

Artificial Intelligence (AI) and its Impact on Accounting and Audit Profession: An Overview

Artificial Intelligence (AI) is revolutionising the accounting and auditing profession with its disruptive technologies including natural speech recognition, image recognition, language processing, data mining, machine learning, deep learning, neural networks, sentiment analysis, and predictive analytics. Robotic process automation (RPA) is transforming audit profession with enhanced capabilities to perform as futuristic visionaries with deeper insight, foresight, effective risk management and assurance services to help the entities to realise the organisational objectives. Many traditional bookkeeping tasks such as Accounts payable and receivable, initiating payments and matching purchase orders, data entry and data categorisation, data analysis, payroll, auditing and tax remittance are now being performed by AI globally. Currently AI is automating book keeping, reconciliations and many other related financial reporting functions. Read on...



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What is Artificial Intelligence (AI)?

Before discussing how Artificial Intelligence (AI) impacts accounting and audit profession, let us understand what is meant by AI. AI is different from normal intelligence of a living being. It is the intelligence artificially imparted to a computer or a robot by programmers by wiring computer programmes using algorithms. Techopedia defines AI as “a branch of computer science that aims to create intelligent machines”.

Machine Learning, Deep Learning, neural networks, Big Data, Cognitive Computing

Application enabled to make thinking machines. There are various types of AI available now: Type 1 AI computer is like IBM chess program Deep Blue which beat Chess champion Garry Kasparov in the 1990s by learning the rules of chess game and understanding the possible moves, using permutations and combinations and making predictions and excel in taking right decisions. Type 1 AI does not use past experiences to correct and excel future actions. Type 2 AI uses limited memory with past experiences to inform future decisions as in the case of self-driving cars. Type 3 AI machines are able to use theory of mind. It will understand

others' beliefs, desires, and intentions and analyse responses that can impact the decisions. Type 4 AI is the most advanced type of robots which has self-awareness and a sense of self-consciousness built into it. These machines will be programmed to understand the current state of what is happening around, infer what others are feeling and take the best decisions and actions. Type 3 and Type 4 robots are in the research stage and yet to be perfected.

AI Applications in Accounting and Auditing

AI tools enhance quality of products and services, including accounts and audit profession. AI can be used for handling volumes of structured and unstructured data, analyse big data mines of transactions and create meaningful images, patterns and point out where unusual patterns emerge highlighting suspicious transactions.

Currently robotic process automation is being applied to highly repetitive tasks. Machine learning algorithms are being integrated into data analytics and CRM platforms to offer better customer relations management. AI finance applications are widely used. For example, IBM Watson is able to perform all tasks relating to buying a home or intelligent trading decisions on Wall Street. AI can be used in law and taxation. AI tools can be used in mastering intricacies of legal issues or taxation rules and help the professionals in taking right decisions intelligently and expeditiously. From personal digital assistants like Siri in iPhones, Alexa from Amazon, and Google Assistant to report writing AI robots, CAPTCHA Stored Program Concept to Machine Learning, computers

do wonderful things, like accounting and ERP processes. Big data containing structured and unstructured all types of data from audio, video, internet and social media is mined to extract patterns and trends making meaningful financial analysis of transactions.

AI Accounting and Audit Solutions

AI is transforming all sectors of the economy including finance, accounts, audit, communications, energy, healthcare, mobility or manufacturing handling volumes of big data mines, image processing and creating a new paradigm for accountants and auditors. All data including video, audio, and textual information forming Big Data can be analysed by AI for improving managerial accounting, financial accounting, and financial reporting and audit practices. In financial reporting, Big Data can provide useful information in real-time.

Currently AI is automating book keeping, reconciliations and many other related financial reporting functions. Quality of audit outcome improves by AI applications like big data analytics and image recognition to analyse the entire transactions instead of limiting to samples. Auditors can harness the power of data mining and AI to detect high-profile frauds, noncompliance and misuse of resources. Automation takes away the time, energy and pain of spending time on repetitive tasks and help auditors to focus on areas where professional judgement is needed. The Mindbridge AI Auditor is an analytics tool used to uncover material irregularities in data. AI analyses entire populace of transactions applying a hybrid of artificial intelligence, Machine Learning, statistical models and rule-based tests offering higher

level of audit assurance. Web robots or bots perform simple and repetitive tasks at breakneck speed enabling continuous audit by learning, systematising and picking out the abnormal patterns. Good Bots gather useful information and Bad Bots can be used for malicious attacks.

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AI enhances audit quality by automating the processes and transforming all the steps and processes in audit. Auditors can find time to focus on higher value added services, areas, and provide deeper insights and deliver value beyond compliance. Many organisations are using AI solutions like Ethics and Compliance Software such as CONVERCENT, PREDICT360, iSight Case Management Software, Navex Global GRC (Governance, Risk, Compliance) software.

Blockchain is a disruptive innovation which is going to be the next step in accounting as it can be used to write distributed ledger that can be cryptographically sealed, and falsification, or concealment is impossible.

AI Applications for Internal Audit

The Chartered Accountants who practise internal audit

may ask: What is the impact of AI on internal audit? AI will revolutionise the audit profession with its disruptive technologies including natural speech recognition, image recognition, language processing, data mining, machine learning, deep learning, neural networks, sentiment analysis, and predictive analytics. Robotic process automation (RPA) is transforming audit profession disruptively with enhanced capabilities to perform as futuristic visionaries with deeper insight, foresight, effective risk management and assurance services to help the entities to realise the organisational objectives. Many traditional bookkeeping tasks such as Accounts payable and receivable AI, initiating payments and matching purchase orders, data entry and data categorisation, data analysis, payroll, auditing and tax remittance are now being performed by AI globally.

AI empowers auditors in analysis of a full population of data instead of going for sampling to identify outliers or exceptions. A machine learning model is used to automatically code accounting entries. AI helps in contract review by analysing a larger number of contracts, such as leases within the shortest time span and accurately extracts information from lease contracts based on pre-defined criteria with a highest level of precision. AI makes auditors work smarter with more time for risk assessment, risk based strategic internal audit planning and less time on data extraction, data analytics and analysis helping to optimise time, money and resources. AI equips auditors to ask right questions, interact effectively with CFOs, audit committees and company boards, adding more value for money insights and advice. AI

enables to do quality audits. AI can enhance complex decision-making processes, which is why it is a catalyst for transformation in every industry. It allows onerous and time-consuming tasks to be completed more efficiently and effectively, and can give management teams a depth of insight that was never available before.

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Machine learning – a form of AI where computer algorithms improve over time through their experience of using data – plays an increasingly prominent role in enterprise risk management.

How can ERM Framework help IA?

Enterprise Risk Management (ERM) is complementary and supplementary to COSO IA frame work. ERM integrates with the entity's strategy and performance. COSO designed ERM in 2004 and upgraded in 2017 to provide thought leadership on internal control, enterprise risk management, and fraud deterrence. ERM helps to improve organisational performance, oversight functions to reduce fraud. COSO is

a private sector initiative, jointly sponsored and funded by American Accounting Association, American Institute of Certified Public Accountants, Financial Executives International, Institute of Management Accountants, and The Institute of Internal Auditors. ERM focuses on risk in both the strategy-setting process and in driving performance and provides greater insight into the value of enterprise risk management.

The framework helps in defining and addressing risk oversight responsibilities, governance, strategy and objective-setting, performance, flow of information, communication, reporting, review and revision of practices to enhance entity performance. Alignment of strategy and business objectives with the entity's stated mission, vision, and core values is ensured. Significant business decisions including mergers, acquisitions, capital allocations, funding, and dividend-related decisions, management incentives and remuneration, investor and stakeholder relations and the ability to anticipate and respond to change are important activities to be effectively managed by an enterprise. ERM helps entities to protect and enhance stakeholder value with the underlying philosophy: "value is maximized when management sets strategy and objectives to strike an optimal balance between growth and return goals and related risks, and efficiently and effectively deploys resources in pursuit of the entity's objectives."

ERM caters to all organisations of different operations, size, type, or sector in a business environment with unprecedented volatility, complexity, uncertainty and ambiguity. It helps in informed agile decision-making, prompt response and building trust

among stakeholders. ERM is designed to dealing with big data tsunami from internal and external sources in the digital audit landscape. The data will be structured and advanced analytics and data visualization tools will enable auditors in understanding risk and its impact.

ERM can leverage AI, AMS and automation and future technologies. Analysis of trends and patterns are critical to managing risk. Risk management, compliance processes, and control activities and governance can be efficaciously coordinated and managed to provide maximum benefit to the organisation.

How CAATs, AMS and AI tools Facilitate Audit?

As companies' digitisation generates more and more data, audit professions face more challenges. Big data analysis helps auditors to deliver high-quality audits and put greater emphasis on risk identification and business insight. The technology platform can connect large audit teams working in different locations to one another with centralisation, standardisation and automation. Big Data analytics becomes integral to the audit. AI enables auditors to derive value through innovation and performing audits through web enabled cloud based data-driven robust information communication technology systems and networks. Auditors can provide with more qualitative advisory with greater confidence. Company management, operational and finance teams can derive form audit more effective value addition, risk management with deeper insights and new perspectives. AI transforms digital audit landscape and affects audit profession with innovative methodology, techniques enabled by robust AI solutions to mitigate risks to help the organisations to

achieve its objectives. AI can help to deliver high-quality audits, allowing auditors to focus more on risk identification and business insights. This transformation in audit profession will lead to greater connectivity, transparency, risk management, enhanced assurance services to the business houses. AI helps auditors to optimize their time with better judgement and deeper insights and foresights.

How can AI transform audit landscape and professional practices? AI platforms and cloud based Audit Management Systems (AMS) have essential audit modules to cover the entire audit life cycle enabled with robust CAATs and ICT software solutions. AI enabled auditing platform is powerful to analyse 100% transactions without sampling. Auditors are empowered to provide with greater assurance than ever before, minimising cost, time, resources and efforts.

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AI enabled AMS integrates CAATs for different audit cycle related work like audit universe mapping, preparation of strategic and annual risk based audit planning, validating

internal controls, compliance deviances to prevent fraud. Unlike standalone CAATs examining accounting entries in isolation, AI enabled software solution is capable to red-flag unusual transactions overlooking the entire accounts. AI supported auditor platform can provide deeper insights with transparency. It is intuitive to investigate anomalous transactions seamlessly, equips auditors to perform effectively the entire audit cycle related processes from planning to audit reporting. AI tools help auditors to undertake enhanced risk management by fixing control weaknesses to achieve the organisation's objectives.

AI Enabled Audit Life Cycle

AI enhances business operations. AI will be applied by cyber criminals as well. Machine learning will increase the hackers' efficiency in detecting networks' vulnerabilities by automated attacks and using new malware and phishing attacks. AI threats can only be effectively resisted by AI defence system. As part of IA functions, internal auditors have to audit of AI applications in the organisation besides conducting Internal Audit enabled by AI Platforms. AI may help in the entire audit cycle and processes:

- Conducting RBIA cycle form mapping audit the universe with risk score based on predefined risks assessment methodology and preparation of strategic and annual audit planning;
- Audit execution, scheduling, communication;
- Documentation, creation of working papers, linking records, uploading data for audit evidence;

- Audit processes and work flow activities like issue of audit observations, receiving responses from the entity for further scrutiny and taking an audit opinion on the issue;
- Drafting, finalising and issue of audit reports;
- Records management including creation, retrieval and monitoring the status and progress of the action taking on outstanding audit observations and recommendations by the entity;
- Identifying exceptional transactions and control deficiencies by continuous monitoring of red-flags alerted by AI systems.

Algorithmic Bias and AI Tool Risk Mitigation

AI tools provide the following key capabilities:

- Automatic identification of risks, controls, and governance issues within all audit universe documentation.
- Map out a knowledge graph of entity relationships to accompany the risk summary.
- Map and relate risks and controls to documents within the audit universe
- Segment off the risk statements having high similarity, in an effort to identify areas of possible audit efficiencies, and;
- Reveal at a roll-up of the risks by program, revealing where there are no audit documents or risk statements within

the audit universe, indicating a program that has been ignored by the audit function.

Like any other technological solutions, there are risks involved in use of AI. While using AI solutions in accounting and auditing, CAs must be aware of the inherent risks and bias that can be there in a specific AI tools. These risks are entered into the computer programme while the programmers write the algorithms. In fact the programmers' bias, knowledge deficiency or inaccuracy of understanding a specific transaction may lead to inherent algorithmic bias.

While AI is still developing, it can already be used to mitigate risk in some key areas. For example, machine learning can support more informed predictions about the likelihood of an individual or organisation defaulting on a loan or a payment, and it can be used to build variable revenue forecasting models. For many years, machine learning has successfully detected credit card fraud.

Auditors Be Aware of Risks Related to AI Adoption

Though AI empowers auditors with unprecedented capabilities it is also a source of significant new risks. Audit of AI becomes a necessity to identify the specific AI application related risks to each business unit that uses it and manage them. Risks of AI include:

- AI does what it is programmed. There can be algorithmic inaccuracies and bias. Machine-learning algorithms written to identify patterns in big data analysis and codifying them in predictions, rules and

decisions may reflect existing bias in the algorithms.

- Never underestimate the role of auditor and overestimate AI capabilities: AI systems are software tools to be used by auditors and cannot take audit thought leadership from the auditor. AI is programmed to understand the tasks based on data given to train machine learning. AI is therefore not infallible and audit outcomes can be jeopardised if the input data is biased, unreliable, irrelevant and incomplete.

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- Errors in programmes: When machine learns from inadequate training data, it gains less experience and makes mistakes. Similarly programmatic errors in algorithms may mislead auditors with

- serious consequences.
- Cyber security risks: Hackers and crackers may go for phishing attacks round the clock targeting digital business data sets and exploit sensitive data. The dangers of email phishing by tempting to click on suspicious-looking links, hackers are upping the ante. Hacker are clever in using machine learning and quickly craft and distribute convincing fake messages while stealing user logins, business secrets, financial and technical information. They can access to private databases. Ransomware attacks are costing the business victims billions of dollars every year, while hackers celebrate victory deploying technologies to hijack organisation's databases and hold for ransom. Cryptocurrencies like Bitcoin fuel ransomware attacks by allowing ransom demands paid anonymously. Cryptojacking involves cyber criminals hijacking third-party home or work computers to "mine" for cryptocurrency and make money by secretly piggybacking on someone else's systems. Cyber-attacks can target the critical information communication technology systems, critical infrastructure like electrical grids, atomic power plants, power transmission, transportation systems, control rooms, water treatment facilities, etc.
 - Cybercrime today is a major threat with increased attacks on AI enabled critical infrastructure. Cyber-warfare skills have been part of the toolkit, with offensive and defensive capabilities. The Internet of Things (IoT) and the Internet of Everything (IoE) connect people, process and systems, routers, webcams, household and industry appliances, smart watches, medical devices, manufacturing equipment, automobiles and even home security systems. More connected devices to internet pose greater risk, making networks more vulnerable to cyber invasions. Once controlled by hackers, IoT devices can be used to create havoc for financial gain. Cyber criminals are becoming increasingly sophisticated. The cyber-crime epidemic has escalated rapidly. The role of skilled cyber security professionals are essential to safeguard organisations assets from cyber-attacks. Confidentiality, integrity, availability of data, proper authentication, access only to the right individuals, authorisation and data privacy need to be enforced as AI systems are subjected to cyber-attacks.
 - There can be legal risks and liabilities as there is inadequate regulation to govern AI. The EU's General Data Protection Regulation helps.
 - Organisations need to safeguard against reputational risks. AI systems handle tsunamis of big data including sensitive data to make informed critical decisions. Any system that is biased, error-prone, hacked or used for unethical purposes may threaten lead to reputational risks to the organization that owns it. How audit digitisation reflects a Transformative Age.

Conclusion

AI is transforming the accounting and audit landscape disruptively. CAs believe in acquiring new knowledge, skills, and competency to do their work efficaciously with value for money value additions, insights, foresights and oversight functions to facilitate the entities to realise their vision, mission, targets, organisational objectives, outputs and outcome. Converting emerging professional challenges into new opportunities is the game changing dictum CAs follow. While AI and its disruptive capabilities enable CAs to do better accounting and auditing tasks, they must be conscious of AI's inherent algorithmic risks and built in programme bias too. AI is currently a tool to be used to do perform better but cannot be a substitute for CAs ultimate professional judgement, skills competence, scepticism and professional opinion. ■