THE EFFECT OF THE BLOCKCHAIN TECHNOLOGY ON FINANCIAL REPORTING IN CELO UGANDA: A CASE OF CELO UGANDA

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UGANDA CHRISTIAN UNIVERSITY
A Centre of Excellence in the Heart of Africa

STUDENT'S DECLARATION.

I AKOL EUNICE ELIZABETH, declare that this research report is of my own investigation and has never been carried out or submitted by anyone else.

AKOL EUNICE ELIZABETH.

S21B33/010

Signature: …… **Date: ……..**

SUPERVISOR'S APPROVAL.

This research report has been prepared under my guidance and is hereby submitted examination with approval.

Name: Ms. Natuwhera Maureen.

University Supervisor.

Signature: ……. **Date:** 4th September 2024

DEDICATION.

I dedicate this work to my beloved family, whose unwavering support has been a beacon of strength throughout my academic journey. I also extend my heartfelt gratitude to Mr. Ochai Robert, who has been a profound source of inspiration and provided the support and guidance that any child would wish for from a parent. His encouragement and advice were instrumental in my decision to pursue this course and in laying the foundation for my career. I appreciate the support I received from the Celo Uganda Limited community who provided the necessary data and information during my research process. Additionally, I dedicate this work to my supervisor, Ms. Natuhwera Maureen, for her invaluable guidance and assistance during my research.

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My deepest gratitude goes to the Almighty God, who has guided me up to this point and will continue to lead me forward. I sincerely appreciate my supervisor and Ms. Natuwhera Maureen for her encouraging words and unwavering support throughout the entire process of writing this paper.

LIST OF ABBREVIATIONS.

SHORT FORM	FULL FROM
AI	Artificial Intelligence
DLT	Distributed Ledger Technology
PoS	Proof of Stake.
PoW	Proof of Work
SME	Small and Medium-sized Enterprises
TPS	Transaction Per Second

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ABSTRACT.

The purpose of the study was to assess the effect of the blockchain technology on the financial reporting process of Celo Uganda. This study was guided by the following research questions: What is the relationship between Blockchain Technology and Financial Reporting? What specific mechanisms does Blockchain employ to ensure the accuracy, dependability and transparency in financial Reporting? What are the potential risks and challenges associated with the implementation and integration of Blockchain Technologies into financial reporting?

The study used was Celo Uganda. The total population of 45 staff was targeted for the study though, 36 managed to respond.

The primary data was collected using structured questionnaires. Qualitative data was analysed and the output was presented using a descriptive statistic of percentages and by narration.

This study investigates the transformative potential of blockchain technology on financial reporting, examining its capacity to enhance transparency, accuracy, and efficiency. By leveraging a mixed-methods approach, combining both qualitative and quantitative data, this research analyzes the effects of blockchain adoption on financial reporting quality, auditability, and stakeholder trust. The findings reveal that blockchain-based financial reporting systems can significantly reduce errors, improve real-time disclosure, and increase stakeholder confidence. However, the study also identifies key challenges, including regulatory uncertainty, scalability limitations, and industry-wide adoption hurdles. The research contributes to the existing literature by providing insights into the benefits and obstacles of integrating blockchain technology into financial reporting, offering recommendations for stakeholders seeking to harness its potential.

CHAPTER ONE:

Introduction.

This chapter presents the study's background, the problem statement, its aims, and its research questions. Additionally, it highlights the study's significance, justification, and breadth of inquiry. It also specifies the limitations of the study and the conceptual framework.

Blockchain Technology is an advanced decentralized database mechanism that facilitates seamless and secure information sharing within a corporate network.

The data base system stores data in blocks that are linked together in a chain. In regards to financial reporting, it enhances the accuracy, transparency, and integrity of financial data.

Background of the Study.

Blockchain can simply be described as a data structure that holds transactional records while ensuring security, transparency, and decentralization. The concept of a Blockchain-like system was first proposed by David Chaum, a Cryptographer in his 1982 dissertation, “Computer Systems Established, Maintained, And Trusted by Mutually Suspicious Groups.” Further work on a cryptographically secured chain of blocks was described in 1991 by Stuart Haber and W. Scott Stornetta. In 1992, Haber, Stornetta, and Dave Bayer incorporated Merkle Trees (a fundamental component of Blockchain Technology named after Ralph Merkel) into the design, which improved its efficiency by allowing several document certificates to be collected into one block.

The anonymous person or group of people known as Satoshi Nakamoto is not only credited for the first modern cryptocurrency, but also for creating blockchain architecture that makes Bitcoin (a peer-to-peer electronic cash system) and other cryptos possible as well. Satoshi Nakamoto launched the Bitcoin blockchain and cryptocurrency in 2009. Its structure and design are such that its recorded transactions called blocks cannot be altered retroactively without the alteration of subsequent blocks.

Nearly all of cryptocurrencies, notably Ethereum, Ripple, Litecoin, and Bitcoin, have been developed to assist particular sectors or applications instead of attempting to replace government-issued fiat currencies globally. Consensus processes, private blockchains, coordinating several

simultaneous sub-chains, and other technical challenges are still being experimented with by numerous academics.

In Africa, despite the development of the mobile cellular with more than 1 billion SIM cards and 140 mobile money services in 39 countries, or over half of the 277 total services globally, as of December 2016, there are very few concrete cases of the use of or adoption of blockchain technology. Solutions are developed within the constraints of a poor understanding and knowledge of the technology, especially in sectors other than banking. In addition, central banks do not have regulation in place for innovation technologies of this kind. However, Bitcoin, nevertheless, is gaining ground in countries such as Ghana, Kenya, South Africa, Tunisia and Uganda, where it is used generally for money transfers. Banks in South Africa, including the Reserve Bank, are beginning to accept the innovation of digital currencies and blockchain technology despite the differing opinions of regulators on matters such as cryptocurrencies.

In Ghana, the Blockchain Technology has been used to improve the transparency and efficiency of the land registry systems, while in Nigeria, the technology is being used to improve the transparency and security of the voting process. South Africa has had a notable adoption and utilization of the technology as well, in the financial services sector for cross-border payments, digital identity verification and asset tracking.

Studies reveal that blockchain technology can provide opportunities to disrupt businesses in the financial sector and offer new growth for startups across the continent. Tunisia is the first country in the world to issue its national currency via an application that operates through blockchain. Uganda has started regulating bitcoin, and Senegal plans to introduce a digital currency based on blockchain technology.

“Africa is rapidly building a reputation as the hotspot of the crypto-tech world,” Gideon Greaves, Managing Director at Crypto Valley Venture Capital (CV VC) Africa, told TRT World. As per today, Africa is the third fastest-growing cryptocurrency market globally. Between July 2020 and June 2021, crypto adoption in Africa surged by over 1,200 percent, especially in countries like Kenya, South Africa, Tanzania and Nigeria.

As earlier stated, East African governments are preparing to harness Blockchain Technology in order to improve on their service delivery, financial systems and the overall growth of the

economies. The Central Bank of Kenta (CBK) is taking steps to enable the use of Blockchain Technology in the Financial services sector. CBK is currently working on developing regulatory framework for digital assets and has set up a task force to explore the potential use cases of the technology.

The Blockchain technology has gained considerable attention due to its ability to provide transparent and immutable records. The Democratic Republic of Congo, one of the member states of the East African Community is known to have vast reserves of minerals, including tantalum, tungsten, tin and gold. Having been plagued by illegal trade and conflict financing, the Congolese diaspora have initiated a process to include Congolese minerals in the Blockchain Technology tracking systems to address these concerns and ensure transparency.

President Yoweri Museveni hosted a regional conference in the capital and announced that his government would soon begin discussions on developing regulations for the technology. “We’re going to discuss this among ourselves. The policy will come from the results of the brainstorming from other sessions in the Cabinet,” he said at the opening of the Africa Blockchain Conference Kampala. According to the President, Blockchain Technology will help deal with challenges in land registration (by the Ministry of Lands, where all properties in the country will be registered on the Blockchain), service delivery, tracking in health and other critical areas. The range of Blockchain applications being implemented in Uganda have enabled micropayment systems, digital identity management, and smart contracts.

The incorporation of the Blockchain Technology in land registry is a project fronted by Bitland Uganda in partnership with Bitland Global, a land registry application on the chain that maintains tamper proof immutable land records. Unlike most African countries, Uganda’s regulators are not posing much resistance towards the adoption of the Technology and cryptocurrencies. The lawyers, however, are still grappling with how to navigate the compliance and legal implications of the new technology since the biggest challenge is the absence of a regulatory regime. The government is in the process of drafting policy guidelines and encouraging the industries within to adopt the technology while introducing tax mechanisms and incentives that are meant to draw the attention of the private sector to invest in the Blockchain Technology.

Statement of the Problem.

The emergence of the Blockchain Technology has the capability to drastically change the field of Financial Reporting by shifting the minds of the new generation from the use of traditional practices and procedures through digital transformation which can open doors for new possibilities. The implementation of the Blockchain Technology in Africa is still in its infancy stages because there are several issues hindering its general acceptance such: lack of comprehensive understanding of the importance of the technology and overall knowledge about cryptocurrencies and how they work, poor infrastructure, there is still limited empirical evidence on its actual impact, lack of legislative framework, high data access costs which causes confusion and leads to hesitancy to adopt the emerging technology.

Despite the growing interest and potential benefits of the Blockchain Technology in revolutionizing Financial Reporting practices, for the adoption rate to increase, all stakeholders will need to have extensive understanding of the Blockchain Technology and cryptocurrencies in general. These include: the governments and the general public who currently possess scanty information in regards to this topic.

The Purpose of the Study.

The purpose of this study was to identify the effect of the Blockchain Technology on Financial Reporting process in the organization.

Objectives of the Study

General Objective;

The general objective of the study was to assess the effects of Blockchain Technology on Financial Reporting.

Specific Objectives;

The study was guided by the following specific objectives;

1. To establish the relationship between Blockchain Technology and Financial Reporting.
2. To assess the accuracy, dependability and the transparency of the financial data.

3. To evaluate the potential risks that arise from the implementation of the technology.

Research Questions;

The study was guided by the following research questions;

1. What is the relationship between Blockchain Technology and Financial Reporting?
2. What specific mechanisms does Blockchain employ to ensure the accuracy, dependability and transparency in financial reporting?
3. What are the potential risks and challenges associated with the implementation and integration of Blockchain Technologies into financial reporting?

Scope of the Study;

The content, geographical and time scope of this study is as follows:

Content Scope.

This study concentrates on the effect of Blockchain Technology on Financial Reporting. The study puts much emphasis on examining the contribution of Blockchain Technology to the effectiveness, efficiency, and transparency of the Financial Reporting process as well as the factors that have hindered its adoption within the country and potential risks that can arise as a result of the implementation of the technology.

Geographical Scope.

The study was conducted at Celo Uganda. The Celo Africa Web3 Fund aims to help scale African startup projects building on Celo in support of the Blockchain technology. Celo Uganda has been chosen for the study because it is a mobile-first blockchain with a mission to lead a thriving digital economy for all. It is a Blockchain based platform that aims to create a more inclusive financial system by leveraging the technology to enable fast, secure and low-cost mobile payments.

Time Scope

The study covered secondary information for a period of five years (2019-2024) because the Blockchain Technology became prevalent in Africa and the Uganda in this time period. The information from this period was able to provide the study with a reasonable base for the

conclusions and recommendations. The study will be done within a period of four months (March 2024 to June 2024) in order to accomplish the educational requirements. This involves: gathering, summarizing, analyzing and interpreting data, as well as writing and presentation of a research proposal and report.

The Variables.

Dependent Variable: Financial Reporting was the dependent variable in this study because it is the outcome that is being influenced by the independent variable.

Independent Variable: Blockchain Technology was the independent variable in this study because it is being manipulated in order to observe an effect on the Financial Reporting.

The Benefits of the Study.

The findings of this study were expected to have educational value to the readers, for example: other researchers at Uganda Christian University, Mukono, practitioners in the field of accounting, finance, and technology, and other interested parties to equip them with the knowledge concerning the emerging technology and its implications on the current and future economic status of the country, the East African Community, the African Continent, and the Global village, as well as its impact on the Financial Reporting procedures.

The findings of this study are expected to provide practical information that can benefit policy makers and concerned organizations to inform their decision making in regards to the adoption and implementation of the Blockchain Technology in their Financial Reporting procedures as well as other relevant fields. Understanding its effects will be crucial for companies, regulators and investors.

CHAPTER TWO.
LITERATURE REVIEW.

2.0 Introduction

This chapter covered the views, ideas, and opinions of different researchers and writers about the effect of blockchain technology on financial reporting. The literature in this chapter was reviewed basing on the study of the objectives, research questions using the following themes;

2.1 Key Concepts.

The Blockchain Technology.

The Blockchain Technology is an ultra-modern database mechanism that permits a business network to share information transparently. The data entered into the system is stored in blocks that are linked together in a chain which exists in a harmonious chronological manner that cannot be altered, modified or deleted without unanimity from the network. The structure possesses inbuilt techniques that ward-off unauthorized transaction entries, therefore developing a cohesive view of these transactions.

N26 AG 2024 article describes the Blockchain Technology as a database that's structured as a chain of blocks, each of which holds a set of information. The Blockchains essentially function as digital ledgers, and they have a number of different uses and part of what makes the blockchain database different is that the information in each block cannot be changed or edited after it is added to the chain.

Financial Reporting.

This can be defined as the comprehensive review of monthly, quarterly, or yearly financial data to drive better business performance and results. It refers to the process of presenting financial information about a company or organization to its stakeholders. The aim of financial reporting is to provide precise, reliable and relevant financial data to assist the stakeholders in making well-informed decisions. Financial reports typically include: The Statement of Financial Position, The

Statement of Profit or loss and Other Comprehensive Income, The Cashflow Statement, The Statement of Change in Equity, and The Notes to the Financial Statements.

The Effects Of Blockchain On Financial Reporting.

This research paper analyzes the perceptions of finance experts, accountants, and auditors as well as other specialists in the accounting and finance professions towards the adoption and implementation of the Blockchain Technology in the Financial Reporting process.

In the paper "Analysing the applicability of blockchain accounting and its impact on financial reporting" by Asha Sharma, Sumedha Journal of Management 9 (2), 1-13, 2020, "Blockchain is an ingenious solution to eliminate the need for a trusted intermediary in many areas of financial relationships and accounting." It adds, "Its working based on Triple Entry Accounting. It was a process introduced by a financial cryptography expert, Ian Grigg in December 2005. Triple Entry is explained in Lehman's language as it is combination of double accounting system and cryptography. Statistical tests and tools such as Multivariate Linear Model, Structural Equation Modelling have been used to measure the result."

The same paper recorded that, "Yermack 2017 first identifies that blockchain-based accounting system by definition must allow shareholders, customers, creditors and other stakeholders of a corporation to compile their own financial statements at any time and eliminates the need to rely on quarterly reports. One of the cornerstone notions when dealing with real-time accounting systems with potential daily updates are the problem of time-lag between the financial reports. Understanding the current situation with time-lag implications is especially important considering that blockchain system will eliminate them completely."

It also informed that, "Deloitte (2016) "Blockchain technology a game-change in accounting?", emphasizes that the use of the blockchain can greatly simplify the procedures of verifying the integrity of accounting data which can result into significant monetary and perhaps more importantly organizational benefits such as reduced time for conducting audit and ultimately automatic audit may become a reality. As a next step pf development of blockchain systems, smart contract applications can be created such as invoices being paid automatically.

International Journal of Accounting Information Systems Volume 53, June 24, 100681, "Looking beyond the hype: the challenges of blockchain adoption in accounting" by Moshina Akter informs that, "The rise of blockchain with its unique design features, also opens up the possibility to shapeshift typical accounting procedures. Blockchain enables distributed immutable ledgers that record and verify transactions as they occur and distribute the same copy of the ledger to participating 'nodes' in the network (Iansiti and Lakhani, 2017, Swan, 2015). Therefore, it creates a chain of accounting records instead of retaining separate records and increases the transparency of information for everyone involved (Bonson and Bednarova, 2019, Deloitte, 2016). Consequently, the convergence of accounting and blockchain can enhance the trust and transparency of information (Cai, 2021)." It also suggested that the adoption of the technology in the financial reporting process aided in simplifying the current auditing process, transactions and balances that are to be confirmed at the end of the reporting period, by allowing for the validation of the transactions almost immediately (Vincent et al., 2020, Wang and Kogan, 2018).

The above mentioned authors have made conclusions in favor of the implementation of the blockchain technology in the financial reporting process and implying that the effects would be positive and revolutionary in the field of accounting and finance. However, there are some scholars that suggest otherwise;

Alles and Gray (2023), "Impact of blockchain in accounting" concludes that, there's need to objectively examine the blockchain technology in the accounting while focusing on the aspects of it such as the private and public blockchains and processing of the costs as a criterion for validation.

"Blockchain-based triple-entry accounting" by Thies et al. (2023), as quoted in the International Journal of Accounting Information Systems Volume 53, June 24, 100681, "Looking beyond the hype: the challenges of blockchain adoption in accounting" by Moshina Akter, "Triple-entry has the potential to enhance fraud prevention and real-time transaction verification. The study underscored the significance of transitioning from theoretical research to practical implementations while promoting a future research agenda that encourages interdisciplinary collaboration to drive triple-entry accounting's adoption."

In conclusion, the adoption and implementation of blockchain technology in the financial reporting process heralds a revolutionary era characterized by enhanced accuracy, dependability and efficiency of the entire process. However, there was still uncertainty in terms of the compliance of

the technology to pre-set standards and reporting standards due to the limited scope of knowledge and research. Nonetheless, if more investigation and analysis is done in that regard, it would contribute to financial efficiency in the global markets and accounting and finance field.

The Relationship Between Blockchain Technology and Financial Reporting.

The article of AccountingTools November 13, 2023 defined Financial Reporting as "The financial results of an organisation that are released to its stakeholders and the public. The reporting is a key function of the controller, who may be assisted by the investor relations officer if an organisation is publicly held."

Financial reporting is a systematic approach to presenting financial information about a company or organization to the stakeholders. It typically involves: Determining the reporting requirements such as: the types of reports, the deadlines, frequency of reporting, and the legal or regulatory requirements, Data collection and processing which included gathering financial data from its various sources (ledgers, journals, cash and bank accounts, etc.) as well as processing the collected data to ensure its accuracy and convenience.

This was generally the process of disclosing financial information and statements that provide insights into an organisation's financial performance and position. This information was vital for stakeholders, including investors, creditors, regulators, and the management team of the organisation in the decision-making process.

The Key Components of Financial Reporting;

I. **Financial Statements:** The Balance Sheet, Income Statement, Cashflow Statement and Statement of Changes in equity are the major aspects of the financial reporting process that provide the necessary data that intended to guide the stakeholders and relevant parties when making decisions. Each statement has their designated purpose and must be prepared within the stated timeframe while exhaustively providing the required information.

II. **Notes to the Financial Statements:** These provide additional context and details about the figures presented in the financial statements. Some of them include: accounting policies, risk factors, contingent liabilities and assets, among many others. They are also primal for the stakeholders to fully comprehend the financial state of the entity and be able to make informed decisions.

III. **Management Discussion and Analysis:** This is the managerial commentary on the financial results attained, providing valuable insight into the factors that influenced the performance and future outlook.

IV. **Auditor's Report:** This an independent auditor's assessment of the accuracy and fairness of the financial statements which adds credibility and reliability to the reported information.

According to Mayank Pratap, "Blockchain can be described as a data structure that holds transactional records and while ensuring security, transparency, and decentralization. You could think of it as a chain or records stored in the forms of blocks which are controlled by no single authority. A blockchain is a distributed ledger that is completely open to any and everyone on the network. Once an information is stored on a blockchain, it is extremely difficult to change or alter it."

Blockchain technology is a decentralized digital ledger that records transactions and data in a systematic order in blocks across multiple computers within a network. It utilizes cryptography to secure and validate transactions to ensure that they are conducted transparently as well as stored. It generally has a wide range of applications beyond digital currency.

In the "Blockchain for Financial Leaders: Opportunity vs Reality" paper sponsored by Deloitte, "Blockchain is a "distributed ledger" technology, meaning that all transactions recorded within a particular database are shared, synchronized, and approved across a network and verified by consensus using cryptographic algorithms. This is quite different from the traditional financial ledger recording methods where transactions are recorded but are verified by a trusted third party."

The 2020 CFA Institute article "Blockchain Technology for Corporate Reporting: An Investor Perspective" by Mohini Singh, ACA informs that, "Given that it is a distributed ledger, blockchain

allows every transaction in a company's ledger to be instantaneously available to all participants in the network. Such a trustworthy network ensures data security, thus improving the quality of information. Intercompany transactions also become more transparent. Information is more timely, transparent, and accurate.

"Bitcoin could disappear tomorrow and it would not affect the future of blockchain technology" says Campbell Harvey, professor of Finance at Duke University's Fuqua School of Business as recorded in the research paper "Blockchain for Financial Leaders: Opportunity vs. Reality" sponsored by Deloitte. "One theoretical of blockchain is to financial reporting and this is exactly the point in time to discuss the advantages and disadvantages." The paper also records that "He also argues that despite the recent criticisms of Bitcoin, financial executives should not overlook the underlying benefits of the technology that allowed for the digital currency's rise to prominence."

The relation between the technology and financial reporting was that among its various capabilities, the blockchain technology could be utilized by various entities in the business world and network to transform the reporting process by providing a secure, transparent, and efficient way to record and report financial transactions more efficiently as well as potentially minimizing the risks of errors and fraud that haunt the business world.

To sum it up, the relationship between the blockchain technology and financial reporting is poised to reconceive the prospect of financial transparency and accountability. The core features of the technology such as; the decentralization, immutable ledgers and the ability to process and assemble real-time data access furnish notable reliability of the financial records produced.

Mechanisms Employed by the Blockchain Technology to Ensure the Accuracy, Dependability and the Transparency in Financial Reporting.

The blockchain technology implements several mechanisms to ensure the accuracy, dependability and transparency in financial reporting. Listed below are some of the features that make it possible;

Decentralization: This mechanism seeks to ensure that not one single entity has exclusive control and neither is the data stored in a single location but in multiple nodes in the network. The intention is to reduce the risks of data loss or manipulation and enhance the dependability of the financial records. It contains Distributed Ledger Technology (DTL) that records all transactions across a network of computers.

"We currently use this model that relies on reporting numbers from the past within annual, semiannual, and quarterly reporting," Harvey explains. "What blockchain allows you to do is create a ledger maintained by the internal audit team that receives immediate and secure data from the business lines, which can then be potentially validated by external auditors in real time." He adds, "Creating a private, real-time ledger would also, theoretically, remove the risks of earnings management from financial reporting, since all transactions are validated and recorded as they happen." Besides, entities would employ a private distributed ledger (as opposed to Bitcoin's public ledger) which would permit external parties to see only what is in the typical financial report, but also financial executives and leadership to view information in much greater detail.

Cryptographic Security: The advanced cryptography techniques ensure security of the data entered into the system by encrypting it. It can only be accessed or altered by the authorised parties which enhances the integrity of the financial records. Each transaction entered into the blockchain system is secured with a digital signature that proves its authenticity.

The Mayank Pratap paper also informed that, "To complement and enhance its security measures, each block in the chain network stores some information along with the hash of its previous block. A hash is a unique mathematical code which belongs to a specific block. If the information inside the block is modified, the hash of the block will be subject to modification, too. The connection of blocks through unique hash keys is what makes the blockchain secure. While transactions take place on a blockchain, there are nodes on the network that validate these transactions."

Immutability: The technology contains immutable ledgers which ensures that transactions are recorded in a sequential chain, making it quite difficult to alter or delete the data that has been entered into the system. The immutability ensures that financial records are tamper-proof and can be trusted overtime, providing a reliable audit trail. As soon as the data has been processed, it cannot be altered or changed without having to alter the entire blockchain, since each block stores the hash of its preceding block. The changing process is quite complex and would require exceptional computational power to do so.

David L. Yermack, Chairman of the New York University's Stern School of Business says "It's not just that you are introducing the concept of a shared ledger that will greatly reduce the need for financial recordkeeping, just the sheer volume of it, but the transactions themselves are put into this format, which I would call a self-auditing technology." He adds, "If anybody goes back and changes any of the data, the change is apparent immediately to all users, so you don't need an audit looking for stuff by trial and error."

Consensus Algorithms: Blockchain Technology uses consensus algorithms like Proof of Work (PoW), Proof of Stake (PoS), and others to validate and agree on transactions. These algorithms ensure that all transactions are verified and agreed upon by the majority of the network applicants before being added to the blockchain system. This ensures and maintains the accuracy and reliability of the financial records. According to the article by Mayank Pratap, all the data stored on a blockchain is recorded digitally and has a common history which is available to all the network participants which eliminates the chances of fraudulent activity or duplication if transactions without the need of a third party.

Smart Contracts: These contracts are self-executing contracts with the terms of the agreements directly written into code. They automate and enforce contractual agreements, reducing the need for intermediaries and ensuring that transactions are executed precisely as agreed which reduces errors and increases integrity in financial reporting. The "Blockchain for Financial Leaders: Opportunity vs Reality" research paper informs that Pryde argues that blockchain-based smart contracts will allow companies to pull data from their financial statements in order to fulfil their contractual obligations. This concept is already being tested in the insurance and reinsurance industries.

The types of blockchain technology include;

Public: According to Mayank Pratap, this type of the blockchain technology is one whose ledgers do not require a specific type of permission in order to be accessed. Provided that one has internet access, they are able to get in contact with the information on the ledgers including the history of the blockchain as well as making any transactions through it. The Bitcoin is an example of the public blockchain. It grants access to worldwide communities and enables them to share information blatantly and securely. The apparent shortcoming is that it can be compromised if its regulations are not strictly followed.

Private: Informed by Mayank, these are more preferred by companies that would choose to adopt the blockchain technology in their operations because the blockchains are shared only among the trusted participants and the network is controlled by the owners of the information. To top it off, the rules and regulations of the network such as: the different levels of permission, degree of exposure, the number of members, and authorization can be altered.

Regarding the above arguments from various researchers and scholars, the adoption of the blockchain technology in the financial reporting procedures is able to enhance the accuracy, dependability, and transparency in the entirety of the process.

These mechanisms, and many more to yet be explored, promote greater efficiency by streamlining the transactional, accounting, and auditing process while reducing the operational costs involved in the entire process. Welcoming this technological advancement in the financial reporting process will increase the credibility of the financial information that will be produced as well as drive the global accounting and finance sector into a new era of integrity and efficiency.

Potential Risks and Challenges Associated with the Implementation and Integration of the Blockchain Technology in Financial Reporting.

Regulatory Uncertainty: The blockchain technology was relatively new and there is lack of clear regulatory guidelines and standards which can lead to compliance complications and legal risks for organizations adopting the technology. Various jurisdictions may have had different regulations, complicating cross-border financial activities.

Integration with Existing Systems: Integrating blockchain with legacy financial systems and databases could be complex and costly for organizations. They may have faced technical difficulties, increased costs, and disruptions in their operations during the integration process. Interoperability between blockchain technology and existing systems is critical but challenging.

Technical Expertise and Talent Shortage: Human resource management team of organizations would have to struggle to find and retain qualified and skilled personnel to develop, implement, and maintain blockchain-based financial reporting systems. The talent gap can slow down adoption and increase reliance on external consultants.

Resistance to Change: Resistance from employees, management, and stakeholders who were accustomed to traditional financial reporting methods could hinder the adoption and effective implementation of the blockchain technology since it would require a shift in organizational culture and processes.

Legal and Contractual Issues: Ensuring that smart contracts were legally binding and enforceable across different jurisdictions could be quite challenging. Disputes arising from these contracts would be difficult to resolve due to the lack of legal precedent, introducing legal and contractual complexities.

Vulnerability to Cyber Attacks: Although the technology is quite secure, it did not guarantee immunity to cyber threats. Security breaches could undermine trust in blockchain-based financial reporting.

Initial Cost and Investment: High upfront costs could be a deterrent for many organizations. Implementing the technology required significant initial investment in infrastructure, training and

development, particularly for small and medium-sized enterprises (SMEs). The return on investment would not be immediately apparent, which made it a risky financial decision.

Limited Scalability: The hash puzzles that need to be solved required much time therefore lowering the transaction processing speeds and thus limiting the scalability. Researchers also inform of the existence of a scalability trilemma which was the trade-off that blockchain or cryptocurrency projects have to make when optimizing their blockchain architecture. The trade-off had to be made between the three aspects which were: decentralization, security, and scalability (Viswanathan & Aakash Shah, 2018). Zhou, Huang, Zheng, & Bian (2020).

Jon Raphael, the Audit Chief Innovation Officer at Deloitte & Touch LLP, case in point was that, "Management estimates, which are integral to financial reporting. Companies book legal accruals when there are probable losses that are reasonably estimable. Obviously no two companies are going to agree on a legal settlement before they actually settle a case, but accounting rules requires an estimate to be made. The notion of having that estimate recorded on the blockchain certainly doesn't seem to be a great use case. Moreover, there are many similar judgements that occur throughout the financial reporting process, such as valuation of complex financial instruments, revenue recognition, or goodwill impairments."

The adoption of the blockchain technology in the financial reporting process would have a number of benefits associated with it, but there were a series of risks and challenges related with its implementation that would need to be critically assessed and evaluated. The overall cause for the risks had to deal with the newness of the technology, hence creating room for a number of uncertainties.

Whereas the technology created an opportunity for advancement in the finance sector, there was still much that was uncertain about it which explained the hesitation of many institutions to adopt it. The regulatory compliance, scalability, high costs and more were the limitations that were affecting its overall acceptance. Overcoming these hurdles however, would unseal the brim-full capability of the blockchain technology which would lay the foundations for a more accurate, dependable, transparent and efficient financial reporting process.

CHAPTER THREE:

RESEARCH METHODOLOGY.

Introduction.

This chapter presents the methodology the researcher used in collecting the relevant data. This portion will show in much detail the research design, sampling design, data sources, data collection methods, data instruments and data analysis.

The Research Design.

The research design outlines the overall plan and strategy for conducting the study. For this research, a qualitative design will be employed. This design was used because it aims at exploring the effect of blockchain technology on the financial reporting process.

Sampling Design.

Target Population.

The target population for this study were the staff working at **Celo Uganda** in the Information Communication Technology and Finance and Accounting Departments. They were chosen because they are involved in the hands-on implementation of the technology in the accounting and financial reporting procedures.

In terms of area sampling, the purposive sampling technique was used to select personnel such as: Information Technology (I.T.). specialists, Finance analysts as well as Accountants and other relevant employees that were actively involved in the daily implementation of the blockchain technology in the financial reporting process. They will be administered with questionnaires with various questions that will target the specific research objectives and questions.

The sample size refers to the number of units or people that are chosen from which the researcher wishes to gather information or data (Evans et'al, 2000). For the purpose of this study, the researcher will use a mathematical formula of Tora Yamane to determine the sample size as illustrated below.

Where;

N – The total population of the respondents.

e – The confidence level.

$N = \frac{N}{1+N(e)^2}$

$N = \frac{40}{1+40(0.05)^2}$

N = 36 respondents

DATA SOURCES.

Primary Data.

The researcher used primary data as a source of data. According to Kothari 2000, primary data refers to sources of data where raw facts are collected for the first time that is to say: data that is original in nature. In other words, it was the data that was obtained by the researcher from the respondents. This was done through administering questionnaires.

The advantages of primary data included the following;

I. Reliability of primary data was very high because data was collected by the concerned and reliable party.
II. The degree of accuracy was very high because primary data was original and relevant to the topic of the research study.
III. Primary data was current hence it gave a realistic view to the researcher about the topic under consideration.
IV. Primary data was tailored to the researcher's specific research questions and objectives. Therefore, the researcher could design the data collection method, select the sample, and control the quality and accuracy of the data.

Secondary Data.

The researcher also used secondary data as a source of data. Secondary data refers to the data collected by someone other than the primary user. In other words, it was the already existing data

for information collected by other researchers. The data was be obtained from the published journals and articles as well as available information on the internet.

The advantages of secondary data included;

I. Secondary data was cheap and faster to access as compared to primary data.
II. Secondary data was less time consuming hence it saved time, efforts and costs which added value to the research study.

DATA COLLECTION METHODS.

Primary Data Collection.

According to Kothari 2000, primary data referred to sources of data where raw facts are collected for the first time, that is to say: data that is original in nature. Primary data was be collected through self-administered questionnaires and interviews.

By using the strengths of questionnaires, this approach enhanced the comprehensiveness of the data collection process, leading to a holistic understanding of the research topic. The integration of quantitative and qualitative data allowed for triangulation, cross-validation, and deeper exploration of the research questions, contributing to the overall validity and reliability of the study's findings.

Questionnaires.

Self-administered questionnaires were distributed to a sample of staff working at Celo Uganda, through the purposive sampling method. The questionnaires were designed to assess the effects that the implementation of the blockchain technology in the financial reporting process and information that was be relevant to the study. They included both close – ended and open – ended question sections. The use of close – ended questions, including Likert scale items, facilitated the quantification of the staff's response towards the adoption of the technology and provided valuable data for statistical analysis.

Additionally, close – ended questions allowed for easy comparison and identification of patterns in the responses. Open – ended questions on the questionnaire allowed the staff to elaborate on their experiences, challenges and perceptions regarding the implementation of the technology and its effects on the financial reporting process. These qualitative insights provided a deeper understanding of the effect of the technology on the reporting process.

Data Collection Instruments.

This section, describes in detail the data collection instruments that were used for gathering primary data from the participants. Each data collection instrument was designed to address specific research objectives and gather relevant information related to the effect of the blockchain technology on the financial reporting process.

Self-Administered Questionnaires.

The self-administered questionnaires were the primary data collection instrument for this study to obtain and gather information to analyze and compare positive and negative effects of implementing the blockchain technology in the financial reporting process. It consisted of several sections, each targeting different aspects of the specific research objectives. The questionnaire was be administered to a sample of staff working at Celo Uganda, who were selected using the purposive sampling methods.

The questionnaires contained questions on the bio data of the respondents and other sections contained questions on the specific objectives of the study. They were be targeted to the Finance Analysts, Accountants, I.T. specialists, and other employees actively involved in the implementation of the blockchain technology in the financial reporting process as well as the technical personnel responsible for managing the network being used.

Data Analysis.

According to Hyndman (2008), data processing involves translating the answers on a questionnaire into a form that can be manipulated to produce statistics. This involves coding, editing, data entry

and monitoring the whole data processing procedure. The results were presented using tables, graphs, and charts for ease of understanding hence it was easy to interpret the findings and generate recommendations from them.

The questionnaire involved both open-ended and close-ended questions that were filled out by the respondents. The frequency, relationships, and context of specific themes within the questionnaire were analyzed. The findings were compared and narrated.

Ethical Considerations.

In data collection and analysis, the researcher followed ethical guidelines. All participants provided informed consent, ensuring their voluntary participation and the confidentiality of their responses. The research was also carried out in accordance with the university's ethics review board.

The questionnaire was structured in such a way that there was no need to mention the respondents' names or any other confidential information, unless permitted. The researcher ensured compliance, right from data collection, analysis up to report writing and dissemination.

Limitations.

- Balancing research with school work: Managing time effectively between research, coursework, and other academic responsibilities was overwhelming, such as deadlines for research milestones while keeping up with regular assignments and exams can be stressful.
- Expenses associated with research: Printing multiple copies of research instruments (e.g., questionnaires, surveys), papers, and reports was costly as well as traveling to conduct field research, which included visits to the case study.
- Limited access to resources: Secondary information was limited due to the limited library resources.
- Data analysis and presentation: Effectively communicating the research findings coherently and concisely was quite challenging.

CHAPTER FOUR.

PRESENTATION, ANALYSIS, AND INTERPRETATION OF DATA.

Introduction.

This chapter contains the presentation, analysis, and interpretation of collected data from the study, which is based on the research questions guiding the study. The presentations are in form of tables, and graphs. The first section presents the demographic information of the respondents. The second portion illustrates the findings of the relationship between financial reporting and the blockchain technology. The third section presents the findings on the effect of blockchain technology on financial reporting. The fourth portion section presents the findings on the financial reporting

Demographic characteristics of respondents.

This section presents the respondents' general background information. The components include: the position held in the company and range of years in service.

Response Rate.

Table 1 Response rate of the population

Nature of Response	**Distribution (number)**	**Distribution (%)**
Responded	36	80
Did not respond	9	20
Total	**45**	**100**

Source: Primary Data.

The table above presents the response rate to the study. Out of a target population of 45, 36 responded who contributed 80% response rate with a 20% did not respond, accounting for the 9 respondents that did not respond.

Years in Service.

Respondents were asked to indicate the number of years they had been in service in the company.

Table 2 Years of service of the respondents

Years of Service	**Number**	**Percentage (%)**
Less than 1	7	19
1 – 3 years	14	39
3 – 5 years	7	19
More than 5 years	8	23
Total	**36**	**100**

The table above indicates that 19% of the respondents have been in service for less than one year, 39% have been in service for 1-3 years, 19% for 3-5 years, and 23% for more than 5 years. This implies that the respondents have a tangible amount of experience and knowledge about the company.

The Effect of the Blockchain Technology on the Financial Reporting Process.

This study sought to determine the effect of the implementation of the blockchain technology on the financial reporting process. The findings are represented as follows;

Blockchain Technology Implementation.

The respondents were asked whether the company has the technology implemented in the financial reporting process.

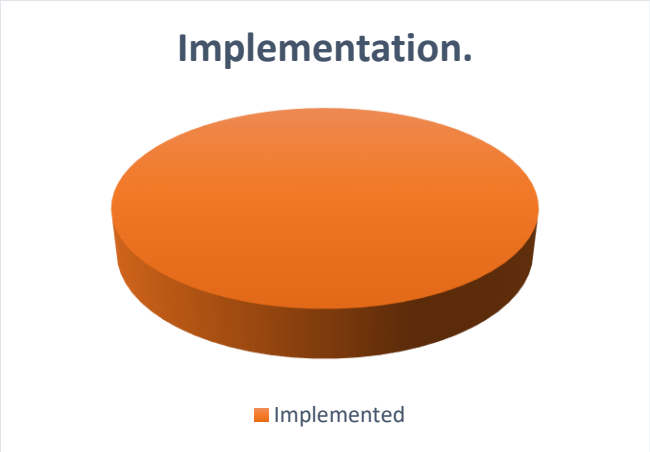

Figure 1 Implementation of the Technology

Source Primary Data.

The figure above indicates that 100% of the respondents agree that the technology has been implemented in the financial reporting process.

How Long the Technology has been in Use.

The questionnaire required the respondents to indicate how long each of them has been using the technology.

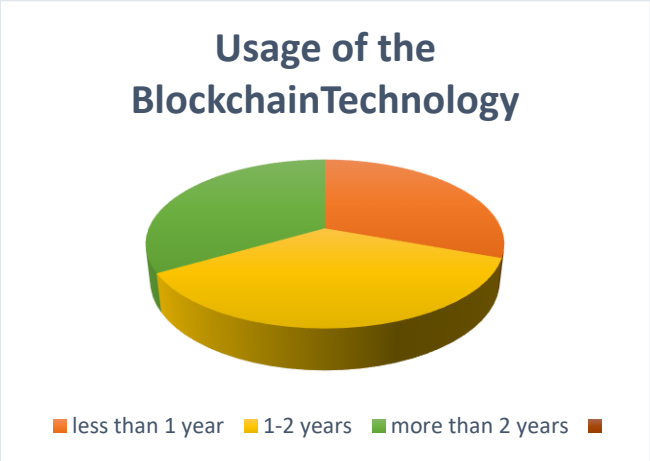

Figure 2 Usage of the Technology

To What Extent has the Implementation of the Technology Improved Accuracy of Reports.

The respondents were asked to indicate to what extent they agreed with the statement, "Blockchain technology has improved the accuracy of our financial reports."

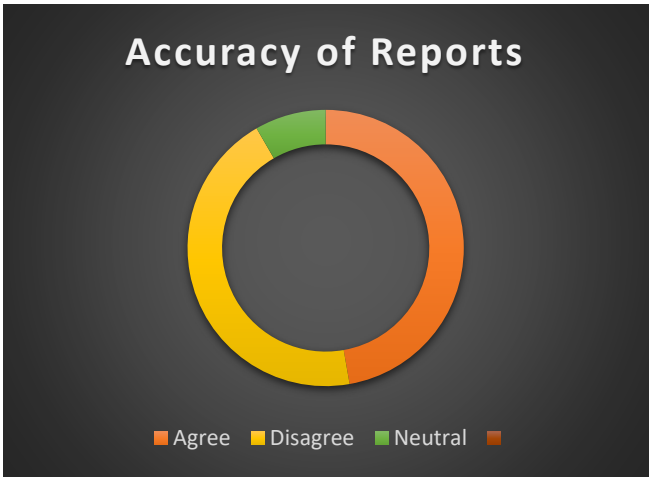

Figure 3 Effect of the technology on the accuracy of the financial reports

To What Extent has the Implementation of the Technology Improved Dependability of Financial Data.

The respondents were asked to indicate to what extent they agreed with the statement, "Blockchain Technology has increased the dependability of the financial data."

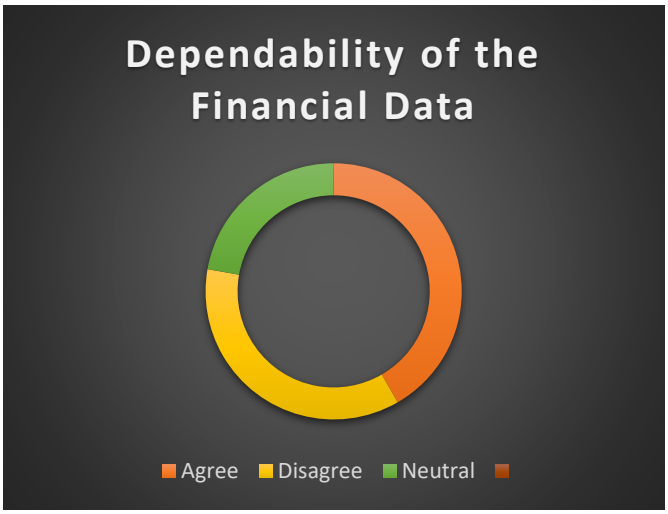

Figure 4 Effect of the technology on the dependability of financial data.

To What Extent has the Implementation of the Technology Enhanced the Transparency of Financial Data.

The respondents were asked to indicate to what extent they agreed with the statement, "Blockchain Technology has enhanced the transparency of the financial data."

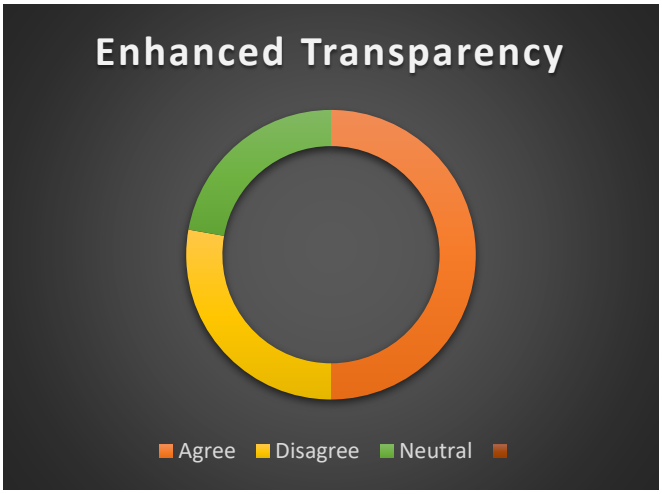

Figure 5 Effect of the technology on the transparency of the financial data

Narration of Findings

In trying to assess the effect of the Blockchain Technology on the Financial Reporting Process of Celo Uganda, the researcher issued questionnaires to the various employees of the entity, including Accounting, Finance, IT specialists and other relevant staff that are involved in the implementation of the technology in the financial reporting process. The focus was put on these particular employees because they are able to provide first-hand information regarding its implementation along with its effects.

The Effect of the Blockchain Technology on Financial Reporting.

The researcher examined and interviewed the respondents on their understanding of the blockchain technology and whether it is utilised in the financial reporting process and its effect on the entirety

of the financial reporting process. The respondents expressed a great understanding of the technology and its applicability in the reporting process. Explained below are the findings from the research conducted at Celo Uganda based on the specific research objectives and questions.

The Relationship between the Blockchain Technology and the Financial Reporting Process.

As earlier defined in Chapter Two, Financial reporting is a systematic approach to presenting financial information about a company or organization to the stakeholders. The data collected and required to make the financial reports is obtained from various sources such as: journals, ledgers, cash and bank accounts, etc. In regards to the data collected from the respondents, the Blockchain technology permits its users to enter data into immutable ledgers, ensures consistency in the networks which enhances the credibility of the information as well as enhancing the ability to detect errors across the network. It also allows for smart contracts automated calculations and data entry.

In addition to the formation of the financial reports, the respondents also informed that the technology allows for the auditability of the records, which ensures accuracy and the ability to do real-time data updates, and verification of transactions (which are actually recorded chronologically). The technology maintains a comprehensive and immutable audit trail. All the transactions are time-stamped and linked to the previous one, which a chronology in the reporting of the chain of events. In regards to the financial reporting process, every figure stated in the financial statements can be traced back to its origin which enhances accuracy, transparency and ease of the auditing process.

The respondents also informed that integration of the blockchain technology and relevant artificial intelligence (AI) technologies can enable predictive analytics to be conducted in the financial reporting process. The organisations adopting them can gain invaluable insights into future financial trends and enable the key stakeholders to make better informed decisions by analysing the blockchain data.

They also highlighted the existence of a shared/distributed ledger. In the technology, the participants in a network share access to the same ledger which records every transaction. The existence of the shared ledger ensures that all the parties – internal and external stakeholders like managements, auditors, regulators and investors – can see the same data which fosters the creation of financial reports that are credible, transparent, and verifiable as well as immediate intervention from the top management if there are any errors made by the participants actively involved in the data entry.

In the traditional data entry process, before the data is reported as information in the financial statements, there has to be a series of verification processes by the parties actively involved in the data entry and reporting process. According to the respondents, the networks are designed in such a way that the transactions are entered on a shared ledger, that is, all participants on the network can access and verify the same data, which fosters transparency, but also quickens the traditional verification process. This ensures that the financial reporting process is made more transparent, efficient and effective.

The Accuracy, Dependability, and Transparency of the Financial Data.

Majority of the respondents agree that the adoption of the blockchain technology in the financial reporting process has enhanced the accuracy, dependability, and transparency of the financial reporting process. Explained below are some of their reasons why;

The adoption of the technology in the financial reporting process ensures that the data uploaded is tamper-proof and transparent. Each transaction is validated by the relevant parties across the network and permanently recorded on a distributed ledger making it difficult for a single party to alter the uploaded data detection. This immutability enhances the trust and reliability in the financial reporting process by curbing the threat of error and fraud. The nature of the distributed ledger also ensures continuous data availability.

It creates a reliable audit trail. Given that the uploaded data is permanent and tamper-proof across a network, it creates a reliable audit trail since the data cannot be altered or deleted without consensus or verification from the participants in the network. This provides reliable audit information and reduces the risk of manipulation. It also provides a complete, time-stamped audit trail of all transactions which simplifies the verification of financial reports by auditors and regulators.

Consensus algorithms (such as Proof of Work, PoW or Proof of Stake, PoS). These ensure that data is verified by multiple parties within a network, which also fosters automated conflict resolution mechanisms that the data entry process is consistent throughout all the transactions that would have been entered into the system. This collective verification process ensures that only legitimate and accurate transactions are recorded, enhancing the reliability of the financial data.

Automated reconciliation. The distributed ledger automatically reconciles transactions across the nodes within a network, which helps to ensure that all parties in the network have consistent and accurate financial records without the need for manual reconciliation processes which are prone to human error. The trusted nodes within the network verify the accuracy of the data entries.

Real-time access. The technology permits the authorised parties to access and review the entirety of the transaction history in real-time, which also enables the relevant stakeholders to monitor the financial transactions as they occur, which fosters trust and reduces the occurrence of discrepancies in the reporting process.

Decentralised network. The technology operates in a decentralised network of nodes which reduces reliance on central authority. The decentralised storage also aids in preventing single point failure. This enhances the reliability of financial reporting since it reduces the risk of the single points of failure, error or manipulation.

Authentication. The blockchain technology networks can also be configured with strict user authentication and access control mechanisms which ensures that the data can only be accessed and modified by the authorised personnel. This control is vital for maintaining the confidentiality and integrity of the generated financial reports and transactions within the system.

Security. The blockchain technology uses cryptographic techniques to secure data since each transaction is linked and encrypted to the previous one which then makes it quite difficult for the unauthorised parties to alter or access the data within the network. This security ensures that the financial information reported is protected from cyber threats and fraud.

Cost reduction. Adoption of the technology significantly reduces the costs and complexities associated in financial reporting process in which intermediaries are involved who contribute to the occurrence of fraud in the reporting process. It reduces the time required to compile and verify the statements as well as providing an easy audit trail.

Smart contracts. These are self-executing contracts with the terms of agreement and pre-defined conditions written in code. They eliminate the need for intermediaries by automatically enforcing the terms of agreement thus reducing the risk associated with relying on third parties and ensure that financial transactions are carried out as agreed, therefore enhancing the reliability of the financial data.

The Potential Risks and Challenges Associated with the Implementation of the Technology

Whereas the majority of the respondents were in the view that the implementation and usage of the technology has various impacts such as: quickening the reporting process, enhancing transparency and the benefits stated above, these were some of the challenges and risks they had shared in regards to the adoption of the technology in the financial reporting process;

Cost of implementation. The implementation of the technology requires significant upfront investment such as: infrastructure, hardware, software, and network resources. There is need to purchase or develop blockchain platforms as well as integrating them with the existing systems to ensure that they are scalable and secure. There are also ongoing costs such as: system upgrades, and cyber security measures. Its implementation also requires that the staff are well trained and educated on the use of the technology.

Data security concerns. The technology bases on cryptographic keys to secure the transactions that are entered into the system. If these keys are lost or stolen, the associated assets or data could be compromised without the possibility of recovery. In regards to the smart contracts, any flaws or bugs in the system can be exploited by attackers which can lead to financial losses or manipulation of the data in the system.

Resistance to change. Many of the employees are comfortable with the existing systems as shown in the pie-charts. A good proportion of them are neutral towards the overall adoption and implementation of the technology since it requires cultural shifts, changes in governance structures and the overall workflows.

Lack of adequate expertise. Given that the technology was only recently introduced into African and East African countries, there is a shortage of the skilled professionals that are required to fully realise and exploit the benefits associated with the adoption and implementation of the technology systems.

Complexity of the technology. The technology in itself is inherently complex and requires expertise in cryptography, distributed systems and smart contracts. The lack of adequate expertise and experience leads to implementation errors, security vulnerabilities and overall inefficiencies.

Regulatory issues. The blockchain technology is relatively new and lacks many clear jurisdictions and regulations governing its use such as the absence of standardised regulatory frameworks hinders cross-border blockchain applications.

Lack of adequate knowledge. There are several misconceptions about the technology such as: confusing it with cryptocurrencies or the assumption that it is a one-size-fits-all type of solution. These misunderstandings lead to inappropriate and or ineffective implementation. It requires several stakeholders to fully comprehend it including its benefits and limitations in order to avoid unrealistic expectations.

Scalability issues. The blockchain networks face scalability issues where the number of transactions per second (TPS) is limited. This is a bottle-neck limitation that affects where there are high volumes of financial transactions are common.

Environmental impact. Blockchains rely on PoW mechanisms such as Bitcoin which consume large amounts of energy, leading to environmental concerns, which organisations will face for adopting energy-intensive blockchain systems, particularly where energy resources are scarce.

CHAPTER FIVE.

DISCUSSION OF: FINDINGS, CONCLUSION AND RECOMMENDATIONS.

Introduction.

The subsequent discussion in this chapter is based on the results presented chapter four. It presents the conclusion and recommendations in relation to the objectives of the study. The researched is aimed at assessing the effect on the financial reporting process and practices. The study involved the survey of professionals involved in the implementation of the technology in Celo Uganda, focusing on the relationship between the financial reporting process and the blockchain technology, the accuracy, dependability, and transparency of the process, and the risks and challenges associated with the implementation of the technology.

Summary of Findings.

The Benefits of Blockchain in the Financial Reporting Process.

Increased accuracy. The research results showed that the blockchain technology significantly improves the accuracy of the financial reports, primarily due to the immutability of the blockchain records, which prevents tampering and ensures that the data is accurate and consistent over time.

Enhanced transparency. The technology provides a transparent ledger accessible to all relevant stakeholders, facilitating real-time monitoring and auditing of financial transactions. This is vital for building trust among the stakeholders and providing credibility in the financial reporting process.

Improved reliability. Due to its decentralised nature, blockchain technology reduces the risk and chances of data manipulation by a single party since consensus mechanisms are employed by the network to ensure that only verified and legitimate transactions are recorded, enhancing the reliability of the financial data.

Cost efficiency. The automation of the processes through mechanisms such as smart contracts reduces the need for intermediaries and manual reconciliation leading to cost savings in the financial reporting process.

Challenges and Risks in the Implementation of the Technology.

Technical complexity. A significant challenge identified by respondents is the technical complexity of the blockchain technology. The steep learning curve and the need for specialised knowledge make it difficult for many organisations to implement and manage blockchain-based systems.

Regulatory uncertainty. In countries where blockchain technology is still new, the lack of clear regulations poses a significant barrier to its adoption. Respondents highlighted concerns about compliance with existing financial reporting standards and the absence of regulatory frameworks to govern the blockchain use.

High costs. The initial investment required to develop blockchain infrastructure can be prohibitively high, particularly for smaller organisations. This includes costs related to technology acquisition, system integration, and staff training.

Limited understanding and expertise. The research results showed that many financial professionals in the country still lack a deep understanding of blockchain technology. This lack of knowledge can lead to resistance to change and difficulties in effectively implementing the technology.

Summary of Responses from the Respondents.

Diverse experiences. While many respondents reported positive outcomes from the adoption of the blockchain in financial reporting, a few argued that the implementation of the technology has not produced the best results. Issues such as integration challenges, unforeseen technological problems, and the slow pace of adaptation were cited as reasons for these mixed experiences.

Solutions for the Challenges Associated with the Implementation of the Technology.

Enhancing technical support and infrastructure. Through Blockchain as a Service (BaaS) or outsourcing and partnership. Organisations struggling with the technical aspects of blockchain implementation can benefit from blockchain as service platforms. The providers of this service offer ready-to-use blockchain infrastructure, reducing the technical burden on organisations and enabling easier integration into existing systems.

Outsourcing and partnerships. Small to medium-sized partnerships that lack in-house expertise can consider outsourcing blockchain development to specialised firms. Partnering with technology companies that have experience in blockchain implementation can also provide the necessary technical support.

Incremental integration. Implementing blockchain in stages, starting with non-critical functions and gradually moving to core financial reporting can help organisations manage the transition more effectively. This allows for adjustments and problem-solving along the way.

Pilot-projects. Organisations can start with pilot projects to test the effectiveness of blockchain in specific areas of financial reporting. This allows for gradual adaptation and learning, reducing the risks associated with the large-scale rollout.

Ongoing training. As the technology evolves, continuous training programs should be established to keep financial professionals updated on new developments, best practices, and potential challenges. This ensures that the workforce remains competent and capable of leveraging blockchain technology effectively.

Feedback mechanisms. Establishing feedback mechanisms where employees and stakeholders can report challenges and suggest improvements can help organisations adapt their blockchain strategies over time, ensuring that the technology is used effectively.

Recommendations.

Building awareness and education. There is need for educational initiatives aimed at improving the understanding of the blockchain technology among financial professionals as well as

collaborating with universities and research centres to develop specialised courses and programs focused on blockchain technology and its applications in financial reporting.

Regulatory development. This can be done through the establishment of clear guidelines and pilot programs for regulation testing. Governments and regulatory bodies should work towards developing clear regulations and guidelines for the use of blockchain technology in financial reporting. This will provide organisations with the confidence to adopt the technology while ensuring compliance with existing financial laws.

Pilot programs that allow organisations to test blockchain applications in a regulated environment can help in identifying potential regulatory issues and refining the regulatory framework accordingly.

Addressing technical and cost barriers. This can be done through investment in research and development as well as providing incentives for adoption. To overcome technical challenges, there should be increased investments in research and development focused on simplifying blockchain technology and making it more accessible to organisations of all sizes.

Governments should provide incentives such as tax breaks or grants to organisations willing to invest in blockchain technology. This could help offset some of the high initial costs and encourage wider adoption.

Fostering industry collaboration. This can be done through consortia and industry groups and public-private partnerships. Financial institutions should consider forming consortia or industry groups to share knowledge, best practices, and resources related to blockchain technology. Collaborative efforts can help in addressing common challenges and accelerate the adoption of blockchain technology in the financial reporting process.

Engaging in the public-private partnerships can help in the development of the blockchain infrastructure and the dissemination of knowledge and resources necessary for successful implementation.

Conclusions.

The research highlights the revolutionary potential of the blockchain technology in the financial reporting process, offering benefits such as: increased accuracy, dependability and transparency of

the reporting process and the financial data. However, the implementation of this technology is not without its drawbacks, particularly where the understanding and adoption are still in their early stages.

In spite of its challenges, the overall impact of the blockchain on the financial reporting is positive. The mixed results observed among some respondents underscore the importance of a well-planned, phased approach to adoption, coupled with robust regulatory frameworks and continuous education.

To maximize the benefits of blockchain in financial reporting, it is essential for entities to invest in training, collaborate with industry peers, and engage with regulators to establish clear guidelines, by addressing the technical, regulatory, and cost-related barriers to effective implementation in the financial reporting practices, leading to more accurate and reliable financial statements.

Ultimately, while the technology presents a learning curve and initial challenges, its long-term benefits for financial reporting make it a valuable investment for the future.

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APPENDIX.

QUESTIONNAIRE.

Part A: Demographic Information

1. What is your current position in the organization?

- Financial Analyst
- Accountant
- I.T. Specialist.
- Other (please specify)

  ……

  ……

2. How many years of experience do you have in financial reporting?

- Less than 1 year
- 1-3 years
- 3-5 years
- More than 5 years

3. What is the size of your organization?

- Small (less than 50 employees)
- Medium (50-250 employees)
- Large (more than 250 employees)

4. Which industry does your organization operate in?

- Finance
- Manufacturing
- Retail
- Technology
- Healthcare
- Other (please specify)

  ……

  ……

Part B: Effects of Blockchain Technology on Financial Reporting

5. Has your organization implemented blockchain technology in its financial reporting process?

- Yes
- No

6. If yes, how long has blockchain technology been in use?

- Less than 1 year
- 1-2 years
- More than 2 years

7. To what extent do you agree with the following statement: "Blockchain technology has improved the accuracy of our financial reports." And give a reason why.

- Strongly agree
- Agree
- Neutral
- Disagree
- Strongly disagree

Reason:

……

……..……..……

8. To what extent do you agree with the following statement: "Blockchain technology has increased the dependability of our financial data." And give a reason why.

- Strongly agree
- Agree
- Neutral
- Disagree
- Strongly disagree

Reason:

……

……..……..……

9. To what extent do you agree with the following statement: "Blockchain technology has enhanced the transparency of our financial reporting."

- Strongly agree
- Agree
- Neutral
- Disagree
- Strongly disagree

Reason:

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……..……..……

Part C: Relationship Between Blockchain Technology and Financial Reporting

10. How integrated is blockchain technology in your financial reporting process and what benefits has the technology had in the reporting process?

- Fully integrated
- Partially integrated
- Minimal integration
- Not integrated

Benefit:

……

……..……..…

11. What challenges has your organization faced in implementing blockchain technology in financial reporting? (Select all that apply)

- Cost of implementation
- Lack of expertise

- Regulatory issues
- Resistance to change
- Data security concerns
- Other (please specify)

  ……

  ……..……...

12. How has the implementation of blockchain technology affected the timeliness of financial reporting in your organization?

- Significantly improved
- Improved
- No change
- Worsened
- Significantly worsened

Part D: Accuracy, Dependability, and Transparency of Financial Data

13. How do you rate the accuracy of financial data after implementing blockchain technology?

- Excellent
- Good
- Average
- Poor
- Very poor

Reason:

……

……...…….

14. How do you rate the dependability of financial data after implementing blockchain technology?

- Excellent
- Good

- Average
- Poor
- Very poor

Reason:

……

……

15. How do you rate the transparency of financial data after implementing blockchain technology?

- Excellent
- Good
- Average
- Poor
- Very poor

Reason:

……

……

Part E: Potential Risks from Implementing Blockchain Technology

16. What potential risks has your organization identified with the use of blockchain technology in financial reporting? (Select all that apply)

- Cybersecurity threats.
- Data privacy issues
- Regulatory compliance
- Technology reliability
- High implementation costs
- Other (please specify)

  ……

  ……

17. How significant do you perceive these risks to be?

- Very significant
- Significant
- Neutral
- Insignificant
- Very insignificant

Reason:

……

……

18. What measures has your organization taken to mitigate these risks?

……

……

……

19. In your opinion, do the benefits of using blockchain technology in financial reporting outweigh the potential risks?

- Strongly agree
- Agree
- Neutral
- Disagree
- Strongly disagree

Reason:

……

……

Part F: Additional Comments

20. What recommendations, advice or insights do you have for other companies regarding the implementation of blockchain technology in financial reporting?

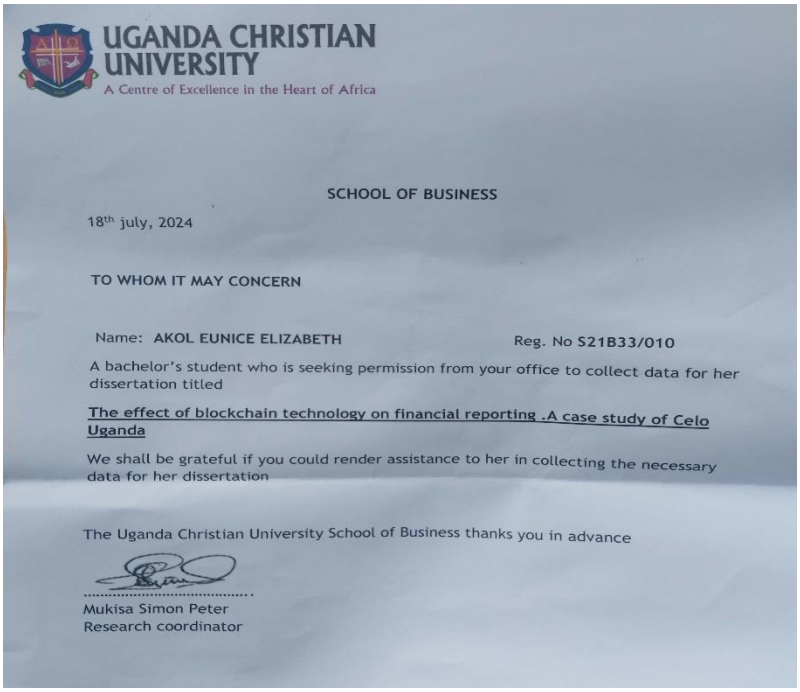
……

……

……

Thank you for your participation! Your responses are valuable in assessing the impact of blockchain technology on the financial reporting process.

LETTER OF INTRODUCTION.



UGANDA CHRISTIAN UNIVERSITY

A Centre of Excellence in the Heart of Africa

SCHOOL OF BUSINESS

18th july, 2024

TO WHOM IT MAY CONCERN

Name: AKOL EUNICE ELIZABETH Reg. No S21B33/010

A bachelor's student who is seeking permission from your office to collect data for her dissertation titled

The effect of blockchain technology on financial reporting .A case study of Celo Uganda

We shall be grateful if you could render assistance to her in collecting the necessary data for her dissertation

The Uganda Christian University School of Business thanks you in advance

Mukisa Simon Peter
Research coordinator