacity to generate estimations of an organisation's environmental effect that are more precise and accurate, allowing firms to better understand their sustainability performance. Furthermore, AI can find patterns and trends in data, assisting organisations in identifying areas that need to be improved in terms of sustainable practices. Businesses are now better equipped to actively design and carry out mitigation methods that attempt to lessen their environmental impact. Organisations can improve their capacity to make wise decisions and take proactive measures to meet their environmental objectives by incorporating AI into their sustainability projects.

Conclusion

The accounting industry may undergo significant changes and alterations as a result of the use of artificial intelligence. By lowering biases and errors made by humans, increasing accuracy, and identifying faults and inconsistencies in data, the application of AI technology in accounting can improve the quality of accounting information and services. Automating tedious operations with AI can free up accountants to work on more valuable and strategic jobs like financial analysis and decision-making. The deployment of AI, however, also poses difficulties for accountants. There are skills that has to be filled because in order to operate effectively with AI systems, accountants need to learn new abilities including data literacy,

critical thinking, problem-solving, and communication. As AI automates more tasks, accountants' responsibilities and functions may changed.

AI's influence on the accounting profession extends beyond technological issues to organisational and environmental factors as well. AI innovations can alter worker positions, reshape accounting operations, and boost organisational effectiveness. By automating data collection and analysis for environmental concerns, AI can support environmental sustainability initiatives by assisting businesses in making educated decisions and taking preventative action to lessen their environmental effect. The adoption and adaptation of these technical breakthroughs by accountants and organisations is crucial if the accounting profession is to take advantage of AI's potential advantages. Accountants should continue to develop their skills, keep up with changes and opportunities connected to AI, and concentrate on activities that call for human discretion and knowledge. Companies should rework their accounting processes and identify tasks.

In conclusion, there are possibilities and problems associated with the implementation of AI in the accounting industry. Accountants may improve the quality of their work, increase productivity, and offer more value-added services to their clients by skillfully incorporating AI technologies into accounting practices. Accountants and organisations must innovate, adapt, and embrace AI's potential benefits while addressing its obstacles if they want to be competitive in the accounting profession's rapidly changing digital system.

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