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Impact of Artificial Intelligence on Accounting

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Abstract

Artificial intelligence bears many pragmatism for accountants to improve their effectuality, provide more sapience and bear more value to business. The system elevates utilitarianism for much more iconoclastic reformation as it perceptibly takes over core functions currently done by humans because of cost savings and operational efficiencies. Of late, artificial intelligence has made dramatical development especially in accounting profession which have changed its focus from paper and pencil entry to computer. But the most alarming of artificial intelligence is that people conclude too early that they understand it. This comprehensive research study endeavors to examine the impact of artificial intelligence on the performance of accounting operations with the aid of secondary data. The paper accentuates that the application of artificial intelligence cockily impresses the performance of accounting functions quality. The researcher recommends that in the essence of artificial intelligence, accountants should thrivingly develop its own demeanor of dexterity and become omnibus expertise thereby eliminating certain accounting cost. This will be true if the accounting professionals, auditing professionals and the AI experts do not collaborate and work together to secure the continuance of profession.

Keywords: Artificial intelligence; Accounting profession; Impact; Technology; Audit.

1. Introduction

Rapid development of Artificial intelligence or AI technology impacts virtually every niche of the world from a simple transfiguration of human labor to languidly simulated humankinds life. AI bespeaks the ability of computer or computer-enabled robotic system to process information and yields fruits resembling the apologias of humans in learning, decision making and solving problems (PWC, 2017). Accounting professionals have embraced the waves of automation to improve efficiency and effectiveness of their routine work (ICAEW, 2017). Accounting information systems domineer the domain of paper journals and ledgers, and enter computer-based formats with the advent of computers. Often, accounting databases become big storehouses of sparse information concerning specific accounting transactions which do not meet the needs of decision makers. AI accents the creation of intelligent machines working and reacting like humans to mitigate the difficulties of traditional system. Actually in many business organizations, complex events are inoperable in process management because of little-known. AI systems usurp methodically decision-making responsibility from humans to resituate and incredibly improve the quality of business decisions. To realize this developing, profession needs to concern fundamental business problems and sublimate new technology approach. This study seeks to answer the most prominent issue on the future of accounting. This study does not concentrate on a particular area in terms of analyzing the impact of AI on accounting because this seems to be very narrow since technological advancement has no boundaries in modern day.

2. Literature Review

Literature review provides reasons and dimensions to study and assesses in making comparative analysis of then and now to predict future. Academicians, researchers, social workers, etc. across the world has conducted extensive researches to sleuthing direct links between AI use and accounting. The role of information communication technology or IT in transforming teacher-centred learning to competency based learning and found unfolding niche of IT in education (Desai, 2010). Higher education institutions are not fully exploiting the possibilities inherent in digital technology. The study revealed that maximum students reported digital tools provide flexibility and freedom for their studies, but these tools are occasionally utilized (Lillejord *et al.*, 2018).

For better-quality of illumination, university needs explicitly managing the process associated with the creation of academic leadership with their intellectual assets and acknowledging the value of this capital to their persisting role in the society and in a wider global market for higher education (Zafar *et al.*, 2019). Profound implications of technology on both learning in a content area and learning to practise technology itself (Pearson *et al.*, 2005). AI can be exercised to foster education by promoting puissance through digital multimedia as well as bettering authenticity employing video and internet (Zhao, 2005).

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Technology is worthwhile in teaching basics and can also proffer students with particular need to communicate and also abet teachers to accommodate their students' changing learning mode (West Ed Regional Technology in Education, 2002). AI has a salutary effect on teaching and learning as well bettered academic realm (Bolarinwa, 2014; Falobi, 2014; Krubu and Osawaru, 2011). IT benefits learners and provides better expedient of instruction delivery for subject teachers (Falobi, 2014). AI has an important bearing on language and intelligent attainment. Students performances are indicators of proper utilization of AI in the teaching and learning of business studies (O'Hara *et al.*, 2004).

AI has no grim variation between teachers and students perception on efficacy (Ajisafe, 2014). Business education students perform poorly in IT courses and most of them are not competent in IT skills (Nwaiwu, 2019). Debilitating factors like poor maintenance culture of IT facilities, use of obsolete computers, prior method of content delivery, etc. were observed (Onojetah, 2012). Lecturers are not equipped with AI instruments that are closely linked to curriculum and assessment methods (Egboka, 2012).

Business education provides knowledge, skills and attitudes necessary to perform productively in the business sphere as a producer and/or end-user of products and services that business propounds (Okoli, 2010). Business education provides the recipients with competencies essential in husbanding own business and utilizing the benefits of the business sector (Ezenwafor, 2012).

A research study by the University of Oxford in 2015 reveals that accountants have a 95% change of becoming unemployed as machines assume the role of data analytics and number crunching (Greenman, 2017). With progress of technology, some jobs are eliminated while others are created (Greenman, 2017). The Financial Stability Board Report indicates that AI simply applies computational tools to address tasks traditionally requiring human sophistication. Both public and private sectors employ AI technologies for regulatory

compliance, surveillance, data quality assessment, fraud detection, etc. (FSB, 2017). AI provides heavy lifting for the most challenging problems in computer science (Dilek *et al.*, 2015). Technological power lies in its versatility, intelligence, connectivity and complexity instead of its energy trust (Lombardo, 2015). Technology supports bulk organizations from large to small and medium scale organizations (Francis, 2013). Advancement in technology and expert system are on high increase (Deloitte, 2017). More and more automation and technological advancement would displace human in their work by 2025 (Alex *et al.*, 2014).

AI makes computers do things better than human (Elaine, 2000). AI is a branch of computer science concerned with the study and creation of computer system that exhibits some form of intelligence (Shukla and Jaiswal, 2013). AI as a powerful tool is methodology used to solve human and business problems better than human solutions (Carol and O'Leary, 2017). Software involves selection from among a definable group of choices where the decision is based on logical steps (Taghizadeh *et al.*, 2013). AI primarily enables a machine perform the functions of human brain (Kuma and Thakur, 2012). AI is critical to the future of accounting and auditing professions (Greenman, 2017).

Domain of accounting researchers has applied various AI technologies with progress to specific tasks in financial reporting and analysis as well as in auditing and assurance (Lam, 2004). Expert systems in accounting facilitate accounting education and training (Zhao *et al.*, 2004). Eye shaded accountant will likely culminate with the birth of analytics and cognitive technology to audit (Davenport, 2016). Heretofore, accountants would make decisions based on often outdated figures but with automation of data processes always up-to-the minute information enable better-grounded decisions affecting the business performance (Alex *et al.*, 2014). IT-based decision aids presently wrack the modern corporate with stress on auditors to play improved role in its governance entities. The study recommends the working together of educational institutions, firms and accounting and auditing professionals (Omoteso, 2012). Technology may cause less accounting jobs in market but over time, there will be buoyant demand for superior accountants to deliver sound business judgement, proposals, etc. with preservative accuracy (Nagarajah, 2016).

Highly developed Asian countries with advanced education systems have been undertaking research works to discover digital solutions for complexities for years (Wisskirchen *et al.*, 2017). Established technologies could automate 45% of the activities people are paid to do and that about 60% of all occupations could see 30% or more of their pursuits with technologies available today (Chui *et al.*, 2016). AI brings CPA to assist in the setup of accounting and recording systems that combine data from the Internet of Things (Maria and Murphy, 2015). Most clients prefer to have both the AI and human expert to recommend interpretation of the results and where the business will be underperforming (Accenture Consulting, 2017). Accounting Information Systems curriculum is taught using loose-leaf format textbook. Weakness of the proposal rests on the fact that the data source used is drawn from faculty surveys, textbooks and course syllabi only (Badua *et al.*, 2011).

3. Objective of the Study
The objective of the study is to ascertain the impact of AI on the performance of accounting operations.

4. Research Question
The research question raised in addressing the study objective is what impact does AI has on the performance of accounting function.

5. Materials and Methodology
The study is descriptive in nature and conducted by variety literatures in terms of AI and their impacts. Descriptive research has been preferred for developing better profundity of knowledge. Thus, this study purely

adopts secondary data collection strategy, and considers a variety of secondary sources accessed through the Internet and academic databases viz. literature reviews, empirical studies, website, books, journals, reports, etc. The work is designed for a cross-section of those for making the issue easily understandable and organized into several sections. Besides other discussions, various sections are serially numbered from 1 to 14. The inherent limitation of the study is that as the study is based on published data and information, and this secondary sources may be lacking in authenticity, the result inferred there from may not be completely reliable. The corpus of this paper is, therefore, limited to establish, in the first place, a global sketch on AI. In the second place, an assessment on the foremost mission endeavoring the discernment of the effect of AI on accounting profession has been delineated.

6. Results and Discussion
6.1. Impact of AI on Accounting Industry

In the eon of AI, traditional accounting personnel transmit complicated tasks to accounting software which largely reduces working errors and improves determination of enterprises. AI embraces progressively decision-making tasks from humans. Accountants have been grooming technology to improve their performance.AI simulates the process of thinking and information obtaining (Xing *et al.*, 2017). Modern device simulates intellectuality and information process. Accounting industry becomes propitious to canonize transformation of the accounting industry (Dongre   *et al.*, 2020). AI provides hellishly accurate outputs and situationally far superseding human efforts. Transition is fast but extensive acceptance of AI techniques in accounting is still budding. Developing AI to face accounting problems, practical challenges and the skill precipitated to work amidst intelligent systems is crying need of the day to build joviality.

6.2. Avoid the Possibility of Financial Fraud

Traditional accounting system levitates accounting personnel in both cash flow and book keeping. Thus, there may exist luxation in financial accounting and financial fraud. Management level predominates internal control. This scrape is noxious. Computer needs to complete heavy accounting and other works; accounting personnel only review these. At period-end, AI negotiates bill automatically and actualizes trial balance. In the meshes, accounting personnel having own cognate prerogatives, different accounts and passwords somewhat windup financial fraud. Still, accounting system cannot fathom fraud consummately; it requires modulation and subsequently people execute the adjustments.

6.3. Improve the Quality of Accounting Information

Accounting personnel in traditional accounting take ample manpower and financial resource to check vouchers, accounting books, statements, etc. Resultant fatigue and mistakes for long exertion distorts accounting

information. But AI completes every step in time to improve competency. Accounting personnel approach financial data for computer to complete the rest. There may also be errors. Wrong data entry in accounting software system automatically reports errors which substantially enhance the quality of accounting information.

6.4. Promote the Reform of Traditional Accounting and Auditing

AI changes the method of separation of traditional accounting and auditing works which help accounting personnel improve their performance. This also optimizes setting of accounting posts, structure layout, and changes traditional and practical working modes.

7. Impact of AI on Accountants

AI system replaces heavy accounting basic work to more valuable professional judgment based on large data analysis and data mining (Zehong and Zheng, 2018). Its extensive use gradually reduces the demand for accounting personnel. Thus, accounting personnel face the crisis of elimination. Robot performs redundant and repeatable data entry tasks, and interacts with such automation technology. Technology alone cannot lead future; it helps enterprises make decisions built on their individualistic experience. The crucial is to bloom new technology to ameliorate it on aeonic base.

7.1. Financial Accounting

Accounting personnel get data from introspective cognizance. Analysis ad infinitum proves the authenticity emanating from past transactions or phenomenon. Robots ordain digital numbers to express liabilities. Accounting estimation insinuates judgment on events based on fresh intel to face transition which accounting standards stipulate for adopting prospective law. Financial accounting awaits specialists for their knowledge and experience aligned with the accounting standards and relevant laws and regulations to furnish fair information to users.

7.2. Management Accounting

Management accounting refashions prediction to ensure the realities of predicted results. Most management activities are inextricable from participation of management accounting, budget, decision-making, final assessment and evaluation of managers performance. AI simulates future environment to help management accounting accomplish tasks; but it cannot metamorphose management accounting for decision-making.

8. Accountants Face the Impact of AI

Cloud computing is the hallmark of modernism of big data. Barring simple computer operations, accountants must command certain computer programming techniques to enhance their own data processing proficiency. Accountants should improve their competencies and participate in management to make themselves intelligent accountant (Huang, 2017). Subduing management skills may not have massive impact on accountants in the short-term but accountants comprehend its gravity when they assume the position of financial manager or like. Accounting information bring considerable changes to management and development of enterprises. Besides knowledge in accounting theory and practice, Accounting talents should also be proficient in capital operation, internal control, management, tax, finance, insurance and practical operation in the field of accounting control as the center of wide range (Ren, 2017). AI makes accountants' work more worthy than staying in simple accounting work. Robots help develop accounting profession; accounting industry in its development process also requires the help of AI. As AI systems get despotic, they are able to move further into complex decision areas for different solutions and services potentially replacing humans altogether in many spheres. Computers never replace human characteristics uniquely like leadership, empathy and creativity. Denying key technology and simply cuddling prototyping are hare-brained. Strengths and weaknesses of multiforme of AI and the best road for coacting of humans and technology must be acknowledged. Machines do not demonstrate human favoritism but help eliminate irrationality indispensable for organizations to exploit the proliferation of big data. Humans alone cannot analyze and extract insight from the volumes of data. They require working with AI techniques to procure knowledge from the best use of big data.

9. Impact of AI on Effective Business Education

Modern AI base education is socio-economic commodity. In business education, commodification is in form of business consultancy. Only investment recovery with profit is the ultimate mission. This mission reasons institutions to induct advanced technology and launch more online educational programmes. Impact of AI on business education students rests much on how business education teachers practises IT within the teaching and learning process. Impressing teachers is enigmatical whilst teachers surmise influential influence of AI on learning and learning outcome, their perceived impact on teaching methodologies are seen to be much more moderate.

Novelly, business education teachers have positiveness towards computer by perceiving its merits for learning through experience and embedded practices. In changing the teachers-students relationship as part of the new educational paradigm, the most delicate technique for teachers is to cede control and have more confidence in students planning their work independently. AI roots more in e-mature institutions, e-confident teachers suggesting that once the foundation is positioned, the blessing will be substantial. The challenge is, therefore, to capacitate all teachers and students to meet e-maturity.

10. AI Complication for Implicit Business Education
10.1. Learners Misapprehension

Learners often are found to have wrong ideals about basic leaning to prevent the assimilation of new lessons thus, can also mess with students' conceptualizing.

10.2. Learners Former Exposure

Learners former exposure has profound impression on their view of phenomena and their enthusiasm to welcome more meticulous delineation. The need is, therefore, to examine the students view in learning and contemplate their perceptions and perspectives before strengthening on them or refashioning ideas. Teachers must incorporate current perception with students early perception of methodical phenomena.

10.3. Societal Dissimilitude

Efficacious exercise of few strategies materializes to demonstrate not only age and societal apposite dissimilitude but also accredit students to associate latest information to earlier knowledge. Stage of advancement and implementation of innovative technology is validated substantially by far society's dexterity to fabricate and administer emerging technology. These achievements, in turn, are tightly linked to the level of education. These processes are largely driven by AI where scientific knowledge and information increasingly determine new semblance of growth and current feasibilities to reduce poverty more. AI is sympathetic mode to mobilize teachers creativeness and make them didactic practice more flexible and ingenious. Teachers need to be apprenticed first they are supposed to teach students afterwards. Dilemma of bringing teachers and would-be teachers to a new didactic method like the integration of AIs come from the fact that teachers themselves have been taught in traditional ways for many years. AI involves the development of communication gadgets which can be applied in information management and dissemination widely to enrich the potency of information.

With the help of AI, teachers can take students beyond traditional extremity, confirm their participation in teaching and learning exercise and fabricate indispensable ambience to demonstration. Reconnoitering this novel blooming is a healthy demonstration that the aeon of teaching without IT dexterity is past. AI or intelligent retrieval contributes superabundance for students to build or revamp their own experience. Absence of functional internet facilities in mostly tertiary institutions appear to hinder the extent of teachers exposure to the adoption of AI on its road to learning of business education. Teachers together with students in business education appear not also to be competent in AI due to skill gap. Business studies teaching behooves several measures to glimpse a child-friendly space, improve its skills to respond to contemporary needs.

11. Impact of AI on Business Environment

Technology has had a dramatic effect on the global business environment. Application of technology in management provides opportunities to work outside the office and increases access to important information regardless of location. Modern technology has completely changed atmosphere creating entire business niches that never even existed before. Managers run their business from laptops, tablets and smart phones, never even considering opening a brick-and-mortar presence. Business meetings no longer mean driving long distances as teleconferencing means getting everyone together online. Digital technologies such as social media, artificial intelligence and e-commerce allow corporate to reach global audience and improve customer experience in a more effective manner. Corporate also use complex software programs to track sales, manage customer relations, ensure data security and streamline their business operations. Global knowledge economy presents developing countries with both opportunities and challenges. Firm-level technological capabilities do not develop in vacuum. Such capabilities extend beyond the individual firm to the broader network in which the firm is embedded. Technology invariably brings changes on various aspects of business areas such as human resources, strategy planning, customer relationship management, business environment, service management and performance metrics. Decision-makers should understand the nature of changes, their potential impact, plan for them and manage the change process to ensure buy-in of all the relevant stakeholders.

Technology plans must be devised as part of corporate strategy and must take into consideration the impact technology has on processes, governance and people. Implementing e-business applications require process redesign, organizational restructuring and alignment, new job descriptions and reviewed and revised policies. E-business is changing all the rules and models specially in the COVID-19 pandemic situation around the globe. An organization's ability to embrace new technology and business model is key to increasing organization's productivity. True benefit of e-business is achieved through the digitization of the entire value chain. Decision to implement an e-business initiative should not be undertaken lightly and the benefits that can be achieved from such a venture must be investigated thoroughly before deciding to go ahead.

Despite the perceived benefits in the use of technology in business environment, there are much determinants obstructing the successful application of technology. Institutions and individuals must evolve a society of cultivation resting a big level on technology. Maximum teachers sedulous cardinal dexterity to operate computer and other technology devices in their teaching/learning practice of business education . Hence, all business spheres encompassing lecturers and students should be acquainted with appropriate skills about latest technology.

Justice of technology must be to cultivate self-concept and self-governing learning and developing sophisticated policy for business progress and social equity. Education is universal in nature and needs surveillance and for the purpose of achieving it, concerted efforts must be organized. Opportunity remains trivial if the concerned parties lack the competencies to domesticate the opportunity.

12. Limits of AI

Success depends on sufficient data of right quality. Data often reflects proclivity. Furthermore, not every problem is acceptable for AI approach. Ethical questions may influence decisions or problems may require profound causes analysis. Different levels of accurate estimate are also appropriate in different circumstances. Long-standing issue around data in many Although AI techniques are long-running, its scaling-up in business-accounting is still in antiquity.

13. Practical Challenges

Organizations including complex and unintegrated legacy system is realistically a grave prob. Small organizations suffer from insufficient data to achieve precise results. Indomitable models necessitating outsources are not wide-open at appropriate cost. Therefore, building experience of both successful and less successful cases help inform future appropriation. AI moderately becomes mingled into accounting software. Many accountants affront AI without known it. Acceptance of AI often requires substantial investment. With established software for legal or regulatory reasons, substantial hardware and processing power may require notwithstanding it is accessed on cloud basis. Cultivating intelligent products in accounting professional areas by AI require market prospect to justify investment from software developers.

14. Implication of the Study

Accounting is not an end in itself. Accounting activities help people make good decisions concerning allocation of resources and holding accountability for their decisions. This underpins investment, growth and confidence in all organizations and economies. More intelligent systems like AI effectuate dandily novel way to the endgame and kinds of fundamental business problems. At most, we need impressive tools to endorse good bet on financial resources allocation to triumph. Accounting roles are changing apropos new capabilities to work effectively with data analytics as they unite important levels of prognostication with strong business awareness.

15. Recommendations

- Accountants with technical know-how should be precarious while applying their skills to varied audit scenarios.
- AI asserts boons and poses pressing issues that outvie stakeholders. Workforce needs to be re-educated to beguile AI afore oppose it.

- It is indecorous to surrogate all the commanding mode to AI as this precipitates auditor's liability in the doldrums of flawed assessment.
- Augmented intelligence may be applied but human auditor should take the ultimatum.
- Professional improvement is also suggested as one of the cornerstones to succor profession. Financial perspective is also preferred.
- Educational institutions should never tire with industry to teach their students on the appropriate competence.
- Curriculum requires updating to confirm that the pedagogy remains contemporaneous to persuade the etiquette of electronic operations where ingenuity becomes key strength in an organization.
- Universities/colleges may recruit guest speaker from industry to deliver lectures which will cover the successful solutions to the industry requirements.
- Accountants and accounting firms should have fertile mind about AI to enhance the efficiency of accounting tasks, thereby, discarding explicit accounting cost.
- With robotics appropriating their routine operations, auditors should be visionary rather than applicants of such cutting-edge technology.
- Emphasis may exert to technical accounting expertise and human judgment to administer novel cases. Training requires perception of AI techniques.
- Accountants need more superficial knowledge of AI for conversations with experts and other business areas to cultivate innovative solutions for catechizing the best AI tools. Critical thinking and communication skills become congruous.

16. Comment

In the hope of feeding distinction and superb scoop, bright impact of AI on accounting cannot be augured with pellucidity barring if auditors and AI experts collaborate and powwow to appraise the impact of AI on accounting profession. Admittedly technology may outplace those who perform per diem but let us not forget that AI does not pulverize jobs but it resuscitates them. Association of Chartered Certified Accountants(ACCA) also demands that there are key challenges to the bosom of robotics and technology chiefly in industry and financial services. Dexterously the menace of imbuing software absolutely to do very enigmatic, tailor-made are still veritable while the benefits of automation are yet to be fully explored.

17. Conclusion

Emergence of AI is an opportunity not a challenge for the accounting industry and accountants. It may trigger few accountants job loss; but eventually it will not oust accountants requiring accounting personnel to have a good eye on AI to gradatim invigorate their sheer dexterity and to transform from traditional accounting personnel to management type, high-end accounting personnel. Accountants should versatilely tailor to the development of society, staunchly induct, restyle themselves, upgrade their savvy and become an irreplaceable high-quality accountant. Accounting professionals contemplate AI as a fathomable tool that is imperative with accounting practice. Unreservedly trusting to AI is undear as it may enkindle recrimination of an auditor lest of incorrect prediction by ineffective AI. An auditor i.e. human expert is an imperative addendum to AI.

18. Research Scope

Accounting researchers must bridge the gap between the accounting domains and AI domains, and begin collaborations with AI researchers to improve esoteric accounting tasks having execrably catastrophic impact. AI researchers hold the key to solving some accounting issues by applying AI techniques and perhaps other areas of AI that have never been applied in accounting context. Ballooning through AI technique such as expert systems, genetic programming, neural networks, fuzzy systems and hybrid systems should be eyeballed to the extent feasible. Closer study on this essence may be visualized in forward-looking by enthusiastic researchers as the research approach is not revitalized by core data which is also pertinent in ad-libbing peripheral proposition on the research theme.

19. Acclamation

Devoted to **DIVINE** for **HIS** kindness in writing this paper

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