

Redefining Accounting in the Digital Age: The Impact of Blockchain and Artificial Intelligence

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ABSTRACT

The rapid advancement of emerging technologies, particularly blockchain and artificial intelligence (AI), is transforming the traditional landscape of the accounting profession. This study explores the impact of these technologies on accounting practices, auditing processes, financial reporting, and accounting education. Blockchain, with its decentralized, immutable, and transparent ledger system, has the potential to enhance data reliability, reduce fraud, and enable real-time auditing. Simultaneously, AI-driven tools and automation are reshaping routine accounting tasks, improving efficiency, and supporting data-driven decision-making.

This research adopts a descriptive qualitative approach, collecting primary data through structured questionnaires from Chartered Accountants and insights from professionals associated with leading audit firms, alongside secondary data from academic literature and industry reports. The study examines key hypotheses related to the influence of blockchain adoption on accounting curriculum, audit quality, accounting standards, and overall financial reporting practices.

The findings suggest that the integration of blockchain and AI significantly improves audit quality, enhances transparency, and reduces operational costs, while also demanding a shift in the skillset of accounting professionals toward analytical and technological competencies. However, challenges such as scalability, interoperability, and potential job displacement remain critical concerns. The study concludes by recommending curriculum reform, professional re-skilling, and strategic adoption frameworks to facilitate the effective integration of these technologies into the accounting profession.

Keywords: Blockchain; Accounting; Education; AI; Auditing

INTRODUCTION

Recent developments in technology have introduced dramatic changes to the practice of the accounting profession (Zhang et al., 2020). Its main functions are to measure an organization's economic activities and communicate such information to related stakeholders, such as corporate managers, creditors, consumers, and regulators (Hamilton et al., n.d.). Blockchain can be described as a series of blocks used to establish or record ownership of assets between parties. (Wang et al., 2019). The autonomous, decentralized and secured capabilities characterizing blockchain technology can help in redefining the foundational patterns of business applications (Mahajan et al., 2018; Schatsky & Muraskin, 2015; Swan, 2015). The trusted third parties could even become useless and be replaced by blockchain based distributed trust (Pitter A., 2018; Swan, 2015). It allows business enterprises to create and run applications as well as conduct business without a central authority or server as a control point.

Accounting and assurance could be among the professions to which blockchain would bring great benefits and fundamentally change the current paradigms. This technology could also serve as a foundation to enable automatic assurance and help the current auditing paradigm become more agile and precise (Dai & Vasarhelyi, 2017). The Big Four accounting firms have recently launched their own financial robots that are capable of automatically recognizing data, entering invoices, and generating financial reports. These financial robots are likely to replace basic accounting clerks, allowing business managers with zero accounting knowledge to make informed business decisions based on basic accounting information. (Cahyadi & Welten, n.d.; Eltweri, 2021). From a conceptual perspective, blockchain technology provides a series of features, which can revolutionize some of the existing architectures in the digital business world. Blockchain is also expected to reduce reliance on auditing for testing financial transactions providing an “automated third-party verification” (Spoke, 2015). This could ultimately lead to the elimination of control and audit activities or at the least to a profound redefinition of those professions.

In the ecosystem, blockchain would play the role of the accounting information system, which distributes the power of transaction verification, storage, and management to a group of computers in order to prevent any unauthorized data changes. Those features could not only decrease the accounting, auditing and compliance costs but also transform and facilitate the work of auditors (Spoke, 2015). It is clear that such technology can enable more efficient access to data and completion of financial audit. By incorporating other emerging technologies (e.g., IoT), the system could enable real-time tracking and monitoring of activities of physical objects, and automate the recording and measurement of business performance. (Dai & Vasarhelyi, 2017).

However, even though blockchain technology offers many different features and seems to be secured, there are several existing challenges that need to be addressed. One major issue is interoperability. (Nathalie et al., n.d.). The process of creating a block on the chain is designed to require costly computational resources. As of today, even though multiple blockchain projects have been set up and some of them are even well established, such as Bitcoin and Ethereum, there are still interoperability issues among blockchain infrastructures. (Nathalie et al., n.d.). This new generation of machine learning systems have great impact on economics and business but they are also bringing new life style and sociological side effects.

Another key issue is the blockchain scalability. Scalability is the ability for a system to continue to function well when it changes in size or volume - typically, to a larger size or volume (Rouse, 2006). Scalability has several components: latency, which is the “time for a transaction to confirm” (Croman et al., 2016). As of today, latency takes at least 10 minutes with the blockchain Bitcoin, and 14 seconds for Ethereum which is significantly more than current payment processing systems is. Moreover, 13 % of transactions on public blockchains exceed 20 minutes, and 25 percent can exceed an hour (Harris C., 2018; Kanaracus C, 2016). Size and storage are other important scalability components that need to be worked on. Indeed, by design, the ledger of a blockchain contains all the transactions since the genesis block. Thus, as the number of users and transactions grow, the size of the ledger also grows. (Nathalie et al., n.d.). The increase of unemployment is considered as one of the clear impacts and accountants should be prepared for all the challenges of AI revolution. According to a study performed by the BBC, accountants rank 21st of a total of 366 occupations that are likely to be eliminated due to the introduction of artificial intelligence (AI), with an elimination rate of 96% (Stancheva & Stancheva-Todorova, 2018).

We have found that though there have plethora of benefits for introducing blockchain and ai in the accounting profession. However, for some limitation accountants and auditors against this new systems implementation. In this paper we will discover what are the procedure for solving this problem by which we can eradicate the dilemma of theirs. And what are the requirements for establishing blockchain and ai based accounting and auditing. For this implementation firstly we will collect data from chartered accountants about their opinion on blockchain and ai in accounting profession through premade questionnaire and what accounting scholars think about blockchain and ai in this profession as well as take opinion from 4 big audit firm leader's.

For this reason, we will describe this paper in three steps. Firstly, we would observe what are the general impacts of blockchain and ai. Then, the limitations and constraints for implementing. At last, provide possible ways for eradicating this problem.

LITERATURE REVIEW

In recent years, technological improvements have brought about significant changes in the accounting profession (Zhang et al., 2020). Blockchain is a sequential arrangement of blocks that is utilized to establish and document the ownership of assets between multiple parties (H. Wang et al., 2020). Blockchain technology is characterized by its autonomous, decentralized, and secure characteristics, which can assist in the process of rethinking the fundamental patterns of business applications using blockchain technology (Mahajan et al., 2018; Schatsky & Muraskin, 2015; Swan, 2015). Blockchain-based distributed trust has the potential to render trusted third parties obsolete (Pitter A., 2018; Swan, 2015). In fact, blockchain seems to be the next step in the digital age & it can be considered as the second wave of change in the structure of computing (Borhani et al., 2021).

Implementing blockchain technology in accounting and auditing processes has the potential to decrease expenses associated with accounting and auditing (Xu et al., 2019). The accounting curriculum has faced criticism for its resistance to change and its emphasis on learning technical accounting knowledge rather than the technology and expertise skill sets demanded by the market (Aldhizer III, 2015). But the accounting profession is swiftly adapting to technology improvements in company operations (Qasim & Kharbat, 2020). The recent progress in Blockchain and AI presents challenges as well as opportunities for accounting education. There is an increasing need to modernize the accounting curriculum by integrating the most recent technological breakthroughs in business operations (Kotb & Roberts, 2011).

According to Qasim and Kharbat (2020) studies primarily emphasize the use of these technologies in the field and identify potential topics for further investigation, but fail to address the necessity of updating the accounting curriculum to align with the industry's technical requirements. Today, accounting graduates require a distinct education compared to previous generations, particularly in terms of developing essential skills in successfully and efficiently using technology (Handoyo & Anas, 2019). There is a current risk in accounting education of not comprehending the actuality of accounting practice and perhaps missing out on valuable prospects related to data and analytics. This is due to the tendency of allowing other organizational functions, like as IT and marketing, to take control (Payne, 2014).

Employers seek professional accountants who demonstrate proficiency in technical knowledge and skills, as well as the ability to handle intricate business models and transactions in addition to their accounting expertise (Rufino et al., 2018). The integration of sophisticated technology in the accounting field is expected to diminish job prospects for accountants lacking programming and analytical abilities. It is essential and advantageous for educational institutions to offer sufficient training for their students (Kotb et al., 2019; Zhang et al., 2020). Incorporating technological improvements into the accounting curriculum is necessary for ensuring that students are well-informed about industry changes and enhancing their prospects of securing work upon graduation. Additionally, it is crucial for the institution to promptly adapt to technological advancements in the market in order to enhance the job prospects of its graduates (Qasim & Kharbat, 2020).

Hence, it is imperative to examine the present progress and influence of Blockchain applications in the field of accounting. The growing popularity of blockchain technology (BT) in the accounting profession is expected to significantly impact present accounting procedures and shape the educational development of future accountants. There are three main factors that could contribute to the mainstream adoption of integrating blockchain technology into the accounting curriculum: Cost-effectiveness, flexibility, and mobility (Williams, 2019). However, Qasim and Kharbat (2020) suggests that the integration of these technologies should be carried out in appropriate levels and courses.

An undisputed consensus in the literature is to refrain from instructing undergraduate students on abstract theories without providing concrete examples of their application (Clayton & Clopton, 2019). It might be seen as a chance for the Accounting Curriculum to make progress towards achieving educational equity (Cahyadi & Welten, 2020; Zhang et al., 2020). Recent media and publications suggest a strong likelihood of job cuts in the accounting field as a result of advancements in big data, machine learning, and artificial intelligence (N. Chandi., 2017; Z. Ferguson., 2017). If this issue persists, there is a possibility that the accounting profession will prioritize

the recruitment of IT graduates with expertise in blockchain, data analytics, and AI above accounting graduates(Qasim & Kharbat, 2020).

Due to the swift technological progress in recent decades, accounting professionals now need to possess programming abilities and excel in data analysis(Zhang et al., 2020). The Big Four accounting firms have just introduced their own financial robots, which possess the ability to autonomously identify data, input bills, and produce financial reports. These automated financial systems are expected to supplant entry-level accounting clerks, enabling business managers without any accounting expertise to make well-informed business choices using fundamental accounting data(Cahyadi & Welten, 2020; Eltweri, 2021). The lack of equilibrium between academia and the profession will have adverse consequences on the caliber of accounting graduates, hence affecting their employability(Qasim & Kharbat, 2020). Companies are increasingly seeking graduates who possess the ability to utilize blockchain technology to improve financial reporting, audits, and compliance.

Richins et al.(2017) contend that instead of being a threat, the current situation presents an opportunity for the accounting education, provided that institutions ensure that their current students are well-informed on future technology. Accounting and assurance could be two fields where blockchain would really help and completely change the way things are done now. In order to ensure that accounting education remains applicable to real-world scenarios and institutions, it is imperative for instructors and curriculum reviewers to actively embrace and incorporate relevant technologies(Pathway Commission, 2015). This technology could also be the basis for automatic assurance and make the way audits are done now more flexible and accurate(Dai & Vasarhelyi, 2017).Periodic evaluation of the accounting curriculum is necessary to guarantee that the education and learning experience remain contemporary and relevant(Al-Htaybat et al., 2018).

Hypothesis 1. Adoption of Blockchain Technology will positively change accounting curriculum.

Recent developments in Blockchain & AI present both challenges and opportunities for accounting education. The accounting curriculum has been criticized for being resistant to change and for being more focused on acquiring technical accounting knowledge rather than the technological and competence skills needed in the market(Aldhizer III, 2015). In recent years, several calls have been made for the revitalization of the accounting curriculum through the inclusion of technological developments taking place in business operations(Kotb & Roberts, 2011) By stating the current typical undergraduate course sequence in the accounting program, identify the weaknesses and opportunities for the curriculum. Currently, the general tendency in the accounting curriculum has been to include any IT related topics into the accounting curriculum in only one course (generally, an AIS course)(Qasim & Kharbat, 2020a) One of the simple facts that the literature agrees on is to avoid teaching abstract theories to undergraduates without adding evidence of the practice(Clayton & Clopton, 2019).

It can be viewed as an opportunity for Accounting Curriculum to move one step closer to educational fairness(Cahyadi & Welten, n.d.; Zhang et al., 2020). Recent media and reports from professional bodies and firms indicate the high probability of job loss within the accounting and finance profession due to developments in big data, ML, and AI.(E. O'Neill, 2016; N. Chandi., 2017; Z. Ferguson., 2017) With the rapid technological advances of the last few decades, accounting professionals are currently required to have programming skills and to be proficient in data analysis(Zhang et al., 2020) They must be capable of understanding emergent tools, interfacing with reporting techniques, and interpreting reports to answer questions from authorities(EY, 2018) the introduction of advanced technology into the accounting profession is likely to reduce the number of employment opportunities for accountants without programming and analysis skills. It may be necessary (and desirable) for companies to provide adequate re-training for existing staff(Zhang et al., 2020).(Kotb et al., 2019) noted that “technological developments represent an important area that should be covered across accounting curriculum, to expose changes in the marketplace and to enhance the employability of graduates.”

Future accounting professionals must analyse the financial strategy and performance of the company, explain the feasibility of the investment plan, and be able to manage the expectations of different stakeholders inside and outside the company(Qasim & Kharbat, 2020b) .It would be rational to include a new introductory course on “Business Technology” to cover the basic elements of BT, BDA, AI, and other related technologies. The idea is to include topics related to these technologies in existing accounting courses and to introduce the “purpose” for students to allow them to understand the goal of having this knowledge(Qasim & Kharbat, 2020a). (Qasim

& Kharbat, 2020c) described that due to the current rapid adoption of emerging technologies in the accounting and auditing professions, these technologies should be incorporated across the accounting curriculum to encourage rapid adoption on one hand and to cope with the market change on the other hand.

Hypothesis 2. Adoption of Blockchain Technology will definitely increase Audit quality.

When all transaction details are stored on blockchain, it becomes impossible to change information because all stakeholders have the same information and all changes are recorded (with real-time updates). Therefore, blockchain naturally eliminates any abnormal records (which no one dares to do) and makes reliable real-time auditing possible. It is likely to significantly improve audit quality and efficiency. (Stancheva & Stancheva-Todorova, 2018; Zhang et al., 2020) (Cahyadi & Welten, n.d.). The transparency, traceability, immutability and integration of rules and procedures embedded into the technology itself may enrich processes and information production in such a way that control and audit procedures may be changed significantly, or even become obsolete in some cases. At the same time, it offers opportunities for auditors to redesign best practices, update rules and procedures, define new standards of the profession that could be encoded within transactions or even innovate with new value-added services (Nathalie et al., n.d.).

KPMG has partnered with Microsoft to create the KPMG and Microsoft Blockchain Nodes, an innovative workspace that combines KPMG's industry and blockchain application knowledge with Microsoft's technical expertise. Furthermore, the KPMG Digital Ledger Services is a tool that helps financial services companies apply blockchain technology, streamline automated back-office operations, deliver faster and more secure transactions, and reduce costs. (KPMG, 2016) Deloitte has developed more than 30 blockchain-related models for purposes such as digital identity, digital banking, cross-border payments, trade finance, and loyalty and reward solutions, as well as unique

work in investment management and insurance. (Deloitte., 2017) PwC keeps a log of transactions with customers who are currently experimenting with blockchain technology and applying controls and testing standards to its applications, including major stock exchanges and digital wallet providers that allow users to monitor, view, and test transactions in real time. (J. P. Buntinx, 2018) EY has developed Blockchain Analyzer, a blockchain-based auditing technology that enables in-depth reviews of cryptocurrency transactions and supports the auditing of companies that use cryptocurrencies. It is a foundational tool for auditing blockchain assets, liabilities, equity, and smart contracts (J. Thomas., 2018).

The application of shared ledgers in blockchain frees auditors from repetitive transaction checking but focuses on complex transactions and internal controls, confirms the validity of the digital performance of physical assets, ensures that the contract is written in accordance with accounting standards, and changes the scope and methods of audit opinions (EY, 2017)

Blockchain technology could be of benefit to the auditing profession by making the comparison of corresponding accounting entries, present on the books of each of the trading parties, relatively easy. (Fanning & Centers, 2016) how to achieve such a goal is still missing, but this approach would reduce auditors' efforts relating to financial transaction testing (Kiviati, 2015) The non-tamperable, distributed ledger, time stamp and network consensus features of blockchain will enhance the authenticity and reliability of the data for the audited unit and reduce the verification cost of the data for the audited unit (H. Wang et al., 2020). In the blockchain programmable environment, auditors can write audit algorithms or audit business processing rules according to specific audit scenarios and promote the intelligent implementation of audit work (P. J. Lu et al., 2018). The use of blockchain will impact the audit fees & the audit profession will shift its work type from audit to consulting type of services & Need for experienced professionals (Nathalie et al., n.d.).

Hypothesis 3. Adoption of Blockchain Technology will emphatically change accounting standard.

The accounting profession has gone through significant changes due to the advent of new technologies such as AI, data analytics, blockchain, and other emerging technologies (Kokina & Davenport, 2017; Kotb et al., 2019). Accountants are now expected to perform more value-added tasks such as financial management and data-driven decision-making. The future of (flat) organizational structures requires accountants to understand corporate

operations and contribute to corporate governance based on their professional accounting knowledge (Zhang et al., 2020). In addition, it may be that the use of these technologies would make it easier for nonaccountants

with data analysis competencies to enter the audit market (Qasim & Kharbat, 2020c). Examinations of the use of BG, ML, and AI technologies by the Big Four accounting firms reveal two common trends. First, the accounting profession is increasingly investing in AI and its integration into core business; second, the Big Four claim that AI is a key factor for future success in the accounting field (Deloitte., 2017; EY, 2017, 2018; J. P. Buntinx, 2018; KPMG, 2016).

Accounting scholars have documented recent technological advancements that have greatly affected the accounting profession (Al-Htaybat et al., 2018). BT has viewed it as a “game changer.” (Deloitte, n.d.) Others considered BT a foundational technology that may result in new economic and social systems (Iansiti & K. R. Lakhani., 2017; Kokina & Davenport, 2017). Blockchain is viewed by many as immune to manipulation, which is its main advantage over a traditional database for accounting as a transaction ledger (Qasim & Kharbat, 2020c).

METHODOLOGY OF THE STUDY

This study adopts a descriptive qualitative research design to explore the impact of blockchain and artificial intelligence (AI) on the accounting profession. The qualitative approach is considered appropriate as the research aims to understand perceptions, opinions, and insights of professionals regarding emerging technologies in accounting, rather than testing numerical relationships.

Research Design

The study is exploratory and descriptive in nature, focusing on identifying the implications of blockchain and AI on accounting practices, auditing, financial reporting, and education. It also evaluates the challenges and opportunities associated with the adoption of these technologies.

Data Collection

Both primary and secondary data are used:

Primary Data: collected through a structured questionnaire distributed to Chartered Accountants (CAs). Opinions are also taken from accounting scholars and professionals from leading audit firms (e.g., Big Four firms).

Secondary Data: Information is gathered from research articles, journals, industry reports, and publications related to blockchain and AI in accounting.

Sampling Method: A purposive sampling technique is used to select respondents who have knowledge and experience in accounting and emerging technologies.

Data Analysis: The collected data are analyzed using qualitative analysis, where responses are summarized and interpreted to identify key insights and trends.

Data Analysis Technique

The collected qualitative data are analyzed using:

- Thematic analysis, to identify key patterns, trends, and insights
- Comparative analysis between traditional accounting practices and technology-driven systems

The responses from questionnaires and expert opinions are interpreted and summarized to evaluate the research hypotheses.

Scope of the Study

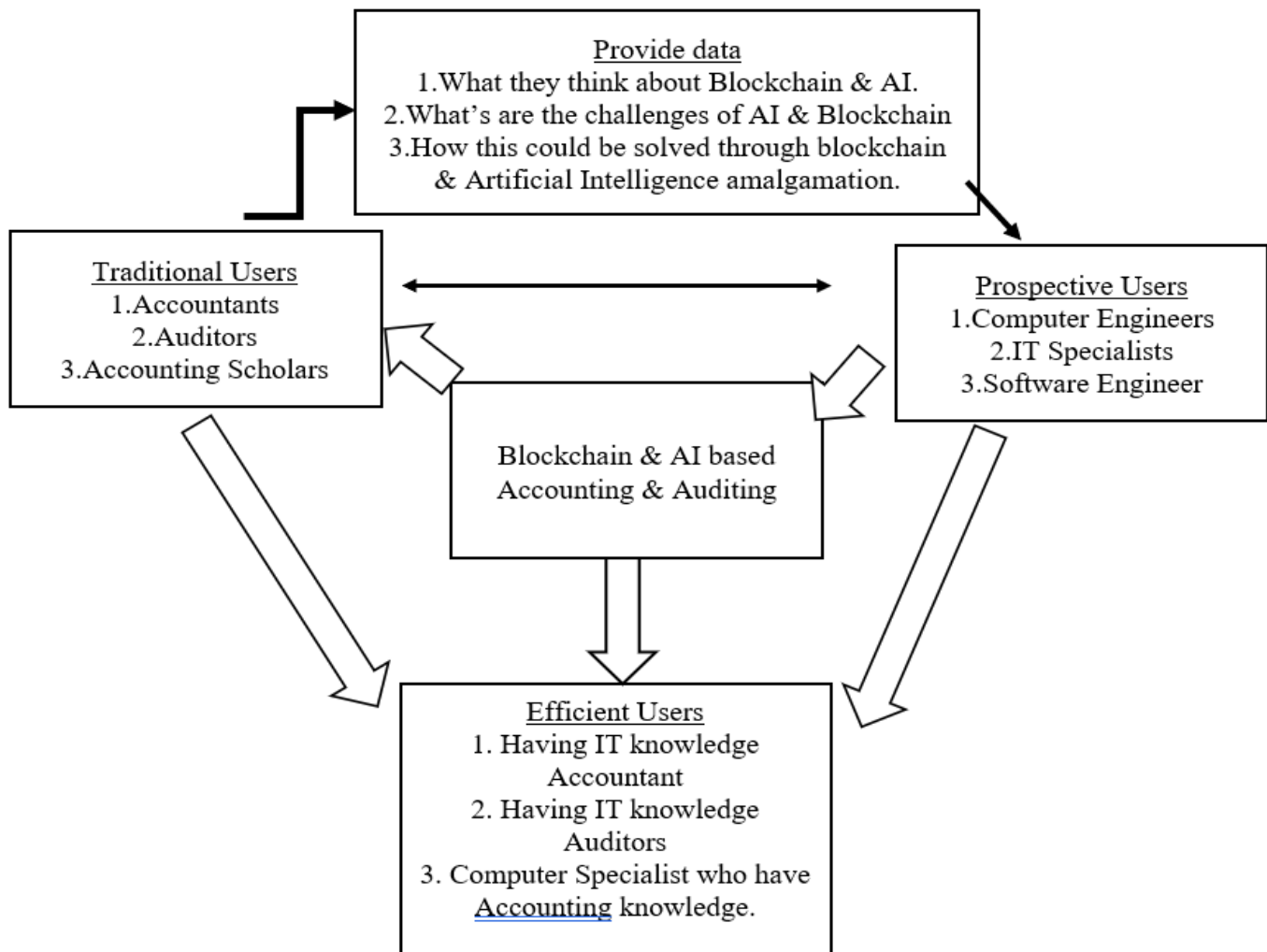
The study focuses on:

- The role of blockchain and AI in accounting and auditing
- Their impact on accounting curriculum, audit quality, and financial reporting
- Challenges such as scalability, interoperability, and employment concerns

Limitations of the Study

- Limited sample size due to accessibility constraints
- Dependence on subjective opinions of respondents
- Rapid technological changes may affect the long-term relevance of findings

Model of the Study



Results Analysis and Discussion

This section presents the analysis and interpretation of the data collected from Chartered Accountants, accounting scholars, and professionals from leading audit firms regarding the impact of blockchain and artificial intelligence (AI) on the accounting profession.

General Perception of Blockchain and AI in Accounting

The findings indicate that most respondents have a positive perception of blockchain and AI adoption in accounting. A significant portion of Chartered Accountants believe that these technologies will transform traditional accounting practices by increasing efficiency, transparency, and reliability. However, some respondents expressed concerns about the lack of technical knowledge and readiness among professionals.

Impact on Accounting Curriculum (H1)

The results strongly support the hypothesis that blockchain adoption will positively change the accounting curriculum.

- Respondents emphasized the need to include technology-oriented subjects such as data analytics, AI, and blockchain fundamentals.
- Many highlighted that current curricula are too theoretical and lack practical exposure to emerging technologies.
- Professionals suggested integrating programming skills, ERP systems, and real-world case studies into accounting education.

Discussion: The findings suggest that accounting education must evolve to meet market demands. The inclusion of technological competencies will enhance graduate employability and prepare future accountants for a digital environment.

Impact on Audit Quality (H2)

The study finds strong agreement that blockchain adoption will significantly improve audit quality and efficiency.

- Blockchain ensures transparency, immutability, and real-time access to data, reducing the risk of fraud and manipulation.
- Respondents noted that continuous auditing may replace traditional periodic audits.
- AI tools help auditors analyze large datasets quickly, improving accuracy and decision-making.

Discussion: The integration of blockchain and AI is likely to shift auditing from manual verification to automated and analytical processes. While audit quality improves, the role of auditors will evolve toward judgment-based and advisory services rather than routine checking.

Impact on Accounting Standards (H3)

The results suggest that blockchain and AI will significantly influence accounting standards and practices.

- Respondents believe that traditional accounting standards may need to be updated to accommodate digital transactions and smart contracts.
- There is a growing need for standardization of blockchain-based financial reporting.

- AI-driven insights may influence how financial information is recognized, measured, and disclosed.

Discussion: Accounting standards-setting bodies will need to revise existing frameworks to align with technological advancements. This may lead to the development of new guidelines for digital assets, cryptocurrencies, and automated transactions.

Impact on Financial Reporting

The findings indicate that blockchain adoption will enhance financial reporting quality.

- Real-time data recording improves timeliness and accuracy of financial statements.
- Blockchain reduces errors and ensures data integrity.
- AI tools facilitate predictive analysis and better financial forecasting.

Discussion: Financial reporting is expected to become more transparent, reliable, and forward-looking. Stakeholders will benefit from real-time access to financial information, improving decision-making processes.

Efficiency and Cost Reduction

Respondents widely agreed that blockchain and AI can reduce operational costs.

- Automation reduces the need for manual data entry and reconciliation.
- Blockchain eliminates reliance on intermediaries, lowering transaction costs.
- AI increases productivity by handling repetitive tasks.

Discussion: Cost efficiency is one of the major advantages of adopting these technologies. However, initial implementation costs and infrastructure requirements may pose short-term challenges.

Impact on Employment and Skills

The results show a mixed perception regarding employment:

- Routine accounting jobs are likely to decline due to automation
- Demand for professionals with analytical, IT, and strategic skills will increase
- Continuous learning and re-skilling are essential for career sustainability

Discussion: The role of accountants is shifting from data processing to strategic decision-making. Professionals must develop technological and analytical competencies to remain relevant.

Challenges and Limitations

While blockchain and AI offer transformative potential, overcoming these challenges requires investment in training, regulatory support, and technological infrastructure. The profession must adapt to avoid disruption. Despite the benefits, several challenges were identified:

- Technical Barriers: Lack of expertise and training among accounting professionals
- Scalability Issues: Slow transaction processing in some blockchain systems
- Interoperability Problems: Difficulty in integrating different blockchain platforms

- Security and Regulatory Concerns: Unclear legal frameworks and data privacy issues
- Job Displacement: Fear of automation replacing traditional accounting roles

CONCLUSION

The overall findings confirm that blockchain and AI are game-changing technologies in the accounting profession. They enhance transparency, efficiency, and audit quality while reshaping accounting education and professional roles. However, successful implementation depends on overcoming technological, regulatory, and skill-related challenges. The findings of this study clearly demonstrate that the integration of blockchain and artificial intelligence (AI) is reshaping the accounting profession in a profound and transformative manner. These emerging technologies are not only improving the efficiency and accuracy of traditional accounting practices but are also redefining the roles, responsibilities, and required competencies of accounting professionals.

Blockchain technology, with its decentralized, transparent, and immutable nature, has shown strong potential to enhance the reliability of financial data, reduce fraud, and enable real-time auditing and reporting. At the same time, AI-driven systems are automating routine accounting tasks, improving data analysis capabilities, and supporting more informed and strategic decision-making. Together, these technologies are driving a shift from manual and repetitive accounting functions toward more analytical, advisory, and value-added roles.

The study confirms that the adoption of blockchain significantly improves audit quality by enabling continuous auditing, reducing the need for manual verification, and increasing the transparency of financial transactions. Similarly, financial reporting is becoming more accurate, timely, and reliable due to real-time data processing and enhanced data integrity. These developments also indicate a strong need for changes in accounting standards to accommodate digital transactions, smart contracts, and blockchain-based systems.

Another important conclusion is the significant impact on accounting education. The current accounting curriculum is no longer sufficient to meet the demands of a technology-driven business environment. There is an urgent need to integrate subjects such as blockchain, AI, data analytics, and information systems into the curriculum. Developing programming, analytical, and technological skills among students is essential to ensure their employability and relevance in the future job market.

However, despite the numerous benefits, the study also identifies several critical challenges. Issues such as scalability, interoperability, high implementation costs, lack of technical expertise, and regulatory uncertainty pose significant barriers to the widespread adoption of these technologies. Additionally, concerns regarding job displacement highlight the need for continuous professional development and re-skilling of existing accounting professionals.

Overall, this study concludes that blockchain and AI are not merely technological innovations but game-changing forces that will redefine the accounting profession. Rather than eliminating the role of accountants, these technologies will transform it. Future accountants must adapt by acquiring new skills and embracing technological advancements to remain competitive.

To ensure successful implementation, it is recommended that organizations invest in training and development programs, educational institutions update their curricula, and regulatory bodies establish clear guidelines and standards. A collaborative effort among academia, industry, and policymakers is essential to fully harness the potential of blockchain and AI in accounting.

In conclusion, the future of the accounting profession lies in its ability to adapt, innovate, and integrate technology, ensuring that it remains relevant, efficient, and valuable in an increasingly digital world.

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