# Block chain Accounting and AI in the Current Era of Accounting

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*doi.org/10.64643/IJIRTV12I12-202156-459*

***Abstract - The integration of Artificial Intelligence (AI) with block chain accounting has revolutionized traditional accounting practices, offering enhanced efficiency, accuracy, and real-time financial insights. This paper explores the efficiency of AI in block chain accounting from an accounting perspective, focusing on its role in automating routine tasks, improving financial reporting, and strengthening governance frameworks. Data was collected through structured surveys targeting accounting professionals to evaluate the perceived efficiency of AI-driven solutions. Statistical analyses, revealing that AI significantly improves operational efficiency by reducing manual errors, enhancing audit capabilities, and providing predictive insights. However, challenges remain in achieving transparency and uniformity in financial reporting and compliance management. The findings underscore the need for more specialized and customizable AI-driven accounting solutions to address these gaps. This study contributes to the growing body of knowledge on the transformative impact of AI in accounting, highlighting its potential to reshape the future of financial management.***

***Keywords: Artificial Intelligence, Block Chain Accounting, Accounting efficiency***

## I. INTRODUCTION

The adoption of block chain accounting and artificial intelligence (AI) signifies a transformative era in the accounting profession, often referred to as "Acco-Tech." These advancements enable the shift from traditional, manual processes to modernized, technology-driven systems that leverage machine learning and block chain -based platforms. Together, they facilitate efficient, accurate, and proactive financial management solutions (Smith & Anderson, 2021).

Block Chain accounting provides real-time financial access, scalability, cost efficiency, and secure collaboration, ensuring compliance and trust (PwC, 2022). AI enhances accuracy through automated processing, fraud detection, and predictive analytics, offering strategic insights (Brown & White, 2019).

The integration of block chain accounting and AI modernizes accounting, replacing traditional methods with efficient, data-driven solutions (Deloitte Insights, 2023). These technologies improve accuracy, transparency, and fraud prevention while enhancing financial reporting (Jones & Williams, 2020).

Blockchain further strengthens data integrity and compliance, supporting governance alongside cloud platforms (Kokina et al., 2017). As businesses adopt these innovations, "4-dimensional Customized Entry and Reporting Systems" enable scalable, transparent, and efficient financial management (Smith & Anderson, 2021).

## II. REVIEW OF LITERATURE

This literature review explores the impact and effectiveness of block chain accounting and artificial intelligence (AI) on Current Era of Accounting.

Dai and Vasarhelyi (2017) explore Blockchain's role in accounting, emphasizing transparency, accuracy, and trust through real-time, immutable records. They highlight smart contracts for automation and continuous auditing but note challenges like scalability, regulation, and cybersecurity. Richins (2017) examines Big Data and Analytics (BDA) in accounting, emphasizing improved decision-making, predictive analytics, and risk management. Challenges include data integration, privacy, and skill gaps, calling for collaboration between academics and practitioners. Troshani (2019) discusses digital transformation in public sector accounting, focusing on Block chain Computing, AI, and Blockchain's role in automation and real-time reporting. Challenges include data security, resistance, and policy adaptation.

Moll and Yigitbasioglu (2019) analyze Block chain Computing, Big Data, and AI's impact on accountants, enhancing efficiency but requiring new skills. They warn of reduced human judgment and ethical concerns. Alles (2020) investigates Big Data

in auditing, highlighting benefits like fraud detection and risk assessment but cautioning about privacy, integration, and skill gaps. The study calls for a paradigm shift in audit methodologies. Kokina and Davenport (2017) explore AI in auditing, emphasizing automation, anomaly detection, and improved accuracy. They caution against biases in AI and stress the need for technical upskilling among auditors.

Smith (2020) highlights block chain accounting's benefits, including real-time data access, scalability, automation, and improved decision-making. Davis (2019) examines AI's role in automating data processing, anomaly detection, and predictive analytics, improving accuracy and efficiency in financial reporting. Johnson (2021) investigates AI-powered fraud detection, enhancing financial data integrity and reducing risks. Thompson (2020) explores block chain accounting's impact on SMEs, improving compliance, productivity, and financial performance. Patel (2022) discusses AI's role in extracting insights from big data, aiding strategic planning, and increasing accountants' value in decision-making.

Significance of the Study

This study addresses a critical research gap by examining the effectiveness, efficiency, accuracy, and compliance benefits of block chain accounting and artificial intelligence (AI) compared to traditional accounting systems. The integration of these technologies represents a paradigm shift in financial management, replacing manual processes with automated, scalable, and real-time solutions. Block chain accounting enhances financial operations by providing secure data storage, seamless collaboration, and compliance with global accounting standards, ultimately improving transparency and trust in financial reporting. Meanwhile, AI complements these capabilities by introducing fraud detection, predictive analytics, and robotic process automation, reducing human errors and optimizing resource allocation. Together, these innovations create a dynamic ecosystem that enhances efficiency and strategic decision-making in modern organizations.

The significance of this study lies in its exploration of how Block chain accounting and AI are reshaping financial management, particularly for industries undergoing rapid technological transformation. By analyzing their impact, the research offers valuable insights for businesses seeking to adopt these technologies to remain competitive in the global economy. The findings serve as a roadmap for understanding the benefits, challenges, and best practices of implementation, contributing to the broader discourse on digital transformation in accounting. Ultimately, this study underscores the potential of Block chain -based and AI-driven accounting systems to revolutionize financial processes, drive productivity, and support informed decision-making in an increasingly complex business environment.

## III. OBJECTIVE OF THE STUDY

1. To evaluate whether Block chain Accounting and AI-based systems are more effective compared to traditional accounting systems adopted in a firm from an accounting perspective.

2. To assess whether Block chain Accounting and AI-based systems enhance the efficiency of auditing processes compared to traditional accounting methods.

3. To determine whether Block chain Accounting and AI-based systems improve the accuracy, timeliness, and reliability, data Security of financial reporting compared to traditional accounting systems.

Hypotheses

$H_{01}$: There is no significant difference between the efficiency of traditional accounting systems and Block chain Accounting & AI technologies in a firm from an accounting perspective.

$H_{02}$: There is no significant difference between the efficiency of traditional accounting systems and Block Chain Accounting & AI technologies in a firm from an auditing perspective.

$H_{03}$: There is no significant difference between the efficiency of traditional accounting systems and Block Chain Accounting & AI technologies in a firm from data security of financial reporting perspective.

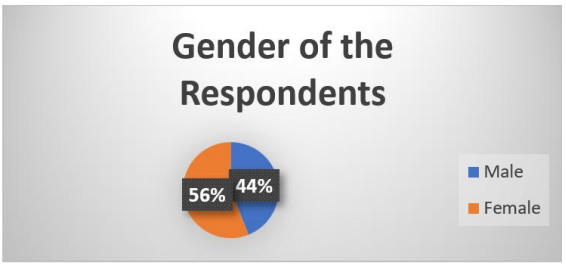
Sample Design/ Techniques of Data Analysis

In order to examine the study, the opinion of respondents has been obtained from the questionnaire method, based on five point Likert measurement

scale, from 132 respondents, from various accounting positions. For data analysis the mean, descriptive statistics, Karl Pearson Correlation Coefficients for standardised and unstandardised regression.

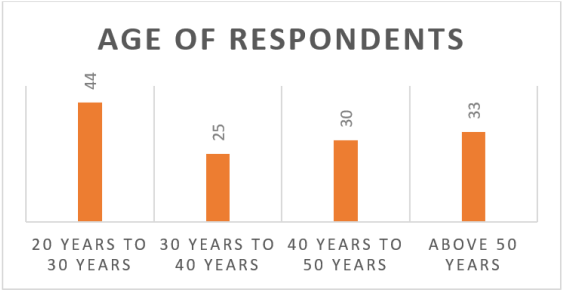
Table: 1 Demographic Profile of respondents

Gender




The gender distribution of respondents in this research highlights a slightly higher representation of females, with 56.06% (74 respondents), compared to males, who constitute 43.94% (58 respondents). This balanced demographic representation ensures inclusivity and provides a holistic perspective on the adoption and perception of emerging technologies like Block Chain accounting and artificial intelligence (AI) in financial management.

Age of the Respondents




The age distribution of respondents reveals diverse participation across age groups. The largest segment, 20 to 30 years, accounts for 44 respondents, indicating strong engagement from younger professionals. This is followed by above 50 years with 33 respondents, highlighting the involvement of seasoned professionals. The 40 to 50 years group comprises 30 respondents, while 30 to 40 years represents the smallest group with 25 respondents. This variation reflects a balanced mix of experience levels, ensuring comprehensive insights into the adoption of Block Chain accounting and AI. The inclusion of multiple age groups strengthens the study's applicability across generational perspectives, providing valuable insights for technological advancements in accounting practices.

Table: 3 Accounting perceptive

| Particulars | Strongly Disagree | Disagree | Neutral | Agree | Strongly Agree | Total |
|---|---|---|---|---|---|---|
| Task Automation Efficiency | 23 | 19 | 25 | 31 | 34 | 132 |
| | 17% | 14% | 19% | 23% | 26% | 100% |
| Accuracy and Error Reduction | 17 | 16 | 26 | 33 | 40 | 132 |
| | 13% | 12% | 20% | 25% | 30% | 100% |
| Data Accessibility | 12 | 22 | 28 | 34 | 36 | 132 |
| | 9% | 17% | 21% | 26% | 27% | 100% |
| Cost Efficiency | 20 | 18 | 21 | 36 | 37 | 132 |
| | 15% | 14% | 16% | 27% | 28% | 100% |
| Scalability | 19 | 20 | 26 | 32 | 35 | 132 |
| | 14% | 15% | 20% | 24% | 27% | 100% |
| Decision-Making Support | 22 | 19 | 22 | 32 | 37 | 132 |
| | 17% | 14% | 17% | 23% | 29% | 100% |

The survey analysis reveals key insights into perceptions of Block Chain Accounting and AI. Task Automation Efficiency received 49% approval, though 19% were neutral, suggesting room for improvement. Accuracy and Error Reduction was well-received, with 55% agreeing on reduced errors, while 13% strongly disagreed.

Data Accessibility saw 53% satisfaction, but 26% disagreed, possibly due to connectivity or user issues. Cost Efficiency was favored by 55%, though 29% were neutral or negative, hinting at cost concerns. Scalability was endorsed by 51%, but 29% expressed doubts about adaptability. Decision-Making Support earned 52% approval, though 31% were neutral or negative, suggesting analytics could improve.

Table: 4 Descriptive statistics of Dimensions of Accounting Perspective

| Dimensions | Mean | Std. Error of Mean | Std. Deviation | Skweness | Kurtosis |
|---|---|---|---|---|---|
| Task Automation Efficiency | 3.255 | 0.070 | 1.391 | -0.323 | -1.15 |
| Accuracy and Error Reduction | 3.393 | 0.067 | 1.345 | -0.45 | -0.961 |
| Data Accessibility | 3.423 | 0.065 | 1.297 | -0.372 | -0.983 |
| Cost Efficiency | 3.355 | 0.070 | 1.401 | -0.392 | -1.144 |
| Scalability | 3.31 | 0.069 | 1.385 | -0.324 | -1.146 |
| Decision-Making Support | 3.358 | 0.072 | 1.433 | -0.378 | -1.198 |

The analysis highlights key insights into Block Chain accounting and AI adoption in financial management. Data Accessibility scores highest (3.423), followed by Accuracy and Error Reduction (3.393) and Decision-Making Support (3.358), underscoring their importance. Task Automation Efficiency ranks lowest (3.255), indicating potential for improvement. Standard deviation values (1.297–1.433) show moderate response variability. Negative skewness across all dimensions suggests a slight lean toward positive agreement, though values near zero indicate a fairly symmetrical distribution. Kurtosis values below zero reflect a platykurtic distribution, with responses spread evenly and lacking extreme peaks.

Table: 5 Auditing Perspective

| Particulars | Strongly Disagree | Disagree | Neutral | Agree | Strongly Agree | Total |
|---|---|---|---|---|---|---|
| Accuracy and Error Reduction | 17 | 17 | 29 | 32 | 37 | 132 |
| | 13% | 13% | 22% | 24% | 28% | 100% |
| Compliance and Regulation Adherence | 22 | 24 | 27 | 30 | 29 | 132 |
| | 17% | 16% | 18% | 24% | 25% | 100% |
| Decision-Making Support | 17 | 15 | 27 | 37 | 36 | 132 |
| | 13% | 11% | 21% | 28% | 27% | 100% |

Accuracy and Error Reduction received 52% approval, while 26% disagreed and 22% were neutral, indicating general confidence but some lingering challenges.

Compliance and Regulation Adherence saw mixed responses, with 49% approval, 33% disagreement, and 18% neutral, suggesting regulatory gaps, possibly industry- or region-specific. Decision-Making Support had the highest approval at 55%, with 24% disagreement and 21% neutral, highlighting its value while indicating room for improvement.

Table: 6 Descriptive statistics of Dimensions of Auditing perspective

| Dimensions | Mean | Std. Error of Mean | Std. Deviation | Skweness | Kurtosis |
|---|---|---|---|---|---|
| Accuracy and Error Reduction | 3.412 | 0.067 | 1.357 | -0.416 | -1.006 |
| Compliance and Regulation Adherence | 3.223 | 0.072 | 1.431 | -0.247 | -1.278 |
| Decision-Making Support | 3.425 | 0.066 | 1.33 | -0.5 | -0.865 |

The analysis of dimensions reveals that Decision-Making Support holds the highest mean (3.425), emphasizing its pivotal role in enhancing strategic insights, followed closely by Accuracy and Error Reduction (3.412), signifying the importance of precision in accounting processes. Compliance and Regulation Adherence scores the lowest mean (3.223), suggesting the need for further improvements in aligning with regulatory standards. The standard deviation values (1.33–1.431) reflect moderate variability in responses. Negative skewness across dimensions indicates a slight inclination toward agreement, while kurtosis values, all below zero, signify a flatter distribution.

Table: 7 Data Security Perspective

| Particulars | Strongly Disagree | Disagree | Neutral | Agree | Strongly Agree | Total |
|---|---|---|---|---|---|---|
| Data Accessibility | 17 | 17 | 24 | 39 | 35 | 132 |

| | | | | | | |
|---|---|---|---|---|---|---|
| | 13% | 13% | 18% | 29% | 27% | 100% |
| Data Security | 19 | 19 | 30 | 34 | 30 | 132 |
| | 15% | 15% | 23% | 26% | 23% | 100% |
| Compliance and Regulation Adherence | 17 | 17 | 28 | 38 | 32 | 132 |
| | 13% | 13% | 21% | 29% | 24% | 100% |
| Environmental Impact | 16 | 21 | 25 | 34 | 36 | 132 |
| | 12% | 16% | 19% | 26% | 27% | 100% |
| Total | 69 | 74 | 107 | 145 | 133 | 528 |
| | 13% | 14% | 20% | 27% | 25% | 100% |

Data Accessibility received generally favorable feedback, with 56% of respondents agreeing or strongly agreeing that the systems provide convenient access to data. However, 26% of respondents either disagreed or strongly disagreed, and 18% were neutral, indicating potential issues with system integration or user familiarity that could hinder accessibility.

For Security, 49% of respondents agreed or strongly agreed that the systems are secure, but 30% either disagreed or strongly disagreed, and 23% were neutral. This mixed feedback suggests a significant portion of users perceive security concerns or vulnerabilities, highlighting an area requiring further attention, such as robust encryption or clearer communication about security protocols.

Compliance and Regulation Adherence was positively rated by 53% of respondents who agreed or strongly agreed, demonstrating confidence in the systems' ability to meet regulatory requirements. However, 26% of participants disagreed or strongly disagreed, while 21% were neutral. This indicates some gaps in system performance or users' trust in regulatory adherence, potentially due to region-specific compliance challenges.

Lastly, Environmental Impact received relatively strong positive feedback, with 53% agreeing or strongly agreeing that the systems contribute to environmental sustainability, such as by reducing paper usage. However, 28% were either neutral or disagreed, suggesting the need to further emphasize or enhance the systems' green benefits.

Table: 8 Descriptive statistics of Dimensions of Data Security Perspective

| Dimensions | Mean | Std. Error of Mean | Std. Deviation | Skweness | Kurtosis |
|---|---|---|---|---|---|
| Data Accessibility | 3.443 | 0.067 | 1.346 | -0.497 | -0.941 |
| Data Security | 3.275 | 0.067 | 1.347 | -0.313 | -1.064 |
| Compliance and Regulation Adherence | 3.378 | 0.067 | 1.334 | -0.436 | -0.956 |
| Environmental Impact | 3.413 | 0.067 | 1.346 | -0.398 | -1.047 |

The analysis indicates that Data Accessibility has the highest mean (3.443), highlighting its significance in ensuring ease of information retrieval. Environmental Impact follows closely with a mean of 3.413, emphasizing its growing importance in sustainable practices. Compliance and Regulation Adherence (3.378) reflects the need for adherence to standards, while Data Security holds the lowest mean (3.275), pointing to potential concerns in safeguarding sensitive information. Standard deviations (1.334–1.347) show moderate response variability. Negative skewness suggests a tendency toward agreement, while kurtosis values (all below zero) indicate flatter distributions. Overall, the findings emphasize strengths in accessibility and environmental focus but highlight areas needing security improvements.

## IV. FINDINGS

Gender Distribution of Respondents: The study involved 58 males (43.94%) and 74 females (56.06%), indicating a higher participation rate among females. This reflects a diverse respondent base, providing balanced perspectives across genders. Age Distribution Respondents aged 20 to 30 years formed the largest group (44), followed by those above 50 years (33), indicating significant representation from younger professionals and senior decision-makers. The 30 to 40 years (25) and 40 to 50 years (30) categories showed moderate

representation, reflecting a good mix of experience levels.

Analysis of Dimensions (Task Automation, Accuracy, Data Accessibility, etc.)

- Data Accessibility had the highest mean (3.443), signifying its critical role in modern systems.
- Accuracy and Error Reduction also scored high (3.412), showcasing the importance of precision in accounting practices.
- Environmental Impact (3.413) and Compliance and Regulation Adherence (3.378) highlight growing attention to sustainability and regulatory standards.
- Task Automation Efficiency (3.255) and Data Security (3.275) have relatively lower means, pointing to areas requiring improvement.

Statistical Insights

- Skewness values were negative across all dimensions, indicating a general agreement among respondents with minor deviations.
- Kurtosis values were also negative, implying flatter response distributions, suggesting diversity in opinions within each category.
- Standard deviations ranged between 1.297 and 1.433, demonstrating moderate variability in responses.

Overall Evaluation

The study identifies Data Accessibility and Environmental Impact as key strengths, reflecting the sector's adaptability and focus on sustainability. Conversely, Data Security and Task Automation Efficiency are areas requiring attention to enhance efficiency and trust in digital solutions.

- Overall, the findings demonstrate that while the majority recognize the benefits of Block Chain Accounting and AI systems, there are notable areas—particularly in accessibility, cost efficiency, and decision-making support—that require further refinement to address user concerns and enhance satisfaction.
- The data reveals that while users find Block Chain Accounting and AI systems effective in supporting decision-making and reducing errors, compliance with regulations is an area that requires improvement. Addressing region-specific compliance needs and improving user understanding of system capabilities could further enhance the overall user experience and satisfaction.
- The data shows a positive perception of Block Chain Accounting and AI systems, particularly in their accessibility, compliance, and environmental contributions. However, challenges in Security and a portion of skepticism regarding Compliance and Environmental Impact highlight opportunities for system providers to address these concerns through improved features, enhanced user education, and transparent communication.
- The potential of Block Chain accounting and AI to enhance efficiency, accuracy, and decision-making capabilities. However, the slightly lower scores in automation and scalability highlight areas for further technological improvement, aligning with user expectations and industry advancements. This balanced feedback provides a foundation for targeted enhancements in these systems.

## V. CONCLUSION

In conclusion, the study underscores the need for continuous innovation in accounting technologies to meet the dynamic demands of current businesses. By addressing gaps in security and automation, organizations can fully realize the potential of these technologies, ensuring enhanced transparency, cost efficiency, and adaptability in a rapidly evolving global landscape.

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