Journal of Informatics Education and Research
ISSN: 1526-4726
Vol 4 Issue 3 (2024)

Artificial Intelligence in Finance and Accounting: Revolutionizing Traditional Practices

[1]Dr. Anupama
[1]*Assistant Professor, School of Commerce & Business Management, Geeta University, Panipat.*
[2]Dr. Nidhi Gupta
[2]*Assistant Professor, School of Commerce & Business Management, Geeta University, Panipat.*
[3]Dr. Pooja Sharma
[3]*Assistant Professor, School of Commerce & Business Management, Geeta University, Panipat.*
[4]Dr. Neeraj
[4]*Assistant Professor, School of Commerce & Business Management, Geeta University, Panipat.*
[5]Ms Shivani
[5]*Assistant Professor, School of Commerce & Business Management, Geeta University, Panipat.*

ABSTRACT
The growing adoption of artificial intelligence (AI) in the finance industry is discussed in this paper. It emphasises the value that technology delivers in terms of improving financial and accounting efficiency and depth. Furthermore, the consideration of the trends advanced in the paper. The entire scope of this technology's merits and disadvantages has yet to be fully recognised due to its developing nature and use in finance and accounting. Countries will need to improve prudential monitoring due to the possibility of unforeseen hazards. The authors want to give future researchers a thorough overview and a study schedule so they can learn more broadly applicable information.

Keywords-Artificial intelligence, knowledge engineering, accounting, machine learning, cryptocurrency and block chain.

1. INTRODUCTION

"Our intelligence is what makes us human, and artificial intelligence is an extension of that quality"- Yann LeCun, Chief AI Scientist at Facebook

Every element of our lives is changing due to artificial intelligence (AI). It affects how we interact at work and play. It claims to assist in addressing issues including access to high-quality healthcare and climate change. However, AI also poses significant problems for both citizens and governments. Applications that carry out complicated activities that formerly needed human involvement, like playing chess or chatting with clients online, have come to be known as artificial intelligence (AI).

Artificial intelligence, in its most basic form, syndicate computer science and substantial datasets to facilitate problem-solving. Additionally, it includes the branches of artificial intelligence known as deep learning & machine learning, which are commonly addressed together.

The main goal of AI is to mimic—and eventually surpass—human perception and behaviour. It is quickly taking the place of innovation's pillar. AI, which is fueled by many forms of machine learning and recognises patterns in data to make predictions, can benefit your company by a)

delivering a more thorough knowledge of the vast amount of data available b) use predictions to automate overly complicated or repetitive jobs.

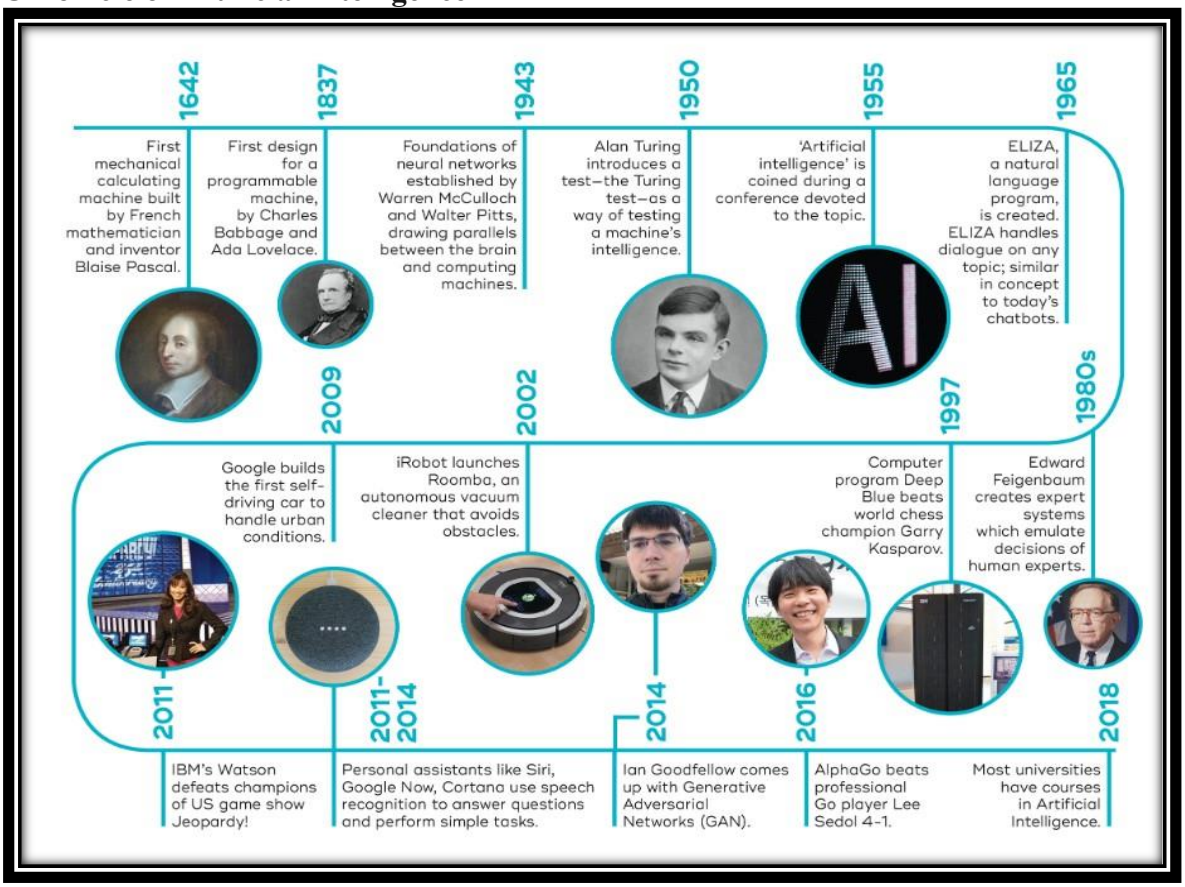
The potential uses for this technology are still being investigated, but they are expanding daily. The transformation brought on by AI cannot be stopped. Every company will eventually need to adopt AI and create an AI ecosystem in order to remain competitive. Over the next ten years, businesses that don't utilise AI in some way will disrupt.

Definitions

The term artificial intelligence was coined by Alan Turing's (1950) in his seminal work, "Computing Machinery and Intelligence". The definition offered by Alan Turing would have fit into the category of "systems that act like humans."

Artificial intelligence is the intelligence of machines or software, as opposed to the intelligence of humans or animals. While there have been numerous descriptions of artificial intelligence (AI) throughout the past few decades, as per John McCarthy (2004) "Making intelligent machines, particularly intelligent computer programmes, is a scientific and engineering endeavour. Although it is connected to the same aim of utilising computers to comprehend human intellect, AI should not be limited to techniques that can be observed biologically".

Chronicle of Artificial Intelligence



Source: https://qbi.uq.edu.au/brain/intelligent-machines/history-artificial-intelligence

Growth Drivers of AI Adoption

- High-performance processing power is easily accessible and affordable.
- For training, high volumes of data are accessible.
- Organisations can gain sustainable competitive advantage.

Relevance of AI in Finance and Accounting

Over the past two decades, AI technology has advanced quickly, it can assist in enhancing your financial strategy, boosting efficiency, and accelerating company outcomes. For a company to operate smoothly and effectively, accountants are responsible for overseeing all financial processes. No matter how cautious personnel may be, there is always the possibility of human error, which could mount and result in disastrous financial consequence down the road. All these jobs involve a considerable bit of human interaction that costs time and money. There is a significant impact of artificial intelligence on the accounting and finance sector because it optimises and streamlines a number of repetitious accounting processes and provides valuable insights that enables the quick analysis of big data sets and the production of more accurate, cost-effective data assisting accounting teams in adding real-time value to their businesses, clients, and both. The accounts payable and receivables teams can use artificial intelligence to analyse massive amounts of data to find hidden faults or trends, and the procurement and invoicing or billings teams can use it to identify potential problems with upcoming purchases, such as late payments, delivery, or both. The most crucial yet time-consuming task for accounting teams is auditing their data and records to ensure that they are in conformity with legal requirements. These audits are used by AI-enabled algorithms in this software to help guarantee that the company's records and procedures comply with the laws and regulations established by various governmental organisations. Since artificial intelligence can process documents using knowledge engineering and computer vision faster than ever before, it can frequently offer real-time status of financial concerns, making daily reporting feasible and affordable. Companies are able to be proactive and change direction if the data indicate undesirable trends.

Automation and artificial intelligence in accounting and finance are in just initial stages. The tools and systems available to help accounting are, however, rapidly growing as technology becomes more advanced. Accounting professionals who reject these changes won't be able to stay up with competitors who benefit from the time and money savings and insights artificial intelligence may offer. Furthermore, artificial intelligence (so-called "trustworthy AI") offers a chance to provide value to businesses and improve the welfare of individuals and society as a whole when it is handled according to moral and responsible standards.

2. Literature Review

Artificial intelligence plays a significant role in the future of the accounting and auditing fields. Applications of artificial intelligence have long been used in accounting. Rome and Rodhe (2007) noted that the field of accounting researchers have used a variety of artificial intelligence systems and techniques, and that these systems and techniques have effectively completed basic financial and analytical reporting and audit reassurance tasks. Therefore, the auditor who understands, keeps an eye on, and enhances the analytical and cognitive structures and processes will succeed. According to Alles et al. (2008), the accountant is more interested in the application of expert systems than the replacement of technology. Previously, business owners and their accountants would base their decisions on statistics that were frequently out of current, but expert systems and automation have changed that. According to him, expert systems and the automation of data processes always include up-to-date information about the business, making it possible to take much more informed decisions than in the past when business owners and their accountants relied on statistics that were frequently out of date.

Insights into the advancements made by AI and their favourable effects on accounting were provided by Grande et al. (2011). They noted improvements in outside and intern reporting, less paper use, higher usability and utility, and an enhanced database system, in addition to an increase in accuracy and speed. By doing this, AI would become an efficient consultation service, which

would be tedious and time-consuming. Accounting firms need to maintain their competitiveness and positive contributions in the age of industry 4.0. To improve corporate processes and maximise profitability and services, they must continuously respond, act, and modify their choices (Bushman and Smith, 2003). The accounting department's roles are not divided in conventional accounting, which is frequently observed in small and medium-sized businesses. Since all financial personnel has access to bookkeeping and cash flow, the organisation is missing, which increases the risk of financial fraud by giving them access to opportunistic criminals. However, by incorporating artificial intelligence, computers may now handle a large amount of accounting and related tasks, leaving accounting people with mainly oversight and review duties. The device pays the bill at the conclusion of the transaction.

When the time is up, the system automatically settles the bill and runs the test balance. Financial fraud is reduced to some extent thanks to each accountant's distinct rights in the accounting system (scanner, retina scanner, etc.), unique passwords, and straightforward division of responsibilities. By increasing specialisation, providing advisory services, and assisting clients in incorporating the AI technology, rather than relying exclusively on financial data calculations, businesses that contribute to developing breakthroughs, such as AI, would survive and thrive (Ovaska-Few, 2017). As cryptocurrency prices reached record highs towards the close of 2017, blockchain technology—and particularly the cryptocurrency applications reliant on the blockchain technology and platform—became a hot topic in practitioner and media discourse.

But when you get down to it, the blockchain-based cryptocurrency application and market may be the first, but it doesn't seem to be the last (Lewis, McPartland, & Ranjan, 2017). Some market participants may have come to the conclusion and projected that the blockchain ecosystem is experiencing a bubble-like environment as a result of analysis and documentation of blockchain technology, including coverage in both practitioner and mainstream media. It seems appropriate to delve deeper into some of the features that set blockchain technology apart from other market options that have previously been adopted by businesses and organisations in order to comprehend the implications of blockchain technology, particularly as they relate to the accounting profession (Carlozo, 2017). Blockchain technology and other technological tools are positioned to promote innovation and creativity across the accounting and finance industries by parsing and reporting information from the organisational generators to external end users (Banham, 2017). In particular, the adoption and continued development of blockchain tools will let experts working in business and public practise produce and distribute the more thorough data that market consumers want.

According to Delmond et al. (2017), accounting information systems (AIS) have long played a significant part in the accounting and business process. However, AIS appear to be evolving along with more general business changes to support innovation, creativity, and possibly new business models. Professionals in accounting and finance have typically concentrated on gathering, analysing, and reporting data that pertains to and is useful to creditors and shareholders, which represents a somewhat limited view and scope of information. Even with the increased use of technology throughout the process, one major problem with the present financial reporting methods is that data and information are not continuously and securely accessible.

3. Trends of AI in Auditing and Accounting

The use of artificial intelligence (AI) in auditing is marked by several prominent trends shaping the landscape of the profession. One key trend involves the automation of routine tasks, where AI is increasingly employed to handle repetitive and rule-based activities, allowing auditors to

focus on more complex aspects of their work. The integration of AI-powered data analytics tools is another noteworthy trend, facilitating the quick processing of large datasets to identify patterns, anomalies, and trends. Continuous auditing and monitoring, enabled by AI, offer a dynamic and proactive approach to risk identification in real-time. The evolution of the accounting and auditing professions is intricately linked to the transformative potential of artificial intelligence (AI) technology. AI offers a pivotal means to enhance the efficiency and effectiveness of our duties, revolutionizing operations, reporting, and decision-making processes within the realms of accounting and auditing, among other sectors. While the adoption of AI in auditing has historically trailed behind other business domains (Oldhouser, 2016), its potential for partial automation is particularly promising given the labour-intensive nature and diverse decision structures inherent in auditing practices. Notably, several accounting firms have disclosed substantial investments in AI, underscoring its strategic significance. At the assurance level, major audit firms such as the Big Four are incorporating drone technology for inventory inspections in challenging locations like oil rigs. In the realm of IT audits, there is an exploration of the synergy between robotic process automation (RPA) and artificial intelligence (AI) to streamline the examination of client system configurations. This approach goes beyond traditional point-in-time inspections commonly seen in integrated financial statement audits, offering the potential for near-continuous auditing through automated reviews using robotic technologies. The incorporation of AI into auditing represents a transformative opportunity for the profession. Through the utilization of AI algorithms, auditors can tap into the benefits of automation, data analytics, and machine learning to enhance their skills and tackle the intricacies of the contemporary business environment. AI technologies offer the capability to streamline audit procedures, enhance risk assessment methodologies, and detect anomalies or fraudulent activities that might elude traditional methods. Additionally, AI's capacity to process large volumes of data enables auditors to gain profound insights, fostering a more thorough understanding of the organizations under assessment. A particularly notable domain where AI showcases its efficacy is in the realm of risk assessment. AI-powered tools empower auditors to efficiently analyze extensive datasets, identifying patterns and pinpointing potential risks and control deficiencies with heightened accuracy. This not only expedites the audit process but also elevates the reliability of risk assessments. AI algorithms excel in recognizing trends, outliers, and anomalies, enabling auditors to focus on higher-risk areas and optimize resource allocation. Additionally, AI facilitates more thorough and precise analyses of financial statements and relevant documents. Real-time data examination and the application of sophisticated algorithms empower AI to identify inconsistencies, errors, or potential indicators of financial fraud. The automation of these tasks allows auditors to redirect their attention towards strategic, value-added activities such as providing insights and recommendations to enhance organizational processes and controls. AI-powered analytics overcome the limitations of traditional audit sampling techniques, enabling the analysis of larger, more diverse datasets and reducing the risk of overlooking material misstatements. Machine learning enhances the analysis by uncovering complex patterns and relationships that might be missed by humans and traditional statistical techniques. The efficiency and accuracy with which AI performs repetitive and rule-based tasks contribute to reduced errors and enhanced overall audit quality. Beyond quality improvements, the time-saving potential of AI technologies translates into cost reductions and improved efficiency in audit procedures. Recognizing the rapid pace of technological advancements, especially in big data, the International Auditing Assurance Standards Board (IAASB) has acknowledged the potential impact on the audit process. Similarly, ACCA (2015) has called for audit firms to adapt their practices by embracing modern technology, acknowledging the influence of big data on the audit industry. As per KPMG Report, to enhance anomaly detection, 'Feature engineering' is employed, that would enable the identification of behavioral outliers across diverse data elements, such as recognizing users who seldom contribute entries but

suddenly do. The move away from relying on predefined rules and the search for exceptions is facilitated by AI, allowing for the efficient pinpointing of anomalies in the data haystack. Additionally, AI is leveraged to support the processing of extensive datasets, particularly in the domains of natural language processing, voice recognition, and speech recognition. According to Nanonets Report, the integration of AI also brings substantial advantages to risk assessment, empowering auditors to conduct intricate analyses of a client's data. This capability guides auditors toward areas that warrant closer scrutiny, facilitating a strategic allocation of resources and optimizing auditing efforts for more focused and effective audits. With the accounting profession increasingly adopting these innovative technologies, the future of auditing seems poised for enhancements in precision, efficiency, and overall reliability. AI auditing systems offer the capability to continuously monitor transactions and financial data, providing a proactive approach to detecting suspicious activities and potential fraud. These systems leverage machine learning models that are trained using clients' historical data. The training process enables these models to identify patterns associated with fraudulent behavior, including but not limited to suspicious logins, fraudulent transactions, and even instances of identity theft. This proactive and data-driven approach enhances the ability to uncover anomalies and potentially fraudulent activities in real-time, contributing to a more robust and vigilant auditing process.

BIBLIOGRAPHY

Journals

1. Banham, R. (2017). Digital disruption creates opportunities. Journal Of Accountancy, 224(2), 1-2.
2. Baruri, P. (2016). Blockchain-Powered Financial Inclusion, a Paper Published by Cognizant
3. Carlozo, L. (2017). What is blockchain? Journal Of Accountancy, 224(1), 1-2.
4. Delmond, M., Coelho, F., Keravel, A., & Mahl, R. (2017). How information systems enable digital transformation: A Focus on Business Models and Value Co-Production. IUP Journal of Business Strategy, 14(3), 7-40.
5. Drew, J. (2017). Real talk about artificial intelligence and blockchain. Journal Of Accountancy, 224(1), 1-6. Drew, J. (2018). Paving the way to a new digital world. Journal Of Accountancy, 225(6), 32-37.
6. E. U. Grande, R.P. Estébanez, and C. M. Colomina (2011). The impact of Accounting Information Systems (AIS) on performance measures: empirical evidence in Spanish SMEs. *The International Journal of Digital Accounting Research*, 11, 25-46.
7. Gartner (2019). The Present & the Future of Artificial Intelligence.
8. Hamilton, R., & Stekelberg, J. (2017). The effect of high-qualiy information technology on corporate tax avoidance and tax risk. Journal Of Information Systems, 31(2), 83-106. https://doi.org/10.2308/isys-51482
9. Itamar Arel, Derek C. Rose, Thomas P. Karnowski (2010). Deep Machine Learning - A New Frontier in Artificial Intelligence Research (IEEE Computational Intelligence Magazine).
10. Lewis, R., McPartland, J. W., & Ranjan, R. (2017). Blockchain and financial market innovation. Economic Perspectives, 41(7), 1-17.
11. McCarthy, John (1955). A Proposal for the Dartmouth Summer Research Project on Artificial Intelligence.
12. M. Alles, "Drivers of the Use and Facilitators and Obstacles of the Evolution of Big Data by the Audit Profession," in Accounting Horizons, vol. 29, no. 2, pp. 439–449, 2016.
13. M. G. Alles, A. Kogan, and M. A. Vasarhelyi (2008). Exploiting comparative advantage: A paradigm for value added research in accounting information systems. *International Journal of Accounting Information Systems*, 9 (12), 202-215.

14. Oldhouser, Matthew C., "The Effects of Emerging Technologies on Data in Auditing" (2016). *Senior Theses*. 68.
15. Pilkington, M. (2018). Blockchain Technology: Principles and Applications. Research Handbook on Digital Transformations, edited by F. Xavier Olleros and Majlinda Zhu. Edward Elgar.
16. R. Carpenter and D. McGregor, "The implications, applications, and benefits of emerging technologies in audit," in The Business and Management Review, Conference proceedings of the Centre for Business & Economic Research, ICGEEE-2020, vol. 11, no. 2, pp. 36-44, Dec. 2020
17. Rom, A., & Rohde, C. (2007). Management accounting and integrated information systems: A literature review. *International Journal of Accounting Information Systems*, 8 (3), 40-68.
18. Shah, T., & Jani, S. (2018). Applications of Blockchain Technology in Banking & Finance. 10.13140/RG.2.2.35237.96489.
19. Shivkumar, G., and Nihaal, M. (2017). A Survey on the Role of Artificial Intelligence in FinTech. International Journal of Innovative Research in Computer and Communication Engineering. Vol. 5, Issue 6, June 2017.
20. The Alan Turing Institute (2019). Artificial Intelligence in Finance.

Websites

1. https://www.oracle.com/in/artificial-intelligence/what-is-ai/
2. https://en.wikipedia.org/wiki/Artificial_intelligence#Ethics
3. https://www.oecd.org/digital/artificial-intelligence/
4. https://www.ibm.com/topics/artificial-intelligence
5. https://www.g2.com/articles/the-role-of-artificial-intelligence-in-accounting
6. https://bernardmarr.com/artificial-intelligence-in-accounting-and-finance/
7. https://qbi.uq.edu.au/brain/intelligent-machines/history-artificial-intelligence
8. https://nanonets.com/blog/using-artificial-intelligence-in-audits/
9. https://kpmg.com/xx/en/blogs/home/posts/2023/02/all-eyes-on-transforming-the-audit-with-ai.html
10. https://www.theaccessgroup.com/en-au/blog/act-ai-auditing/