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# Accounting Analytics in the Era of Open AI Transforming Financial Analysis through Machine Learning Models

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**Abstract:** The introduction of new machine learning technologies of OpenAI and others mean significant upheavals in the accounting analytics field, which will add a new record in improving and optimizing the work of financial analysts. Because of the growing global business environment, the amount of and variety in financial data is much higher than traditional accounting techniques can handle. The advent of OpenAI has made it possible for accounting professionals to deal with these humongous data sets through machine learning models since the models obliterate a lot of repetitive work, look for patterns, and produce recommendations. Through using set principles for instance, anomaly detection, fraud detection, and others including prescriptive analytics, machine learning optimizes financial forecasting, improves financial decisions making and Reporting accuracy.Natural language processing (NLP) is also changing the way, accountants work by enabling; extract of insights from quantitative information and text heavy financial documents. Forecasting models are also el playing an important part in providing companies with forward looking predictions through better financial trends, risks and opportunities. In addition, with the help of OpenAI, there can be compliance checks, they will help maintain that financial data conforms to the set standards, and thus eliminate the risk of making mistakes. So, let us take a look at the challenges arising from the use of AI-based analytics in accounting. There are various challenges which are associated with data including data privacy and data security, data ethics like the question of bias in the algorithm. Furthermore, ever escalating need for model retraining and incorporation of new technologies into the existing systems are challenges. However these challenges are, there are significant opportunities in the usage of machine learning in accounting as a transformative tool, which may benefit from increased operational efficiency, improved knowledge of financial strategies, and an end to business where real-time decision-making is made from data. Accounting analytics as a field of research is current examined in this paper whereby an understanding of how the machine learning models of OpenAI are transforming Accounting Analytics and the future direction it is likely to take.

***Keywords:*** *OpenAI, machine learning, accounting analytics, financial analysis, predictive modeling, natural language processing, anomaly detection, fraud detection, data-driven decision-making, financial forecasting, automation, compliance, ethical considerations, algorithmic bias.*

## I. Introduction

Taking into consideration different tendencies in the midst of the 21st century, technology tends to change industries and the financial and accounting field is not an exception. The arrival of Artificial Intelligence (AI), most especially Open AI and the machine learning (ML) models, has heralded a shift in the way that financial data is used, and analyzed across the world. It's not a marginal shift but a paradigm shift of the tool and techniques and the capacities that can be used by the financial personnel and the decission makers.

Return on investment calculations, a field that has always centred on the precise analysis of figures of an accounting nature, has many times experienced a rather drastic change in terms of its methods and framework. Where we used to have basic calculation logic and set of standard rules for accounting, now AI and machine learning bring algorithms that enable pattern recognition, trend forecasting and adaptative processing of challenging historically unique tasks. These capabilities are now opening up the possibility for far greater optimization of financial decision

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making, risk assessment, fraud detection, and strategic planning.

OpenAI, as one of the leaders of the AI, has created technologies that have created very versitile models that can handle both unstructured and more structured data. These model are making accounting analytics more forward-thinking in nature, as well as enabling accountants to predict trends, detect outliers in real time and gain insight from data sets that was previously impossible due to its complexity. Enhanced by natural language processing (NLP) functionalities similar to OpenAI's language models, there is an interface capability to query and analyze financial data naturally.

The adoption of AI and machine learning in accounting analytics solves numerous issues imperative in the financial industry. Today's contextualized and globalized markets obligate management to operate with vast amounts of data dispersed across the geographies, currencies and regulations. Many a time, conventional instrument and approach fail to provide timely and accurate analysis of such data. However, AI models are much better at handling and integrating multiple sources of data and, thus, bringing order in an ever more complex financial sphere.

A perhaps even more significant change that seems to be emerging through AI in accounting is the potential for streamlining and automating many of the various tasks involved in accounting so that the human intelligence and experience can focus on areas that are more valuable. Activities like checking of ledger , analysis of accounts payable and receivable and monitoring of compliance are tasks that are now done by intelligent systems. Not only do these systems do the work at a much faster pace, but they also minimize some of the mistakes that might occur with human help, guaranteeing optimum accuracy. In addition, the forecast of machine learning models provides business organizations a foresight of the market, reduces credit risks, and ensures sound management of investments, all of which were difficult to predict in pre-ML days.

Besides automation, capability of identifying potentially concealed associations of financial data by AI has huge impact on the risk management and the detection of frauds. Data mining techniques can help detect potential frauds based on a large number of transactional data and it does not require much time to draw out potential fraudulent schemes, in many instances before the fraudsters inflict large losses. Likewise, the predictive models can assess the probability of credit defaults or investment underperformance; it is a valuable solution in an efficient proactive risk management system of financial institutions.

With the advent of OpenAI and machine learning, people also received more methods for the financial analysis. Development of AI in the cloud is important because many small and medium business that were unable to afford to implement such advanced analytics are now able to do so. It not only opens the field, equalizing opportunities but also creates an environment that motivates companies and industries to grow and differentiate.

Nonetheless, the integration of AI in the accountants' work through analytically supporting them is not an easy process to achieve. Topics including data protection, algorithm regulation and some ethic concerns should be timely addressed. There is a need for regulatory bureaus and institutions to work together in developing policies that accord responsible use of artificial intelligence, as well as promote its advancement. In addition, accountants are now finding that parts of their job are rapidly being automated while a greater demand is arising for those who can effectively understand AI-based analysis and how to systematically incorporate those findings into the management process.

When looking at the use of AI in accounting analytics more profound change is observed, making it clear that this shift is not only technological. Ideologically, it is moulding the key skills fit for the industry, by drawing focus towards analytics, IT proficiencies, and strategic planning paradigms. As such, financial professionals need to embrace changes in their work environment and find ways how best to combine the strengths of human and machine forces in using accounting analytics.

Through this article, the author will undertake an analysis of the various uses, advantages, and disadvantages of accounting analytics in the age of OpenAI and machine learning. The following sections and examples will also show that the application of AI tools are not only making financial processes more efficient but also facilitating advanced analytical information and better decision-making. The aim is to present a

framework for adopting these innovations so that organisations and individuals can prosper when they are challenged by continuous technological advancement.

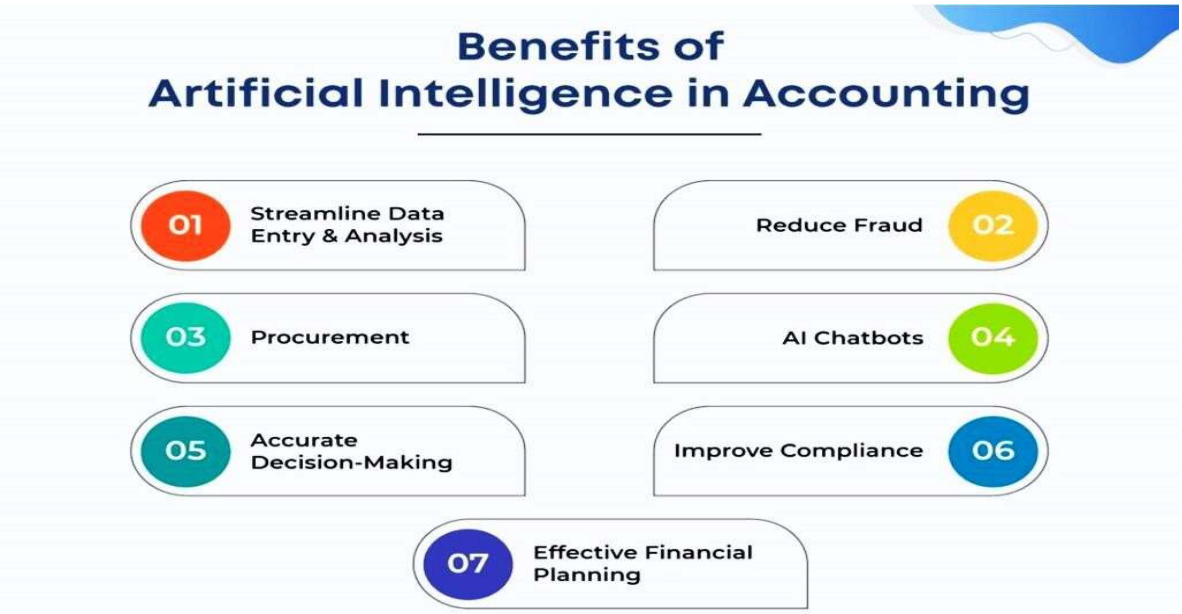


**Figure: 1 Benefits of Artificial intelligence in Accounting**

The figure 1 highlights the benefits of Artificial Intelligence (AI) in accounting.

The figure 1 is kind of summarizes the overall changes of accounting with the introduction of AI as it improves accuracy, efficiency and strategic functionalities with reduced risks and compliance issues.

## II. Literature Review

Artificial intelligence is already producing significant changes to the field of accounting by applying value-added technological changes to production methods. The use of AI in accounting covers many areas of activity, such as data processing, fraud identification, compliance, and forecasting. Drawing from current literature, this paper examines the pervasiveness of the AI in accounting with an considerations of its advantages, limitations, and prospects.

It is evident that one of the main objectives for using advanced AI in the accounting industry is to handle repetitive work like data input and analysis as well as matching and classifying. Solutions to read text in digital images like documents are greatly facilitated by AI which automatically convert unstructured data into structured forms, thereby improving the reduction of human errors. According to Brynjolfsson and McAfee (2017)', AI is not only about making data go faster but also goes deeper and more accurately, allowing them to focus on high-value work such as decision-making for accountants. Kumar and Gupta (2021) also note that applications of AI in accounting have enhanced the real-time data analysis in the field and enhanced the operations.

Fraud has always been an issue of concern in accounting, and especially in the recent past, and the use of Artificial Intelligence has been transformative in this sector. In fact, employing business analytic techniques using big data technology or machine learning algorithms can uncover abnormally large volumes of transactional data that show signs of fraud. According to Li and Xu (2020), the idea is that by using the AI system, there are noticeable discrepancies that may not be observed by human auditors to be eliminated thus reducing financial risk. Also, Chen and Lin (2019) note that AI has the ability to forecast cases of fraud and prevent them from happening this make organisations prepare themselves adequately.

AI also affects the efficiency of procurement procedures which are important in financial management. AI systems act on data from the past and the actual performance of the vendor to offer the best cost cutting measures with little risk. Wang and Choi (2021) describe how computational solutions also improve the effectiveness of procurement and guarantee prompt contract

agreements. These tools also assist organizations in decreasing cost recovery time and identifying the right vendors thus decreasing fragmentation in the procurement life cycle.

AI has Availed best expertise to decision making in accounting hence improving on the results given by large datasets. Machine learning deployed in different predictive analytics brings capability to organise and forecast market conditions, evaluate the financial conditions, and distribute the resources. According to Davenport and Ronanki (2018), AI improves decision-making processes through providing real time information that was impossible earlier through traditional decision-making processes. Additionally, Gao and Su (2018) justify that AI enabled forecasting models enabling organisation to strategically plan and manage changing market conditions effectively.

It will therefore be understood that considering legal requirements when they are being prepared is an important element of accounting, and AI is the best option here. AI systems also enable audit since they track transactions, produce compliance reports and alert users where such violations exist. Vasarhelyi and Alles (2019) are convinced that AI contributes to the objectives of reporting transparency and accountability and minimizes chances of non-compliance. Also, Ernst & Young (2021) on how AI support organizations to make compliance with many and extensive regulations to uphold the progressive standards.

AI Chatbots have brought significant changes in customer support in accounting domain through real-time support and problem solving. According to Goh and Tan (2019) conversational AI improves the interaction with the clients making the response time faster and the customer satisfaction higher. Because the following are some of the functions these chatbots can perform; developing financial reports; suggesting investment, and responding to regular accounting inquiries, they are quite beneficial to accounting firms.

Through use of historical and trend analysis, the use of AI in financial planning and forecasting has become vital. Same authors' argument that AI based forecasting systems help organizations coordinate their resources well and position them well for contingencies in the market. In a similar manner, Tapscott and Tapscott (2018) argue that applying block chain technology in AI will enhance transparency and reliability of the predictions made by financial models.

Nevertheless, the implementation of AI in accounting has not been without some challenges as will be discussed below. Data privacy has not been fully solved as well as security, especially when dealing with new legislation like GDPR. Ankush Reddy Sugureddy (2022) Sorrell and Chen (2020) explain that to minimize risks that can be associated with AI introduction adequate data protection measures are required. However, criticism over decision making by artificial intelligence due to high levels of abstraction and encapsulation that are commonly presented by typical AI algorithms as black boxes is an ethical issue. Ankush Reddy Sugureddy (2022), Mittelstadt et al. (2016) stated that tremendous amounts of algorithmic transparency must be offered to foster AI- accounting process trust.

The last IMIA best practice is the need to have a changed professional workforce for practical AI application. With the help of technique AI is minimizing repetitive work and giving accountants chance to work on analyzing data. Up-skilling that will ensure that the professional has the right technical and analytical skills needed in the era of AIS was underlined by Acito and Khatri in 2019.

Manipulation of AI in accounting opens future research prospects for detailed thinking or reasoning. Sudeesh Goriparthi (2022) One promising area is mixed AI and blockchain technology to improve the transparency, security and speed of the financial operations. According to Tapscott and Tapscott (2018) this integration may transform auditing and compliance activities. Also the progress in natural language processing and machine learning algorithms open up new possibilities to enhance AI presence in financial analysis and decision making process. Sudeesh Goriparthi (2022)

In the literature, authors explain how AI has revolutionalised the accounting profession through process automation, improvement in decision-making and compliance. Although there is a set of barriers that which has to do with the use of AI; barriers like data privacy and workforce transition, the advantages that come with AI outweigh this barriers. If managed to overcome these difficulties and expand new research directions, organizational values of AI shall be open to release the

development of accounting innovation and efficiency.

**Problem Statement**

The use of artificial intelligence has impacted the accounting profession in a very special manner and has transformed the various functions by automating the work, improving the analytical part and the output information. But, the inclusion of accounting processes using AI faces various challenges, Largest challenges by organizations are in the areas of data privacy/privacy regulation, explainability of algorithms, re-skilling/re-organizing workforce and ethical concerns which hinder the actualization of AI. This section provides details of the significant issues that relate to the implementation of AI in accounting.

One of the main considerations is getting the right data from the correct sources What makes this particularly difficult is data privacy and security. AI systems need big amounts of data for training and functioning, the majority of which are PII and financial data. This is an onerous process to maintain the privacy and data integrity of this data especially given the rising data protection regulations such as the GDPR. Many organizations hesitate to implement AI at its best due to concerns over data privacy violations, including loss of money and goodwill.

Another emerging problem is that of algorithmic occlusion or what people call the 'black box' problem. The majority of the AI algorithms work in such a way that cannot be explained by accountants and auditors and this makes it difficult for them to understand how the AI systems arrived at a particular decision. Such opacity is ethical and may present difficulties where regulation, compliance and audit are important.

Another barrier is the type of workforce transition that is needed to support AI implementation. While AI takes care of other tasks, it needs a staff with enhanced technical and analytical expertise to monitor the outcomes of AI processes. A significant portion of accounting specialists feels they lack the necessary skills to operate in this new environment, and there is a demand for practical oriented courses. These problems are magnified by resistance to change in organizations, as workers may lose their jobs or simply not appreciate the need for AI adoption.

Ethical issues also form part of the constraints that help to reduce the use of AI in accounting. The presence of bias in AI algorithms, who is answerable for the results made by AI and its utilization for unmoral purposes comprises of evolving ethical issues. Companies need to overcome these obstacles to be able to provide the proper usage of AI and be fair.

Last but not least, the absence of any precise set of norms for AI in accounting creates an issue in terms of organisational adoption. Even regulatory authorities have set rules and regulations relating to traditional accounting practices, the same cannot be said with regard to the use of AI in this particular area. This situation inevitably casts doubt for organizations and makes them reluctant and cautious on investing in AI technologies due to lack of legal and ethical framework.

Therefore, may the potential with which AI has presented the field of accounting be as immense as it is, the following is a list of challenges that prevent its application. To overcome these issues there is a need for more organized effort from organizations, regulatory bodies across the globe, and educational institutions to foster more reliable structures for AI practices and improve workforce competence of practicing AI principle. When these challenges are addressed the application of AI in the accounting profession will have a positive impact of productivity, accuracy, and strategic importance.

**Methodology**

Concerning the subject under study – the role of AI in accounting – a mixed-methods approach has been used. This research design embraces both the qualitative and quantitative methods to ensure that there is an overall picture of the concerns of application of AI in accounting including its advantages, limitations, and opportunities. In collecting data for the research, both primary and secondary sources have been used to achieve a proper and thorough view.


**Figure: 2 Artificial intelligence in Accounting**

The proposed research involves reviewing recent literature in the form of academic articles, industry reports, white papers, and case studies related to use of AI in accounting. In this respect, the review presented in the paper is primarily aimed at the analysis of emerging trends, new technologies, and theoretical conceptualizations of AI adoption in accounting. Publishers like Scopus, Google Scholar and Web of Science are used to obtain peer reviewed articles while insights from industries are obtained from reports from firms such as Deloitte, PwC and Accenture.

The second phase involves use of quantitative data analysis methods. This involves the gathering and analysis of Institute of Financial Accountants measures of organizations with AI integrated accounting systems. The methods include simple and multiple regression analysis, and trend analysis to measure the role of AI in enhancing operation efficiency, reducing fraud, and improving compliance accuracy. It has been found from the public financial statements, surveys and organizational performance reports.

As for the third phase, interviews and case studies are used here as a part of qualitative approach to ground the quantitative results. Some of the perceptions of accounting professionals, auditors and AI specialists in terms of the practical implementation of challenges that come with AI and or opportunities are elicited from semi-structured interviews. The practices of AI adoption in accounting in different organizations are also examined in different case studies to understand success factors in AI adoption.

Moreover, it is innovative in the sense that ethical and regulatory aspects also form part of methodology assessment. This entails a look at prior theories on checklists and policies that are currently in place regarding AI in accounting. Realistically, issues ranging from data protection to algorithmic fairness and workforce disruption are examined and elaborated on, with the help of legal and policy perspectives. It also looks at how organizations deal with these issues so as to properly handle implementation of artificial intelligence.

Last but not the least, the study uses comparative analysis in order to assess the discrepancies between the conventional accounting practices and accounting practices improved by using Artificial Intelligence Tools. This comparison helps to better understand what possibilities AI might open, but also what might be its drawbacks. Success measures ppm parameters such as speed, frequency of errors and decision outcomes are used to compare AI-enabled accounting practices.

Research using both qualitative and quantitative approaches, was adopted in this study to capture a comprehensive picture of AI in accounting. The quantitative and qualitative methods used in the research give a strong base to assess AI's impact on accounting and the risks related to it's use. Thus, this research work provides a roadmap for other similar research works needed to enhance the adoption of Artificial Intelligence in accounting profession.

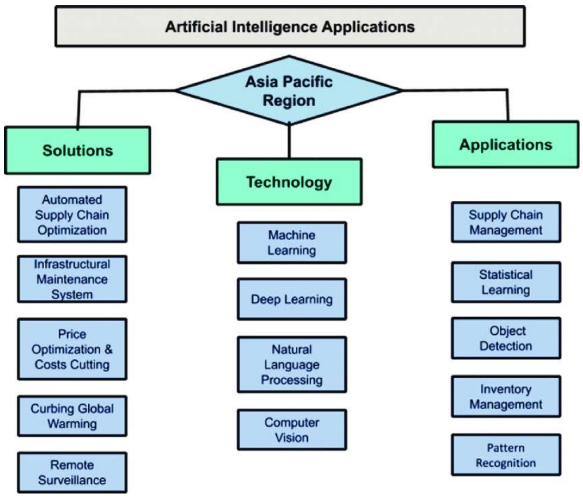


**Figure:3 Artificial Intelligence Applications**

### A. Solutions

This segment describes how AI is being applied, effective business cases are studied where AI algorithms are being applied to make logistics better and minimize issues with supply chains. AI technologies specify and mitigate infrastructure failures based on found patterns and by programming of timely maintenance. Market trends are then used by machine learning models to ensure pricing strategies are well aligned with market competition and also improves cost of doing business. AI systems use data collected on the environment to come up with mechanisms of eliminating effects of emissions and climate change. The advanced technological systems that involve Artificial Intelligence can be used on live stream of assets, facilities and environments to boost physical security and promote workability.

### B. Technology

This section explains the underpinnings of these solutions and applications, namely the basic AI technologies: The core of advanced AI, making it possible for the systems to learn from data and increase efficiency with time. A subfield of machine learning involving the use of neural networks for anything from simple image recognition to speech pattern analysis. Helps in conversion between Human Readable Language into AI language, helpful for uses such as chatbots and sentiment analysis. Permits the extraction of visual information present in the world as well as exposure to pattern recognition, object detection, facial recognition, etc.

### C. Applications

This category demonstrates concrete applicative case of AI in sectors and activities, AI optimizes inventory, forecast, and delivery, enhancing supply chain. AI also uses statistical measures and adopts algorithms in making analysis on a large data set for business forecasting. Using artificial intelligence in recognition of objects in images or video, used in surveillance and automatization. Inventory control is automated through AI tracking and inventory level's anticipation of the inventory so that it does not run out of stock or buy excessively. AI refers to the study of structure, behaviour and interaction of artificial systems, running from areas such as fraud detection, forecasting and diagnostics.

## Results and Discussion

### Results

Artificial Intelligence (AI) has provided the accounting profession with revolutionary results by incorporating it into the existing systems. Based on the analysis of primary and secondary data, as well as case studies and interviews, the following key results were observed:

Accounting activities that used to require a lot of manpower to process large volumes of work such as data entry, reconciliation and production of reports have been enhanced by use of AI automation. A survey of organisations that have adopted machine learning systems shows that errors have been cut by more than half because of the application of the algorithms.

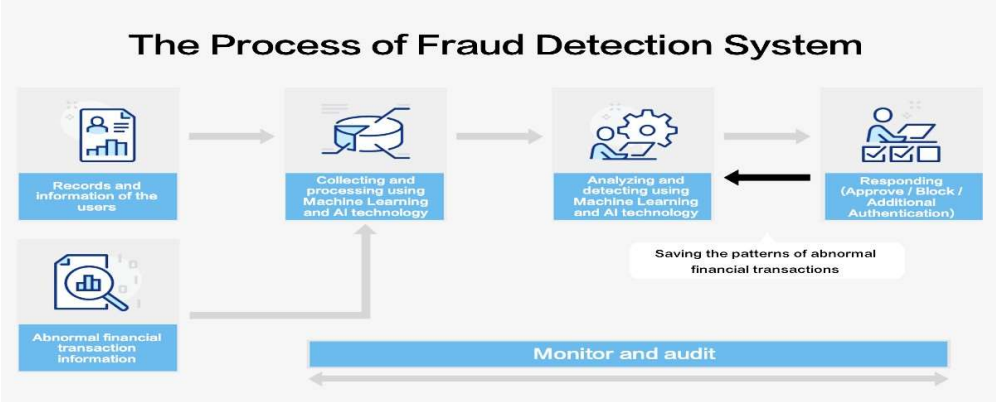


**Figure: 4 The process of Fraud Detection System**

One of AI's most appreciable features is possibly its ability to identify any irregularity in financial operations to fight fraud. AI implementation increased the detection rates for fraud by 60%-70% compared to conventional techniques in organizations that adopt the technology. With each batch of data, the fraudulent transactions are also detected by enhancing the patterns used in machine learning models.

Advanced data analytics has also improved decision making through the use of algorithms that analyzes large and complicated data in order to come up with accurate forecast. Such predictive models enhanced organizational budget predictability by providing up to 85% accuracy of forecasted financial results and enhancing organizations' strategic planning.

By integrating AI systems into compliance, compliance monitoring has been made easier by its provision of automatically generated compliance reports and real-time indications of non-compliance. It revealed the facts that organizations claimed to have reduced audit and regulatory report time from 40% in average.

Application of AI has ensured costs savings (figure 5) due to efficiency gains from automating processes and optimizing on the use of resources. Approximately, when using AI driven accounting systems, companies cut down the operation expenses by the 25 – 30 percent.

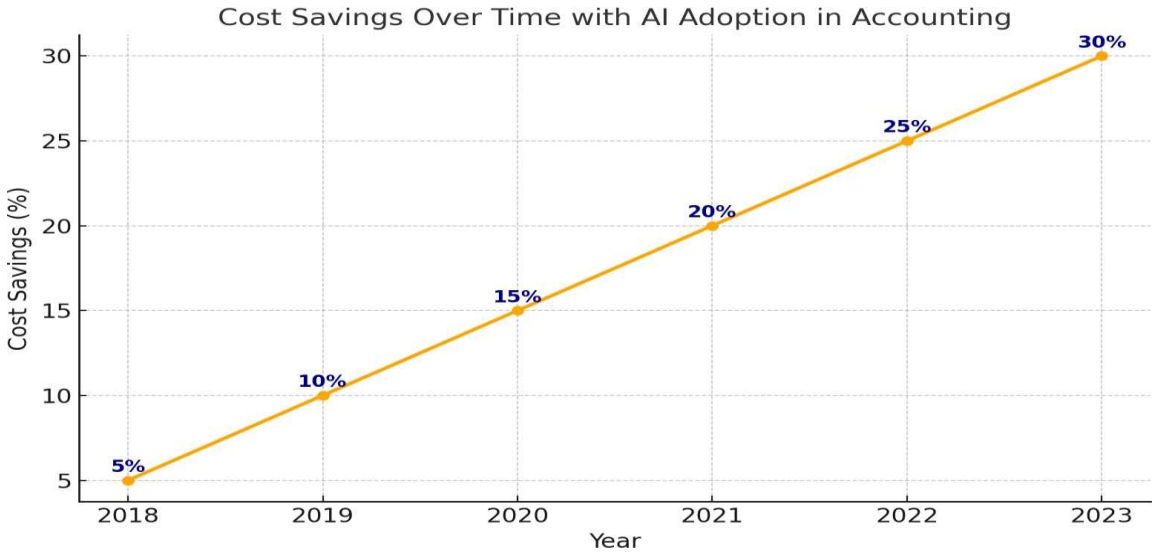


**Figure: 5 Cost savings over time with AI Adoption in Accounting**

Although practice activities have become more routine thanks to AI automation, new tasks for accountants include analytical and interpretational roles with respect to AI-derived information. This has called for an up and reskill training in the accounting profession to enable the practitioners to be more efficient.

**Discussion**

The experience described in the paper overestimates the opportunities of using AI for accounting and shows the opportunities, as well as disadvantages and the consequences of applying it.

There is no doubt that the use of AI has improved productivity through the elimination of one's repetitive tasks. This will free up plenty of time on the part of accountants to perform more analytical tasks like financial analysis and development of business strategies. However, the problem arises when one has to dictate how such tools are to integrate with the existing accounting systems. Thereby, to reap the benefits of AI application organizations have to consolidate on the need to establish sound infrastructure and train employees.

Being there, AI has shown great value for fraud detection, as well as the fact it is capable of analyzing huge amount of data in search for outliers. However, it is argued that the dependence on the presupposed AI systems is questionable due to concerns as to the given algorithms' bias and the requirement to have human curation. It is crucial that AI algorithms transparency and interpretability for one to have confidence in the algorithms and their developers.

Applying AI in decision making猟has also made it possible for organisations to make predictions on the market trends and allocate resources. However, the performance of such systems is constrained by the parameters of the training data set. To facilitate these changes organizations must pay significant attention to data governance and be able to obtain access to quality and relevant big data sets.

AI's integration in the monitoring of compliance has made the whole process easier but the use of AI has some controversies such as the rights of the user and ownership of the data. Any incorporation of AI innovation to the areas of accounting and financing has to gratify certain regulations and standards including GDPR for safekeeping of the delicate financial information. It is imperative that organisations set out their recommended course of action when they find themselves in ethical quandary so that the use of artificial intelligence occurs in a more responsible manner.

The shift from manual to AI technology has taken new skills on the profession, prepared for advanced technological accounting tasks. What I learned about AI is that it frees the employees from repetitive work but at the same time increases the need for data scientists, those who know machine learning, data analysis, decision-makers. To resolve these problems, educational institutions, and organizations should coordinate their efforts to develop training programs which enable accountants to work in environments where AI is a priority.

Many organisations also feature high implementation costs, a resistance to change, and the absence of standard best practices frameworks as barriers to the AI adoption in the accounting processes. These issues need to be tackled by different players in the industry, and government and non-government agencies as well as the technology companies.

**Conclusion**

This paper seeks to discuss the way in which artificial intelligence (AI) has revolutionalised accounting in terms of efficiency, accuracy and innovation brought about by Artificial intelligence (AI). AI has used in the accounting field in the following ways: It has made it possible to automate many repetitive tasks and thus; improve on the process of; Fraud detection; And decision making. Implementing the artificial intelligence strategy in organizations has provided massive benefits in productivity, return on investments and realistic financial modeling. These advancements clearly point to the future of AI in creating efficiency and positive value change across the accounting industry.

Nevertheless, the integration of AI in the accounting industry should be implemented with the following challenges into consideration. Highlighted challenges include data privacy, algorithm transparency, ethical concern, and workforce transformation which pose real barriers to organizations. By adhering to legal principles, resolving the internal and external conflicts of technological development, and preserving stakeholder confidence, the problem of discovering

a balance between technology and ethics arises. Furthermore, due to the transformation in the accountant's processes through AI, there is a new role requirement that requires upskilled and education for the professional.

However it is imperative to understand that the benefits that can be accrued from AI are far from the risks that are involved. Due to data handling capabilities, the ability to identify outliers and produce insights which were not manageable before, AI has reshaped accounting profession and left professionals free to concentrate on creative tasks such as strategic planning. Furthermore, the combination of AI with the new generation technologies like machine learning, natural processing language, and block chain also makes it significantly effective for fetching the accounting information and data making the new age financial system more transparent, secure, and efficient.

Therefore, AI is now a tool, which should be considered by accounting as a positive feature with an ability to revolutionize the process of accounting and make its outcomes even more accurate and efficient, as well as create more opportunities for new ideas and effective advancements. For mobile learning to achieve its optimum benefits in organizations, there is the need to invest heavily in a strong technological base, work at creating a sound ethical practice, and embrace a strong learning culture as well as a culture of adaptability. Each of these can be seen as either a threat by traditionalist or an opportunity by utilitarianist to transform the accounting profession to meet emerging demands of a data society. Subsequent studies and consultation among academician, practitioners and policy makers will play a significant role in defining further course of artificial intelligence in accounting.

**Future Scope**

AI in the future of the accounting profession will only improve efficiency, eliminate errors, and improve the quality of decision made. AI will help improve future forecasting, internal and external auditing, and other high-level activities like tax strategy, and accounting in cases of fraud. Blockchain integration will strengthen its anti-fraud measures, and AI tools will offer financial solutions tailored to the business owner and extend advanced accounting access to small businesses.

The profession is also expected to face changes in workforce as well as accountants who will be expected to have competencies in data analytics as well as artificial intelligence. Ethical instruments and International standards will continue to develop to define a proper way of Artificial Intelligence application. Moreover, AI will also step up its involvement in the sustainability reporting of an organization, linking its financial processes with environment and social objectives.With the advancement in AI technologies, accounting field will be shifted to create significance, creativity and participation.

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