

Revolutionising Financial Markets: The Role of AI and Blockchain in Modern Trading

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Abstract

The rapid evolution of digital technologies has significantly transformed the structure and functioning of global financial markets. Among these innovations, blockchain technology has emerged as a pivotal force driving a paradigm shift in modern trading practices. This study critically examines the role of blockchain in reshaping trading ecosystems, focusing on efficiency, transparency, security and trust in financial transactions. Blockchain based systems, including decentralised exchanges and smart contracts, facilitate secure, automated and transparent trade execution, thereby enhancing operational efficiency and reducing reliance on centralised intermediaries. Furthermore, blockchain technology underpins the development of Decentralised Finance (DeFi), fostering more inclusive, accessible and transparent trading environments. This paper provides a comprehensive analysis of current applications, technological advancements, and practical implementations of blockchain across financial markets. It also critically evaluates key challenges, including scalability constraints, regulatory ambiguities, interoperability issues and cybersecurity concerns. By synthesising existing literature and empirical findings, the study highlights the transformative potential of blockchain in redefining digital trading infrastructures. It further identifies future research directions and strategic opportunities that may shape the next generation of financial market innovation.

Key Words: *Artificial intelligence in trading; Blockchain technology; Financial market innovation; Algorithmic trading; High-frequency trading; Decentralized Finance (DeFi)*

1. Introduction

The evolution of financial trading has undergone a profound transformation, shifting from traditional floor based exchanges to highly sophisticated digital and technology driven platforms. This transition has been largely fuelled by rapid technological advancements, particularly in the area of blockchain. This technology has emerged as a pivotal driver of innovation, fundamentally reshaping the structure, efficiency and functioning of modern trading ecosystems. Blockchain technology introduces a decentralised and immutable ledger system that enhances transparency, security and trust in financial transactions.

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Its applications in trading include smart contracts for automated trade execution and settlement, asset tokenisation for improved liquidity and fractional ownership and the emergence of Decentralised Finance (DeFi) platforms that facilitate peer-to-peer trading without traditional intermediaries. These features address longstanding challenges related to inefficiencies, lack of transparency and counterparty risks in conventional financial systems.

The adoption of blockchain has significantly contributed to improving operational efficiency by streamlining transaction processes and reducing reliance on centralised authorities. Its ability to provide real time, tamper proof records enhances accountability and supports regulatory compliance through transparent and auditable transaction histories. This is particularly relevant in the context of increasingly complex, data intensive and globally interconnected financial markets. Accordingly, this study advances a critical examination of the role of blockchain in revolutionising financial trading. It specifically focuses on its contributions to improving efficiency, transparency and security within modern trading systems. The selection of this research topic is strongly grounded in existing literature, which highlights the growing significance of blockchain in addressing current challenges and transforming trading infrastructures.

2. Literature Review

Technological innovations are significantly reshaping the global financial landscape, particularly in the domain of trading, where blockchain has emerged as a transformative force redefining market operations, trade execution and transparency mechanisms. A growing body of academic and industry literature highlights the increasing adoption of blockchain based systems in financial markets, positioning them as key enablers of secure, transparent and decentralised trading practices [1]. Blockchain technology introduces decentralised and immutable ledger systems that enhance transparency, security and efficiency in trading operations. The literature emphasises its role in enabling Decentralised Exchanges (DEXs), which eliminate intermediaries and reduce counterparty risk through peer-to-peer transaction mechanisms [1]. Smart contracts further automate trade execution and settlement processes, reducing operational costs and minimising delays associated with traditional clearing systems [2,3]. Moreover, blockchain has been identified as a key driver in transforming post trade processes, with the potential to reduce settlement cycles from several days to near real time, thereby improving liquidity and reducing systemic risk [4,5]. In addition to operational efficiency, blockchain contributes to enhanced trust and accountability by providing transparent and tamper proof transaction records. This feature is particularly valuable in addressing issues related to fraud, data manipulation, and lack of transparency in conventional trading systems. Furthermore, the emergence of Decentralised Finance (DeFi) platforms demonstrates the expanding role of blockchain in enabling more inclusive and accessible financial services, allowing market participants to engage in trading activities without reliance on centralised intermediaries [6]. Despite its significant potential, existing research highlights several persistent challenges associated with blockchain adoption in trading systems. These include scalability limitations, high energy consumption in certain consensus mechanisms, regulatory uncertainty, interoperability issues and difficulties in integrating blockchain solutions with legacy financial infrastructures [6,7]. Such challenges may hinder large scale implementation and limit the efficiency gains expected from blockchain based systems. Despite the growing body of literature, several important research gaps remain. First, existing studies primarily focus on the technical and operational benefits of blockchain, with limited emphasis on user awareness, perception and readiness for adoption within real world trading environments. Second, while the advantages of transparency and security are widely discussed, there is insufficient critical evaluation of the

trade offs between these benefits and practical challenges such as scalability, regulatory compliance and implementation costs. Third, the literature lacks a comprehensive perspective that integrates technical, regulatory and user centric dimensions of blockchain adoption. Finally, there is a need for more empirical research that examines how blockchain can be effectively implemented to enhance efficiency, transparency and trust while addressing associated risks. Accordingly, this study aims to address these gaps by providing a critical examination of the role of blockchain in modern trading systems. It focuses on evaluating its applications, benefits and limitations, while also exploring its potential to enhance efficiency, transparency and security in increasingly complex financial markets. By doing so, the study seeks to contribute to the existing literature by offering a more comprehensive and balanced understanding of how blockchain is reshaping the future of trading.

3. Statement of the Problem

Despite the rapid adoption of blockchain technology in financial markets, significant challenges persist in its effective integration and implementation within modern trading systems. Traditional trading infrastructures continue to suffer from inefficiencies, limited transparency, data fragmentation and susceptibility to fraud and market manipulation. While blockchain offers a decentralised and secure framework that enhances transparency and trust, its practical implementation is often constrained by several technical and operational limitations. Blockchain technology, although promising, faces critical challenges such as scalability constraints, regulatory uncertainty, interoperability issues and high energy consumption in certain consensus mechanisms. These limitations hinder its widespread adoption and seamless integration into existing financial systems, particularly those reliant on legacy infrastructures. Furthermore, the adoption of blockchain introduces additional complexities, including system integration challenges, evolving compliance requirements, and the absence of standardised regulatory frameworks. Financial institutions and market participants must therefore balance technological innovation with the need for regulatory compliance, data security and effective risk management.

In this context, there is a critical need for a systematic and focused examination of how blockchain technology can be effectively leveraged to address existing inefficiencies while minimising associated risks. Accordingly, this study aims to analyse the practical applications, limitations and broader implications of blockchain in trading systems. It seeks to identify sustainable solutions and propose future directions for enhancing the efficiency, transparency and resilience of modern financial markets.

4. Objectives

The primary objectives of this study are as follows:

- To assess the level of awareness and perception among financial professionals and investors regarding the adoption of Artificial Intelligence (AI) and blockchain technologies in trading.
- To analyse the perceived benefits associated with the use of AI and blockchain in financial markets, particularly in terms of efficiency, transparency and enhanced decision making.
- To examine the potential risks and concerns related to the implementation of these technologies, including security vulnerabilities, ethical issues and technological limitations.
- To evaluate the readiness of market participants to adopt and integrate AI and blockchain based tools into their trading practices.

- To identify the key challenges, regulatory, technical and operational, that may influence the adoption and effective implementation of AI and blockchain in modern trading systems.

5. Methodology

This study adopts a quantitative, survey-based research approach, supported by descriptive and analytical techniques, to examine the role of Artificial Intelligence (AI) and blockchain in trading. A cross-sectional research design was employed to collect data at a single point in time, which is particularly appropriate for assessing current levels of awareness, perceptions, adoption and concerns among market participants. This design enables a systematic snapshot of prevailing trends and attitudes in a rapidly evolving technological and financial environment. A structured questionnaire consisting of closed ended and Likert scale items was developed to ensure consistency, reliability and ease of quantitative analysis. The study utilised purposive sampling to target respondents with relevant knowledge and experience in financial markets, thereby enhancing the relevance and validity of the data collected. The final sample comprised 200 participants, including retail investors, institutional traders and financial analysts, providing a diverse and representative perspective on the research problem.

Primary data were collected through an online survey distributed via email and professional platforms such as LinkedIn and financial forums, facilitating broader reach and efficient data collection. In addition, secondary data were sourced from academic journals, industry reports and white papers to support the theoretical foundation and contextual understanding of AI and blockchain applications in trading. The collected data were analysed using descriptive statistical techniques, including frequencies, percentages and mean scores and were presented through charts and tables to enhance interpretability. Furthermore, analytical tools such as Microsoft excel and SPSS were employed for data processing, pattern identification and cross tabulation, ensuring a systematic and rigorous analysis of the findings.

Overall, the selection of a quantitative, cross-sectional survey design is well-justified, as it enables objective measurement, efficient data collection and robust analysis of current market perceptions. This methodological approach is particularly suitable for addressing the study's objectives and provides a reliable foundation for drawing meaningful insights into the adoption and implications of AI and blockchain in trading systems.

6. Scope and Limitations

This study focuses on examining the role of blockchain technology in modern trading, with particular emphasis on its applications, benefits and challenges within financial markets. The scope of the research is limited to understanding the awareness, perception and readiness of financial professionals and investors toward the adoption of this technology. It covers key areas such as Decentralised Finance (DeFi), smart contracts, and risk management, thereby providing insights into the practical applications of blockchain in trading systems [2]. The study primarily relies on survey data collected from a selected group of respondents, including retail investors, institutional traders and financial analysts, offering a practical perspective on current market trends and technology adoption.

However, the study is subject to several limitations. First, the use of a cross-sectional research design restricts the analysis to a specific point in time and does not capture evolving trends or long-term impacts, which are particularly relevant in rapidly changing technological environments [8]. Second, the sample size of 200 respondents and the use of purposive sampling may limit the generalizability of the findings to the broader population [9]. Third, the reliance on self-reported data may introduce response bias and subjectivity, potentially affecting the accuracy of the results [10].

Additionally, the study does not involve in-depth technical or empirical testing of blockchain systems, focusing instead on perception-based analysis, which may not fully capture system level performance or operational complexities[6]. Finally, rapid technological advancements and continuously evolving regulatory frameworks may affect the long-term relevance of the findings, as blockchain remains a dynamic field subject to ongoing innovation and policy development [4,7]. This highlights the need for continuous and longitudinal research to better understand future developments and their implications in financial markets.

7. Data Analysis and Discussion

Table 1: *Respondents' demographic profile.*

Demographic variable	Category	Frequency	Percentage (%)
Age	18–25	42	21
	26–35	83	41.5
	36–45	50	25
	46 and above	25	12.5
Profession	Retail investor	60	30
	Financial analyst	40	20
	Institutional trader	55	27.5
	Academic/Researcher	45	22.5

The demographic profile of the respondents, as presented in Table 1, reflects a diverse and well-balanced sample, providing meaningful insights into the adoption of Artificial Intelligence (AI) and blockchain technologies in trading. In terms of age distribution, the largest proportion of participants (41.5%) falls within the 26–35 age group, indicating strong representation from younger professionals who are generally more receptive to technological advancements. This is followed by respondents aged 36–45 (25.0%) and those in the 18–25 category (21.0%), suggesting that a substantial majority (87.5%) of the sample comprises individuals below the age of 45, thereby representing a predominantly tech-oriented and economically active population. In contrast, only 12.5% of respondents belong to the 46 and above age group, indicating comparatively lower participation from older individuals who may exhibit more conservative attitudes toward technological adoption. With respect to professional background, retail investors constitute the largest group (30.0%), followed by institutional traders (27.5%), academic or research professionals (22.5%), and financial analysts (20.0%). This distribution ensures a comprehensive perspective by integrating practical market experience with analytical and academic insights. Overall, the inclusion of both retail and institutional participants enhances the reliability of the findings by capturing varied levels of market engagement and diverse viewpoints on emerging financial technologies.

Table 2: *Awareness of emerging technologies in trading.*

Technology	Fully aware (%)	Somewhat aware (%)	Not aware (%)
Artificial Intelligence (AI)	65	30	5
Blockchain	70	25	5
Smart contracts	55	35	10
Decentralized exchanges	40	40	20

The level of awareness of emerging technologies in trading, as presented in Table 2, reflects a generally high degree of familiarity among respondents, particularly with foundational technologies such as Artificial Intelligence (AI) and blockchain. A significant majority of respondents reported being fully aware of AI applications in trading (65%), while an even higher proportion (70%) indicated full awareness of blockchain technology. This suggests that these core innovations have become increasingly embedded in mainstream financial discourse and are widely recognised among market participants. In contrast, awareness levels decline when considering more specialised and application-oriented technologies. For instance, while 55% of respondents reported full awareness of smart contracts, a notable proportion (35%) indicated only partial awareness and 10% lacked awareness entirely. This distribution highlights a moderate knowledge gap, particularly in understanding the practical implementation and functional relevance of smart contracts in automated trading processes. The lowest level of awareness is observed in the case of Decentralised Exchanges (DEXs), where only 40% of respondents reported full awareness. An equal percentage (40%) indicated partial awareness, while 20% were not aware at all. This finding points to a significant gap in familiarity with decentralised trading platforms, which may act as a barrier to their broader adoption despite their potential advantages in terms of transparency, security and disintermediation.

Overall, the observed disparity in awareness between widely established technologies (AI and blockchain) and more advanced or emerging applications (smart contracts and DEXs) underscores the uneven diffusion of technological knowledge within the trading community. These findings suggest that while foundational concepts are well understood, there is a clear need for targeted educational initiatives and capacity building efforts to enhance deeper, application-level understanding. Addressing these gaps is essential for facilitating informed adoption and maximising the potential benefits of these technologies within modern trading systems.

Table 3: *Perceived impact of AI on trading performance.*

Impact area	SA (%)	A (%)	N (%)	D (%)	SD (%)
Increases trading accuracy	48	37	10	3	2
Reduces human error	52	35	8	4	1
Enhances decision making	60	30	7	2	1
Note: SA-Strongly Agree, A-Agree, N-Neutral, D-Disagree, SD-Strongly Disagree					

The perceived impact of Artificial Intelligence (AI) on trading performance, as illustrated in Table 3, reveals a highly positive evaluation among respondents across key performance dimensions, including trading accuracy, error reduction and decision-making efficiency. A substantial majority of respondents (85%) either strongly agree

(48%) or agree (37%) that AI enhances trading accuracy. This reflects a strong acknowledgement of the effectiveness of algorithmic models and data driven analytics in delivering more precise outcomes compared to traditional trading approaches. Similarly, 87% of respondents believe that AI significantly reduces human error, with a notable 52% expressing strong agreement. This indicates a high level of confidence in AI's ability to minimise cognitive biases, emotional influences and inconsistencies typically associated with manual trading decisions. Such findings reinforce the perceived reliability of AI driven systems in improving operational accuracy. Moreover, AI's role in enhancing decision making is particularly pronounced, with 90% of participants indicating agreement or strong agreement, including 60% who strongly agree. This highlights the value attributed to AI capabilities such as real-time data processing, advanced pattern recognition and sentiment analysis, which are critical in navigating complex and rapidly changing market conditions. The relatively low levels of neutrality and disagreement across all dimensions further emphasise a strong consensus among respondents regarding the effectiveness of AI in trading. This consistency in responses suggests not only awareness but also a high degree of acceptance and trust in AI based systems.

Overall, these findings demonstrate that AI is widely perceived as a transformative tool in modern trading environments. Its ability to enhance efficiency, improve accuracy and support strategic decision-making positions it as a critical enabler of performance optimisation. The results also indicate a growing reliance on AI driven technologies, reflecting a broader shift toward data-centric and automated trading practices in financial markets.

Table 4: *Perceived benefits of blockchain in trading.*

Benefit	Yes (%)	No (%)	Not sure (%)
Transparency in transactions	88	5	7
Lower transaction costs	80	10	10
Faster settlement process	77	12	11
Reduced fraud and manipulation	85	8	7

The perceived benefits of blockchain in trading, as presented in Table 4, reveal a predominantly positive outlook among respondents regarding its potential to enhance key aspects of financial transactions. Among the various dimensions assessed, transparency emerges as the most widely recognised benefit, with 88% of respondents affirming that blockchain improves transactional transparency. This finding reflects a strong understanding of blockchain's fundamental characteristic as an immutable and distributed ledger, which enhances trust, traceability and accountability within trading systems. In addition, 80% of participants acknowledged the potential of blockchain to reduce transaction costs. This perception is largely attributed to the elimination of intermediaries and the automation of verification processes, which streamline operations and improve cost efficiency. However, the presence of a small proportion of neutral and dissenting responses suggests that some participants may be cautious due to concerns about associated operational expenses, such as transaction fees, infrastructure costs or network related charges. With respect to efficiency, 77% of respondents agreed that blockchain facilitates faster settlement processes, a feature particularly relevant in cross border trading scenarios where traditional systems are often time consuming. Nonetheless, the existence of some uncertainty and disagreement indicates that practical implementation challenges such as scalability limitations, network congestion and

regulatory constraints may influence perceptions regarding its real-world efficiency. Furthermore, 85% of participants identified blockchain as an effective mechanism for reducing fraud and market manipulation. This highlights a high level of confidence in its security features, including cryptographic encryption and consensus protocols, which collectively enhance the integrity and reliability of transaction records.

Overall, the findings suggest that blockchain is widely perceived as a transformative technology capable of improving transparency, reducing costs, and strengthening trust in trading systems. At the same time, the observed variation in responses related to efficiency underscores the need to address technical and regulatory challenges to fully realise its potential in practical trading environments.

Table 5: *Readiness to adopt AI and blockchain in trading.*

Response item	Frequency	Percentage (%)
Already using both AI and blockchain	58	29
Planning to adopt within 1 year	74	37
Interested but need more information	46	23
Not interested	22	11

The readiness to adopt Artificial Intelligence (AI) and blockchain technologies in trading, as presented in Table 5, reflects a strong inclination among respondents toward technological integration. A notable 29% of participants reported that they are already utilising both AI and blockchain in their trading activities, indicating a meaningful level of early adoption and practical implementation within the financial ecosystem. Furthermore, the largest proportion of respondents (37%) expressed their intention to adopt these technologies within the next year. This highlights a strong forward-looking orientation and suggests increasing confidence in the value and applicability of AI- and blockchain driven solutions in trading practices. Taken together, these groups account for 66% of the sample, demonstrating that a substantial majority of respondents are either actively engaged with or preparing to integrate these technologies into their operations. In addition, 23% of respondents indicated an interest in adoption but emphasised the need for further information and understanding. This finding points to a clear knowledge gap, suggesting that while the willingness to adopt exists, it is contingent upon improved awareness, technical understanding and accessibility of reliable information. Addressing this gap through targeted educational initiatives, professional training programs and industry driven awareness efforts could significantly accelerate adoption rates. Only 11% of participants reported no interest in adopting AI and blockchain technologies, indicating relatively low resistance to technological change.

This minimal level of reluctance further reinforces the overall positive sentiment toward innovation within the trading community. Overall, the findings reveal a high level of enthusiasm and preparedness for the adoption of AI and blockchain in trading. At the same time, they underscore the importance of enhancing knowledge dissemination and support mechanisms to ensure more informed, confident, and widespread implementation in the future.

Table 6: *Concerns regarding technology use in trading.*

Concern	Very high (%)	High (%)	Moderate (%)	Low (%)	None (%)
Data security and privacy	35	30	20	10	5
Regulatory uncertainty	40	25	20	10	5
Over reliance on automation	30	30	25	10	5
Ethical use of AI in trading	28	32	25	10	5

The concerns regarding the use of Artificial Intelligence (AI) and blockchain technologies in trading, as presented in Table 6, highlight several critical issues that may influence their adoption despite their recognised benefits. Among these, regulatory uncertainty emerges as the most significant concern, with 40% of respondents rating it as “very high” and 25% as “high,” indicating that a substantial majority (65%) express apprehension regarding the absence of clear, consistent and standardised legal frameworks. This finding reflects a broader challenge in financial markets, where rapid technological advancements often outpace regulatory development, leading to ambiguity in compliance and governance. Similarly, data security and privacy concerns are prominently reflected, with 35% of respondents indicating a very high level of concern and 30% a high level, collectively accounting for 65%. This underscores the perceived risks associated with the handling and protection of sensitive financial data, particularly within decentralised and digitally interconnected trading environments. Despite blockchain’s inherent security features, concerns regarding vulnerabilities, data misuse, and cyber threats remain significant among market participants. In addition, over reliance on automation is viewed as a considerable risk, with 60% of respondents expressing great or very high concern. This suggests apprehension regarding reduced human oversight, potential system failures and the possibility of unintended consequences arising from fully automated decision-making processes. Such concerns highlight the need for a balanced approach that integrates human judgment with technological capabilities. Ethical considerations related to the use of AI in trading also feature prominently, with 60% of participants indicating high levels of concern. These concerns primarily revolve around issues such as algorithmic bias, lack of transparency in decision-making (often associated with “black-box” models) and questions of fairness and accountability in automated systems.

Overall, the findings reveal a clear tension between the substantial benefits offered by AI and blockchain technologies and the risks associated with their implementation. This underscores the necessity for the development of robust regulatory frameworks, enhanced data security measures and well-defined ethical guidelines. Addressing these concerns is essential to ensure the responsible, transparent and sustainable adoption of these technologies in modern financial markets.

8. Major Findings, Challenges and Future Prospects

The findings of this study reveal a high level of awareness and a generally positive perception of Artificial Intelligence (AI) and blockchain technologies among financial professionals and investors, consistent with prior research highlighting the growing acceptance of these technologies in financial markets [11]. A majority of respondents demonstrated strong familiarity with AI (65%) and blockchain (70%), although awareness of more advanced applications such as smart contracts and decentralised exchanges remains comparatively limited, aligning with earlier studies that suggest uneven diffusion of technological knowledge across user groups [6,7]. Respondents widely

acknowledged the benefits of AI in trading, with 85% indicating improved trading accuracy, 87% recognizing reduced human error, and 90% affirming enhanced speed and quality of decision-making. These findings are supported by existing literature, which emphasises AI's capability in predictive analytics, automation and real time data processing as key drivers of improved trading performance [12,13]. Similarly, blockchain was perceived as a trust enhancing technology, with 88% of respondents highlighting improved transaction transparency and 85% acknowledging its role in reducing fraud and market manipulation. These perceptions are consistent with prior research that identifies blockchain's immutability and decentralised structure as critical factors in enhancing trust and security in financial systems [2,5]. Additionally, over 75% of participants recognised faster settlements and lower transaction costs as key advantages, which aligns with findings from the World Economic Forum on blockchain's potential to streamline post trade processes [4].

The study also indicates strong readiness for adoption, with 29% of respondents already using both technologies and 37% planning to adopt them in the near future. This reflects an increasing trend toward digital transformation in financial markets, as highlighted in recent industry reports [14]. Only a small proportion (11%) expressed disinterest, suggesting minimal resistance to technological change. However, concerns related to data security and regulatory uncertainty were prominent, each identified by 65% of respondents, alongside issues such as over-reliance on automation and ethical implications of AI. These concerns are widely documented in the literature, particularly regarding algorithmic transparency, data privacy, and the evolving regulatory landscape [15,16].

Demographic analysis further revealed that younger professionals and institutional traders exhibit higher levels of engagement, whereas retail investors and academic participants, despite showing interest, face barriers related to limited resources and technical expertise. This observation is consistent with existing studies that highlight disparities in technological adoption based on experience, access and institutional support [17]. Despite the promising outlook, several challenges persist, including scalability and performance limitations, data privacy and ethical concerns, regulatory ambiguity and cybersecurity risks associated with both AI systems and blockchain infrastructure [6,7]. Looking ahead, the future of trading is expected to be shaped by the emergence of hybrid trading platforms that integrate centralised and decentralised models as well as advancements in quantum computing, which will necessitate the development of quantum-resistant cryptographic systems and more robust AI capabilities. Moreover, there is an increasing emphasis on ethical and inclusive innovation to ensure fairness, transparency, and accessibility in financial markets. Overall, the seamless integration of AI, blockchain and advanced information technologies is anticipated to drive the evolution of trading practices, leading to more efficient, secure, and resilient financial systems.

9. Conclusion

This study set out to examine the role of blockchain technology in modern trading systems, with a focus on awareness, perceived benefits, adoption readiness and associated challenges among financial professionals and investors. The findings reveal a relatively high level of awareness, with more than 70% of respondents demonstrating familiarity with blockchain technology. However, awareness of more advanced applications, such as smart contracts and decentralised exchanges, remains

comparatively limited, indicating an uneven depth of technological understanding within the trading community.

The results further highlight a strong positive perception of blockchain in enhancing trading processes. A significant majority of respondents recognised its role in improving transaction transparency (88%), reducing fraud and market manipulation (85%) and increasing efficiency through faster settlements and lower transaction costs. These findings emphasise blockchain's potential to enhance trust, accountability and operational efficiency in financial markets. In terms of adoption readiness, the study demonstrates a clear forward momentum, with a notable proportion of respondents already utilising blockchain technologies, while many others expressed intentions to adopt them in the near future. This reflects a growing shift toward decentralised and technology driven trading practices. However, a considerable segment of respondents indicated the need for greater awareness and understanding, suggesting that broader adoption depends on improved knowledge dissemination and practical exposure. Despite the promising outlook, the study identifies several critical challenges that may hinder widespread adoption. Regulatory uncertainty and data security concerns emerged as the most significant issues, highlighting the need for clear legal frameworks and robust cybersecurity measures. Additionally, technical challenges such as scalability limitations, interoperability issues, and system complexity continue to affect the efficiency and integration of blockchain within existing financial infrastructures. Based on these findings, the study concludes that blockchain technology has substantial potential to transform trading systems by enhancing transparency, security and efficiency. However, realising this potential requires coordinated efforts to address regulatory, technical and operational barriers. Looking ahead, future research should focus on longitudinal studies to capture evolving adoption trends as well as empirical analyses of blockchain implementation in real-world trading environments. Further investigation into scalability solutions, regulatory frameworks and user adoption strategies will be essential to support sustainable growth. In conclusion, the future of trading is likely to be significantly influenced by the strategic and responsible adoption of blockchain technology. Its successful implementation can contribute to the development of more transparent, secure and efficient financial markets, provided that innovation is supported by appropriate governance structures and inclusive access for all market participants.

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