ISSN (Online) 2582-9327

IJARSCMT

International Journal of Advanced Research in Science, Commerce, Management and Technology

Impact Factor: 5.781

Volume 2, Issue 3, March 2021

Accounting and Auditing using Simulated Astuteness

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Abstract: *It is essential for educators, auditors, and professional bodies to prepare students, policies, and upcoming specialists for the challenges of the said world, which is replete with big data, virtual currency, cognitive computing, and other information technology, ushering in the fourth industrial revolution. The accounting curriculum has to be revised in education. To effect change, regulators must develop revolutionary policies. Professional organisations need to update their development and training initiatives. Professional hybrids are expected to overtake other players in their industry in the near future. It is possible to distinguish the two sides to the development and use of AI in the accounting and auditing industries. The course of events is subject to change over time, but one thing will be certain: the accounting and auditing profession as we currently know it or have known it is about to go through a tremendous transformation.*

Keywords: Disruptive technologies, accounting, auditing, artificial intelligence, 4I

I. INTRODUCTION

The course of events is subject to change over time, but one thing will be certain: the auditing and bookkeeping profession as we currently know it or have known it is about to go through a tremendous transformation. Both novices and experts in the field of machine intelligence are intrigued by the term "Artificial Intelligence (AI)". The concept of a man-made machine or sentient creature that can think, learn, and affect conclusions on its own has permeated popular culture for ages because it is so fascinating. Algorithmic trading, which uses sophisticated AI algorithms to make trading decisions faster and with higher scale than humans can, is prevalent in trading and investing. AI technologies are supporting military activities including intelligence collecting, logistics, cyber operations, coordination and control, etc. In addition to these, AI technology has numerous applications in practically every field, including manufacturing, publishing, utilities, different service industries, education, gaming, and more. The overwhelming use of AI technology has an impact on accounting and auditing as well. A new breakthrough or discovery could potentially alter how a vocation or subject is conducted and viewed around the world when AI technology advances to a tipping point. Acknowledging AI technology and being current with multidisciplinary advancements are hence requirements of the modern world.

This study aims to demonstrate how artificial intelligence (AI) technology has affected the accounting and auditing professions thus far and how these disciplines may be impacted by AI technological advances in the future. Some of the questionnaires that have been asked in this research include whether or not professions will change, potential changes to the profession/discipline and its literature, potential changes to real-world practises, whether or not

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countries around the world are prepared to adopt AI technology implementations in the Accounting and Finance profession, potential policy repercussions, ethical concerns regarding AI applications, etc. In a variety of areas, the study adds to the body of literature already in existence.

II. LITERATURE REVIEW

Since the area is still in its infancy, the majority of the literature on AI-accounting and AI-auditing focuses on conceptual understanding, use case research, prospective impacts, and so forth. There have been a few studies that look into the use of AI in particular businesses and nations, but none have examined the factors that lead to such AI use. Additionally, there is still a dearth of research linking AI installation with business performance or efficiency. The lack of such research is explicable by the notion that AI applications are not yet widely used. More case study-based research is required to enlarge the AI literature in the fields of accounting and auditing.

III. RESEARCH METHODOLOGY

Since the area is still in its infancy, the majority of the literature on AI-accounting and AI-auditing focuses on conceptual understanding, use case research, prospective impacts, and so forth. There have been a few research studies that have investigated the use of AI in particular businesses and nations, but none have examined the factors that lead to such AI use. Additionally, there is still a dearth of research linking AI installation with business performance or efficiency. The lack of such research is explicable by the notion that AI applications are not yet widely used. More case study-based research is required to enlarge the AI literature in the fields of accounting and auditing. More and more businesses situated in industrialised nations are providing and using AI-based solutions. Their achievement and failure stories, as well as the contributing variables, need to be well researched and provided to the various stakeholders in order to raise awareness of the phenomena and, subsequently, encourage increased adoption of AI in the accounting and auditing fields.

IV. MAIN CONTENT

4.1 About Artificial Intelligence

A. Definitional Analysis of Artificial Intelligence

The meaning of artificial intelligence is always changing, much like AI itself. Diverse viewpoints have been used to emphasise various aspects of AI in an effort to define the term. Martinez (2019) proposed in his definitional analysis of AI that a broad definition can be used across domains and applications as long as it is flexible and encompasses the recent progress of autonomous AI. He further argued that while the topic of "What is AI" is difficult within itself, it is further complicated by the lack of clarity surrounding whomever can or should provide an answer. The author emphasised the significance of a formulation from a legal standpoint in this regard. In the study, he also highlighted the shortcomings of the Webster ’s Dictionary, a Nevada statute, and a Louisiana state's existing definitions of artificial intelligence. Finally, Martinez (2019) described a number of approaches for developing a generic description. A prescriptive definition and a descriptive definition of "Ambiguity & Descriptors" are some of these. Grewal (2014) proposed that artificial intelligence (AI) is the mechanical backpropagation algorithm of acquiring knowledge and data that

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also processes consciousness of the universe after analysing all the definitions of AI at the time. It entails gathering, analysing, and ultimately communicating knowledge, information, and knowledge to the qualified parties in the manner of intelligence that may be used.

B. Artificial Intelligence Technology through History

The history of machine intelligence can be divided into two periods: the ancient period, during which ideas of intelligent machines and mechanical systems with some degree of volume could be managed to find; and the modern period, which began with the invention of modern machines in the years following World War II. Modern history has witnessed the creation of complex computer programmes devoted to resolving challenging intellectual puzzles. This time period has also generated technologies with broad applications in many different fields. Aristotle introduced syllogistic logic in his work the Prior Arithmetic in the fourth century BCE, and it is regarded as the first formalized deductive reasoning theory (Jenkinson, 2009). In the 19th century, Charles Babbage and Ada Byron created the Analytical Engine, a programmable computer. George Boole created a binary algebra in 1854 to express the "rules of thought." We may date the first English use of the word "robot" to Karel Capek's play "R.U.R." (Rossum's Universal Robots) from the second half of the century. Alan Turing first suggested the Turing Machine in 1936–1937. (AAAI, 2017). This device serves as the conceptual basis for computers and computing. William Grey Walter, a neurobiologist, created his first robots in 1948–1949 and gave them the names Elmer and Elsie. He called them Machina speculatrix (Electro Mechanical Robot, Light-Sensitive). They were the first robots ever created to learn how to "think" like biological brains do and to be able to use free will (Inglis-Arkell, 2015). Upon the release of his basic components of In 1950, Turing and robotics published "Computing Machinery and Intelligence." John McCarthy, Marvin Minsky, Nathaniel Rochester, and Claude E. Shannon first used the term "artificial intelligence" in a proposal dated August 31, 1955, for the prestigious Dartmouth Conference (2006). The Dartmouth Summer Institute Project on Ai Technologies, which took place in 1956, is often considered as the catalyst for the development of the discipline of artificial intelligence. One of the earliest, most well-known, and on going initiatives on artificial intelligence and law concentrated on tax law (McCarty, 1977). The Knowledge-based System, known as "Taxman" (O'Leary & Karlinsky, 1992), was developed in 1977 by L. Thorne McCarty, who is known as "the Father of AI and Law" and was an assistant professor at Harvard University at the time (Kuniacki, 2019). The usage of AI technology increased dramatically as computers and the internet became accessible to everyone. The digital revolution significantly contributed to the problem.

C. Various Cognitive and Non-Cognitive Technologies at Modern Workplace

Due to its summary of the same author's 1995 forecasts for the year 2015 regarding the then-imminent digital (information) revolution, the research Makridakis (2017) is extremely fascinating. Even while some of such predictions failed to materialise, many of them did. We now see extensive use of technical tools and services in businesses across numerous industries as a result of the digital revolution. Modern businesses use a variety of ICT tools, some of which are quel in nature and others of which contain cognitive elements. Rezaee et al. (2002) discussed the usage of extensible

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Reporting Language (XBRL) and Extensible Mark up Language (XML) in relation to providing financial information about firms online. Multiple technologies can now be integrated within the company because of the Internet of Things (Io T), which is now pervasive.

Summary of the benefits and risks associated with the implementation of AI.

According to Zhao et al. (2004), the widespread use of real-time accountancy (RTA), XBRL, Electronic Data Interconnection (EDI), and AI pose risks to and problems for traditional auditing. The introduction of techniques like Electronic Data Interchange (EDI), Electronic File Transfer (EFT), and Image Processing in auditing has already altered how the audit process is carried out. The idea of continuous auditing was developed as a result of the availability of numerous computer-assisted audit tools (CAATs).

IV. CONCLUSION

Depending on some technology gurus, machines will eventually take over any object that can be converted into data. That leaves creativity and judgement, which are exclusively human traits and frequently set one organisation apart from another. Like databases and spread sheets, AI is a technology that is only useful if humans know how to utilise it to automate business procedures. Artificial intelligence cannot take the role of accountants and auditors when it comes to using human ingenuity and judgement. The historical methodologies and modes of thinking of the profession will continue to be put to the test by changes in technology, regulations, and the economy, and this is a good thing. The way audits are conducted will ultimately depend on how the market reacts to these changes. Accountants and auditors need to be ready to act swiftly in response to fluctuations in customer request as well as the development of novel and developing organisational performance metrics outside of conventional financial statements.

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