

**FACTORS INFLUENCING THE EXTENT OF BLOCKCHAIN TECHNOLOGY
ADOPTION IN THE ACCOUNTING PROFESSION OF KENYA.**

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DECLARATION

This is my original work and has not been presented for a degree in any other University.

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This management project has been submitted for examination with my approval as the University Supervisor.

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CHAPTER ONE

INTRODUCTION OF THE STUDY

1.1 Background of the study

Accounting is the orderly step-by-step documenting of pecuniary business-dealings in their entirety. This entails summarizing, analyzing and reporting the financial transactions of a business to oversight agencies, regulators and tax collection agencies. The published financials which outline the activities and processes of a big enterprise, its fiscal place in the economy according to the balance-sheet and money in-flows and out-flows in a specific time-frame are a brief outline of billions and billions of monetary business dealings and undertakings organization has engaged in during that period. To account for is among the significant operations of any business (Kagan, 2018).

In an ideal situation, conventional accounting as a field of business consists of many activities ranging from the understanding of the fundamentals of accounting principles and policies to various methods of application of the policies when dealing with financial statement areas like assets, receivables, payables, liabilities, equity further more to preparation and consolidation of financial statements for organizations such as income statements for the year ended, balance sheets or statement of financial position, statement of changes in equity, the notes to the financial statements and so on. To ascertain the credibility and accuracy of the figures, assumptions and provisions set by the accountants in the financial reporting process of various organizations, the financial statements and financials are audited both internally and externally therefore providing the shareholders and other stakeholders with assurance, whether the financial statements are in congruence with accounting policies, principles and standards or they are contrary to accounting principles hence materially misstated and misleading.

In summary, accounting functions and the auditing assignment entail information, analytic, evaluation and control encompassed by increasing of confidence in the information reflected in the relevant financial statements that are publicly available (Melnychenko & Hartinger, 2017). The conceptual foundations for accounting practice have remained unchanged but the technologies of

their support have been subject to constant transformations due to disruptive technologies overtime. Blockchain is one of the supporting technologies.

Blockchain technology provides a complete history of transactions and a secure permanent record that can be shared across large networks but cannot be modified by a single party (Yusuf, 2018). Blockchain technology is a broadcasted and decentralized way of data collection in encrypted blocks. Data encryption simply means translating data into another form or code so that only people with access to a secret key called a decryption key or password can read it (Lord, 2019).

All the participants on a blockchain have freedom to access it. A blockchain is a shared spreadsheet where each participant has their own copy of the spreadsheet called a node therefore the blockchain is maintained collaboratively and there is no single central entity maintaining the ledger that is to say decentralization (Consensys, 2018). For any single participant to edit the data on the shared spreadsheet by inputting the data from their own node, there must be general consensus among individuals running the nodes. This is the very essence of the distributed consensus mechanism that poises the technology. Distributed consensus mechanism has mainly two approaches thus proof-of-work (POW) and proof-of-stake (POS).

Rückeshäuser (2017) states that application of blockchain technology in accounting assumes the utilization of decentralized consensus mechanisms based on the exertion of scarce resources (Proof-Of-Work: POW) thereby leading to the validation of transactions without the need of any third party. Thakur (2017), dates the origin of the proof of work concept back to 1999 where Miguel Castro and Barbara Liskov introduced it as a solution to the problem faced by generals of the Byzantine army. Generals who can only communicate with each other using messengers surround the enemy city and must reach a consensus on the prosperous battle plan to use but the qualm is one or more generals might be traitors thus leading to loss of the battle. The big question is how many traitorous generals the army can have and still work as a unified force. Similarly, it can be studied as how many faulty nodes can there be in a distributed ledger and still reach consensus. The solution to this problem was proposed with practical Byzantine fault tolerant (PBFT) algorithm which suggests that for the generals to reach consensus there must be secure and fast exchange of messages thus resulting to secured, fault tolerant and resilient messages.

Blockchain's proof-of-work is the basis upon which crypto-currency schemes survive. The most popular scheme in recent times being Bitcoin which is a purely peer-to-peer type of electric cash

that allows online payments to be sent directly from one party to another without going through a financial institution thus solving the double spending problem (Nakamoto, 2008). POW in blockchain was introduced in 2008 by Satoshi Nakamoto to deal with the double-spending problem. Thakur (2017) explains double-spending problem as a situation in which the crypto-currency miner attempts to work with the crypto-currency made available to him or her twice or many times. This problem is effectively dealt with in a distributed consensus mechanism using proof-of-work where the P2P distributed timestamp server generates a hash of proof-of-work thus forming an unchangeable record unless the proof-of-work is redone (Thakur, 2017). So long as, the most of CPU is composed of truthful and candid nodes, they arrive at a mutual congruence forming a series of sincere accord whereby if the series is more prolonged compared to the untruthful unauthentic series of unanimity therefore the honest nodes out-space the attacker and ensure that double spending does not occur (Thakur, 2017).

On the other hand, proof-of-stake (POS) in blockchain was introduced in 2012 as a back-up algorithm to proof of work with its main advantages being reduced energy consumption and more decentralization. POS possesses understandable arithmetic problems whose solutions do not need miners to employ the use of high-level supercomputer systems to do the mining. POS consumes little power compared to POW and also encourages expansive taking part in data extraction and formulation by miners thereby increasing the decentralized structure of the members participating on the blockchain (Thakur, 2017). Rückeshäuser (2017) asserts that proof-of-stake is a form of proof of ownership of the currency in the network therefore the protocol splits blocks and the according transactions proportionally to the current wealth of the miners so ideally in a blockchain based accounting system, stakes will most likely be stocks where the most are owned by management (Rückeshäuser, 2017).

Incorporation of blockchain technology in the accounting space can be of benefit to all stakeholders because it simplifies the auditing process at the same time facilitating the input and maintenance of correct information on the blockchain provided the members participating on the blockchain work within each other's interests and common good. The very essence of decentralization in this setting institutes no one area of control in turn giving power to all participating members to ensure correct information and figures are provided since no one party has power to dictate the final financials. A good example of how this would work would be where

listed companies have a blockchain platform in their respective finance departments which they share accordingly with stakeholders of their business like the regulatory authorities as other members participating on the blockchain or finance departments sharing their data on a blockchain with tax authorities like Kenya Revenue Authority. Other possible examples of stakeholders to be included on the blockchain as members are shareholders, investors, employees and the respective auditors be it internal or external.

This form of inclusion in an organization's accounts and yearly financials reduces the possibility of fraud, cooking of misleading financial statements and eases the recognition of inappropriate accounting policies because the various respective participants on the blockchain have conflicting interests. In the example given earlier of a blockchain consisting of a hypothetical company's finance department and Kenya Revenue Authority, conflicting interests that foster compromise arise where the tax authority seeks to aggregate the most tax from a company and where the company strives to pay the least tax by maximizing loopholes in the Income Tax Act. This stance ensures that participating members try to input the most beneficial information on their respective nodes and later due to distributed consensus every member must accept the data before it is input on the main blockchain's data storage. Rückeshäuser (2017) puts forward another big advantage that together with blockchain, a shared database, POW is expected to lead to nearly immutable and therefore fraud resistant real time financial registers. Collision would be the only way around the system thus leading to the input of wrong data but in case of the right measures put in place and the given nature of the stakeholders' interests, this will be a very insubstantial threat.

Fraud in accounting is the deliberate attempt to prepare and disseminate material that misstates a company's financial situation (Rückeshäuser, 2017). Blockchain in accounting changes the way of handling financial information and complicates the dishonest activity of publishing misleading information therefore prompting accountants to be objective and act with integrity, the technology also creates reliable well stored set of accounting and financial records for the preceding financial years of companies. This helps to minimize the effects of previous big scandals and ethical dilemmas that the finance industry let alone the accounting profession has had due to misleading financial statements and reports. Many of these could be avoidable if society prioritized common good and if proper accounting procedures were followed. Melnychenko & Hartinger (2017) affirms that these unscheduled situations connected to reliability of information have their own

prehistory which is either successfully hidden until adversary circumstances occur, or the information is presented in a distorted form thereby destroying public confidence in published accounting data due to sudden declaration of bankruptcy on previously thriving banks and inability to pay by formerly reliable clients and borrowers. On an international scale, some of the dilemmas include the Enron scandal in 2001 together with the dissolution of Arthur Andersen due to poor audit performance, the WorldCom scandal in 2002, the Lehman Brothers scandal in 2008 and many more. On the Kenyan scene, the scandals include the 2016 Uchumi Supermarket's case of cooking books to hide big losses therefore giving investors wrong information. Recently Mumias Sugar also faced an issue with the Capital Markets Authority for cooking books. The regulatory body had also earlier on in 2012 accused CMC for operating secret offshore accounts amongst other financial malpractices. In all matters arising, the Big Four auditors: KPMG, Ernst & Young, Deloitte Touché and PricewaterhouseCoopers gave clean audits (Mwanyasi, 2018).

Blockchain in accounting is yet another strategy to support better and more accurate investment decisions, correct establishing of creditworthiness thereby helping potential and existing company creditors and financial institutions to decide whether or not to extend credit and also encourage organizations that have sluggish operations to accept their situation and improve on their ways of doing business instead of publishing wrong information. In totality, widespread introduction of blockchain in accounting presents a chance for economic development. Yermack (2017) affirms that financial information based on use of blockchain technology would be conveyed right away to shareholders, creditors, business partners, government agencies, or other interested parties in a system structure where each financial news and data recipient has exclusive interests and goals that lead to different needs of financial figures and compilation is relies on their respective roles and demands.

Other uses of blockchain technology include use in smart contracts, tokenization, digital identity, supply chain management and so on (Bauerle, 2018). As Aste, Tasca, & Di Matteo, (2017) stated, it would be restrictive and certainly not exhaustive to mention the business sectors blockchain technology can disrupt.

As a supportive technology in business, blockchain has expanded from a secure fiscal business dealing exchange platform into part of a wholesome of disruptive digital solutions that includes artificial intelligence, the Internet of Things (IOT), robotics and crowdsourcing, which altogether

combined represent the technical foundation of future commerce (Dai, 2017). Blockchain aims at decreasing trade-exchange charges, proliferating the speed of trade-exchange payments, enable micropayments, decrease risk of avenue for fraud, develop the potential for proper audit of business dealings and develop the success of supervision.

Deloitte anticipates that blockchain will greatly advance cooperation among firms and customers, the translucency of enterprise activities and financial information, and conclusively economic output and endurance. In the same regard, PwC released a statement in 2016 stating its views on blockchain as the future enterprise software for developing business activities thereby fundamentally amending joint conventions among customers, competitors and suppliers (Dai, 2017).

1.2 Problem Statement

Accountants must endeavor to achieve defined specific qualitative characteristics within their financial statements as they explain and present company operation canons and activities. Nevertheless, the accounting profession in Kenya and globally has still failed to uphold this mandate as corporate scandals due to fraud and inappropriate bookkeeping still arise. The accounting principles that are breached in this case are objectivity and integrity. Objectivity prides itself in the fact that entries made in the ledger accounts should be capable of verification by an independent party thus ensuring that financial statements are free from bias and minimize the possibility of subjective judgement by the accountant (Unegbu, 2014). Integrity, on the other hand, is concerned with fair dealing and truthfulness by accountants. A professional accountant is obliged not to be associated with reports, returns, communications or other information which is believed to contain materially false or misleading statements, recklessly furnished figures and statements or omitted and obscured information required to be included where such omission and obscurity would be misleading (IFAC, 2005).

The challenge of top management involvement in accounting fraud has led to the breach of these principles as accountants and subordinates are at times pressured to take on wrong accounting practices. In traditional accounting practice top management has all decision-making power and authority confined to them therefore can influence and dictate the way accounting departments represent the operations and position of the company to the general public. Attempts to increase trust and confidence in the published accounts and information from the financial sector by

decreasing the power top management has in presiding over important financial records have been turned to, blockchain being one of the recent ones.

The emergence of the distributed database of blockchain and the corresponding data management technology has left researchers pondering about its application, for accounting and auditing purposes. The technology is designed to extend the possibilities to keep records and to increase public confidence in accounting information (Melnychenko & Hartinger, 2017).

The mutual consent to updated figures and changes on the distributed ledger required from all participating members on a blockchain network under the blockchain system of accounting pauses a large chance to reduce the sole subjective power top management has in presiding over public financial data which may at times be misleading to stakeholders depending on interests of publishers of the data. This research seeks to establish the main challenges behind the degree of blockchain technology adoption in the accounting profession of Kenya.

1.3 Objectives of the Research Study

1.3.1 General Objective of the Study

The overall objective of this study is to explore the factors that will influence the adoption of blockchain technology in the accounting profession of Kenya.

1.3.2 Specific Objectives

1. To establish the perceptions public accountants in Nairobi, Kenya have about the emergent use of blockchain technology to improve accounting practice.
2. To determine the factors influencing the adoption of blockchain technology in accounting profession of Kenya.

1.4 Research Questions

1. What do accountants think about the use of blockchain technology to improve the functions of the accounting profession in Kenya?
2. What factors are influencing the degree of adoption of blockchain technology in the Kenyan accounting profession?

1.5 Scope of the study

The study will investigate the imminent influence of blockchain technology on the accounting profession. Specifically, the study focused on how the application of blockchain technology in

accounting operations and procedures could simplify and replace certain conventional activities thus an increase in efficiency thereby making information more reliable and dependable. The study scope was the administrative and professional staff of the Institute of Certified Public Accountants of Kenya (ICPAK). As these individuals are crucial in the recommendation of best practices and formulation of standards that accountants in their operations rely on, their opinions on the disruptive technology was deemed important to this study.

A more in-depth and specific inquiry was also carried out randomly selecting a sample accounting firms located in Nairobi from the ICPAK registry to participate in the answering of key questions to the study. This sample was generated in a systematic way. The firms in Nairobi were selected because Nairobi is the central business district of East Africa therefore the firms operating within the capital are highly likely to give satisfying answers to the research questions.

1.6 Significance of the study.

This is how the study will be helpful to various stakeholders:

1.6.1 Government agencies and Regulatory authorities

Findings on how applying blockchain technology in the accounting profession operations of Kenyan professionals can support the preparation and publishing of proper accounting records and statements will help government agencies like Kenya Revenue Authority tax organisations the correct amount thereby improving on the standards of living of many Kenyans and as well developing the economy at large

Other regulatory bodies such as ICPAK can also recommend proper support procedure to increase the reliability of financial records in Kenyan finance sector there by improving the accountancy field of business. Capital Markets Authority also benefits a lot from the findings of blockchain technology application because its duty of regulating the financial markets can be made easier and faster, by ensuring anti-fraud investigative procedures are put in place to quickly catch sight of inappropriate bookkeeping.

1.6.2 Accountants and Auditors

Findings from this study can help prepare the accountants of the future with the necessary skill set needed to survive and remain relevant in the respective field of business thereby promoting

efficiency in business practice. Accountants can know how to adjust so as to fit in the industry in years to come.

Findings from the study will also benefit auditors from the world over through showing them the necessary skill set they need to attain to carry out the reliable audits. The study will also help show the auditors what areas necessitate utmost focus and attention while carrying out the audit on top of easing auditability of financial records given the transparency and immutability features of the technology.

1.6.3 Shareholders and Investors

Findings of this study will help the shareholders of business organizations to recommend proper anti-fraud procedures within their corporations supported by the application of the blockchain technology thereby reducing cases of publishing misleading information on which shareholders and investors rely on to make important decisions. Potential and existing investors on the stock exchange will also have a higher chance of making rational decisions.

1.6.4 Financial Institutions and Lending Organizations

Banks, creditors will also benefit from the findings of this study in that they will now be more confident in the credit worthiness of a given business organization thereby making the correct decision on whether to lend or not.

In addition to this, customers with their deposits in banks and other financial institutions will benefit from the findings of this study in that in the event blockchain technology can support and facilitate the preparation of clean financial records, customers will not be at risk of losing their hard-earned deposits and savings in case a given organization is running bankrupt.

1.6.5 Researchers

The findings will also be very beneficial to other researchers in the field of blockchain technology and its effect on accounting practice. Since the area has limited literature in the Kenyan space, this study will help other researchers to know what areas to focus their further investigations and since it is a new disruptive technology, the findings will help other researchers to establish and distinguish between the significant facts and the void assumptions.

CHAPTER TWO

REVIEW OF LITERATURE

2.1 Introduction

This chapter consists of a thorough exploration of prior studies about blockchain technology application in accounting. There are two parts namely the review of theoretical literature and the review of empirical literature. The main purpose of the theoretical review of literature is to explain to the reader the theories that the study is based on whereas the empirical review of literature helps to depict what other researchers in the same field have found out and recommended.

2.2 Review of theoretical literature

2.2.1 Technology Adoption Model

The theory of reasoned action specifically the technology adoption model proposed by Fred Davis and Richard Bagozzi in 1989 is the underpinning guide to this research. Under this school of thought, users' adoption of fresh scientific knowledge depends on two factors which are perceived usefulness (PU) and perceived ease of use (PEU). Perceived usefulness relates itself with the user's belief in the technology's ability to enable an improvement in the productivity and performance whereas perceived ease-of-use describes the extent to which the end-user feels good and is contented when interacting with components of new scientific knowledge (mbaskool.com, 2008).

More precisely, PU is the potential users subjective likelihood that the use of a certain system will improve his or her action and PEU is the degree to which the potential user expects the target system to be effortless (Lai, 2017). The technology adoption model is the most appropriate basis for this study because blockchain as an emerging technology is new and has not been adopted by many firms in the accounting space therefore this model can assist in painting the picture of how blockchain can be used in accounting.

The technology acceptance model (TAM) is a widely used basis for research, monitoring and evaluations of the adoption of technology within the information systems space. The model's focus on end-user information about their knowledge, interaction, and experiences with various technology that is in the process of adoption makes it important for this study.

Some of the criticisms of the technology acceptance model include the fact that the model does not recognize other determinants like age and education as external variables that have potential

to influence the acceptance of and the willingness to use a new technology (Ajibade Patrick, 2018). In addition, it is also somewhat inaccurate to measure behavior of individuals when determining the use of a technology because hidden personality traits oftentimes motivate behavior. Most importantly however, the potential users of a technology may not exactly rely on perceptions of the usefulness of IT and how easy it is to use when determining their willingness to use or deciding to accept a given technology. In his paper of 2018, Ajibade Patrick points out that technology acceptance model also tends to ignore the reality that organizations have rules and procedures that must be complied with therefore there is a well-established process within a company to come up with company products and services, in effect the more accurate metric for behavioral expectations for a given technology would be the level of compliance as opposed to perceptions of employees.

2.3 Review of empirical literature

2.3.1 Perceptions accountants have on blockchain adoption within their operations.

CPAs believe that a blockchain-enabled accounting environment requires accountants to spend more time on higher level advisory services therefore increasing value addition processes because of the time blockchain accounting saves by reducing the need for periodic reconciliation of book balances (Appelbaum & Smith, 2019). Furthermore, CPAs believe that blockchain accounting reduces the pain involved in closing of books at monthly, quarterly and yearly dates that exists in conventional accounting practice. Since the financial statements gotten from the blockchain are updated daily, closure of books becomes a routine (Appelbaum & Smith, 2019).

In the blockchain-enabled accounting environment. Cliff Evans, who is the digital banking and capital markets head at Capgemini Financial Services, observes that a public ledger can sit between multiple organizations facilitating conjoint visibility of transactions and services thus removing the need of transferring data between organizations. This is possible because distributed ledgers allow all participating members to have a common, real-time view of transactions and ledger entries. This conjoint view and immutable archive would allow for more trust in the transactions and less need for testing because the correct measures and timely cautionary signs of qualms such as issues with cash flows or operational discrepancies could be developed (Golden, 2016).

The technology benefits stakeholders of various organizations by allowing more consistent and timelier dataflow that most stakeholders are interested in knowing about. This is possible because the technology provides access to real-time financial reporting for the stakeholders as Katie Houldsworth, who is an audit partner plus head of innovation for audit at risk advisory Deloitte UK, points out that conventional accounting practice can have different figures and amounts in a company's ledger and in the supplier statement during the supplier statement reconciliation due to instances of goods-in-transit, credit or debit notes that may not be duly pointed out thus difficulty in determination of correct amounts to include. The application of blockchain technology in this scenario eliminates guessing and estimation because every one of the movements is catalogued and both participating parties are able to see the current stage of their reconciliation easily thus reducing back-office processes and reducing settlement risk (Golden, 2016). Stakeholders can therefore hold enterprises accountable daily due to availability of information.

Jeff Ward, co-founder of Balanc3, a triple-entry accountancy company in New York, believes real-time transactional reporting will advance consumer and stakeholder trust because it guarantees the integrity of financial records. According to George Hallam, a director of Ethereum a blockchain technology platform, companies benefit from real-time settlement of transactions, increased transparency and integrity and reduced costs associated with auditing accounts because when accounting records are required for auditing purposes, the recorded information on the blockchain are not alterable, even by system owners (Golden, 2016). Triple-entry accounting works in such a way that if something does not add up between two books (the conventional double-entry), a trusted third record concerning the ledger that neither has downtime nor allowance for fraud or third-party interference exists for reference.

Since the recording and presentation process is moving from manual operation to progressive automation, the accountant's role is also changing from collector and aggregator to interpreter and analyst (Dai & Vasarhelyi, 2017).

2.3.2 Factors influencing the adoption of blockchain technology

Dai & Vasarhelyi (2017) points out that similar to other disruptive technologies in past times like Enterprise Resource Planning (ERP), or Electronic Data Interchange (EDI), blockchain technology's need for substantial investments in terms of time and finance together with difficulty in expanding the technology to enterprise stakeholders and requirements of business-model and

processes adoption all have a big role in how the technology is accepted. Importantly still, blockchain is furnished in such a way that it can only provide maximum benefits to enterprises through its wide adoption thereby needing enough participants to ensure the security of the ledger, provide reliable verification of the transactions and prevent illicit collusions. Deloitte builds on the matter at hand by pointing out that the low level of knowledge and comprehension of blockchain is a substantial hindrance to how popular the technology becomes. Blockchain formulas and designs plus the functional-base models need major structure awareness and data-security know-how therefore managers, accountants and auditors need to get essential training and cooperation from IT professionals so as to use the technology correctly and efficiently (Dai & Vasarhelyi, 2017).

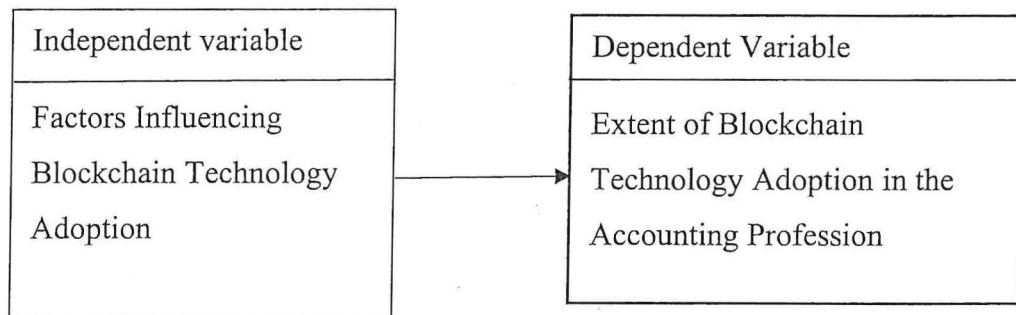
2.4 Research Gap

In their paper, Coyne & McMickle (2017) assert that attention must be paid to the issue of transaction verification because the simple recording of data on the blockchain does not necessarily mean that the transaction has happened in the real world therefore the computerization and input of data on the blockchain does not always imply that the real world transaction has not been tampered with. This creates new obligations for the future accountant because fraud is still possible on blockchains. The simple recording of an asset transfer on a blockchain does not guarantee that the asset has been transferred or exchanged, payments made, and transactions recorded in the real world. The lies encoded on the blockchain are still lies, they are just immutable lies. Despite the fact that blockchain cannot completely eliminate fraud, it can still help identify fraud in real-time (Schmitz & Leoni, 2019). For this reason, more knowledge is needed to allow for proper integration of blockchain in the accounting profession to reduce on accounting fraud and improve accounting practice through and through.

2.5 Conceptual Framework

The dependent variable changes as a result of change in the independent variable (Dodge, Marriott, & International Statistical Institute., 2003). In this study the independent variable is distinguished as factors influencing blockchain technology adoption whereas the dependent variable is the extent of adoption of blockchain technology in the accounting profession of Kenya. To understand the relationship between blockchain and the accounting profession better some external variables which are features of the technology adoption model are employed that is perceived usefulness and ease of use of blockchain technology.

Figure 1: Conceptual Framework



CHAPTER THREE

METHODOLOGY

3.1 Introduction

This chapter therein presents a clear picture of how the study will be conducted from the point of data collection to the analysis of data. The chapter contains the research design, the population, sampling, data collection methods, data analysis and the ethical consideration.

3.2 The Research Design

Kothari (2004) defined a research design as a conceptual structure within which research is conducted. This study used a descriptive cross-sectional design structure for collecting, measuring and analyzing data. The decision about the design of the research is in line with Kothari (2004) findings that studies concerned with specific predictions, narration of facts and characteristics of groups are all examples of descriptive research studies and also following Levin (2006) judgement of studies that snapshot a particular group of people at a given point in time.

Therefore the research study was descriptive in nature because it intended to establish the factors influencing the extent of blockchain technology adoption in the accounting profession of Kenya and at the same time narrates facts about and characteristics of accountants in the accountancy field of Kenya. Anne & Nyongesa (2018) the study is also cross-sectional since data was collected at a single point in time on multiple variables who are the accountants of various accounting firms with different characteristics but same background in accounting knowledge.

3.3 Population

The target population of the study was all CPA firms in Kenya's capital; Nairobi that were registered members of the ICPAK as at July 10th, 2019 adding up to a total of 532 firms as at that date. Firms in Nairobi were chosen because of easy accessibility of the firms coupled with a greater probability to deduce more accurate information about the direction and effect of blockchain technology on the accounting profession from these firms because of their convenient location within the Central Business District of Kenya as opposed to any other firms in different regions of the country.

3.4 Sampling

According to Kimotho (2018) the process of sampling entails selecting a portion of the target population to be interviewed in a study. This study used the systematic approach of probability sampling. Cooper & Schindler (2014) described the sampling technique as a sample containing every k th member of the population, starting with a random member in the range of 1 to k , thereafter the k th member also known as the skip interval is determined by dividing the sample size into the population size to obtain the skip pattern utilized on the sampling frame. This study had a sample of 54 items from deriving a skip pattern of every 10th member of the 532 population of the study.

$$k = \text{Skip Interval} = (\text{Total Population}/\text{Sample Size})$$

$$k = 10^{\text{th}}$$

3.5 Data Collection Methods

Data was collected from primary sources of information which Kothari (2004) defined as data collected afresh and for the first time. The study used both printed and online questionnaires as the main pillars of data collection under primary sources and for further clarification and understanding of the respondents' views, interview of key personnel of cooperative firms was conducted. The interviews were either in person on appointment or through telephone.

The questionnaires were semi-structured in nature guided by existing literature such as Anne & Nyongesa (2018) who used a similar approach in their scholarly work. The interviews also had a structured format whereby verbal response to a set of close-ended and open-ended questions was required.

Access to emails and phone numbers of the firms in the sample from platforms such as the internet websites was the researcher's main approach to increase the response rates of respondents in the sample.

3.6 Data Analysis

Cooper & Schindler (2014) asserted that once data starts to flow, a researcher must focus on data analysis. Kothari (2004) put forward that data analysis refers to the computation of certain measures together with searching for patterns of relationships that are present among data categories. The research study analyzed for descriptive and inferential statistics. The descriptive research model had the main purpose of summarizing distributions, depicting and illustrating a set of data on factors of the study, narrating facts and making specific predictions about the characteristics of groups of people in this case accountants and inferential statistics assisted in attaining a deeper understanding of the relationship between independent variables and dependent variables.

Data from all the properly filled online and printed questionnaires was summarized using the google forms platform for proper understanding of some of the demographic characteristics of the respondents after which it was exported to Microsoft Excel and further into the Statistical Package for the Social Sciences (SPSS) for deeper understanding of the relationship between the independent variables and the dependent variable.

Descriptive measures like frequency, mean, mode, median and standard deviation were computed. The inferential measure used in the study was ordinal regression to discover the relationship between variables.

Ordinal regression formula: $Y = \beta_0 + \beta_1 X_1 + \beta_2 X_2$

Where X_1 = Perceived Ease of Use X_2 = Perceived Usefulness

3.7 Ethical Consideration

In light of the assertions made by Steffen (2016) about the high degree of reflexivity and ethical responsibility expected from researchers because of the powerful position held when interpreting respondents' words, this study was carried out with at most care and concentration on ethical canons thereby raising moral awareness and taking into account the correct values when making significant research decisions. The researcher followed the high ethical standards of Strathmore University while carrying out the research and all respondents were clearly explained to the purposes of the study before any responses. Response was at will and no one person was forced to respond in any form and manner.

The research endeavored to uphold the respondents' right to privacy by avoiding to ask questions that are sensitive at the same time the research did not have access to records that contain personal data, in addition to this, the researcher I did not allow personal information that respondents wanted to be kept private to be publicized therefore observing and respecting specific cultural values, traditions and taboos that are important to respondents (Allen, 2016).

3.8 Reliability and Validity

This section of the study provides an affirmation that the collected data was of high quality therefore meeting the high quality requirements of Strathmore University in terms of being reliable and valid. In this study, the researcher tested for both validity and reliability of the measurement metrics henceforth the proposed questions put forward for respondents measured exactly what the research study intended to discover, also it is guaranteed that the resulting output of data collected from respondents is accurately consistent with other research studies like this one.

CHAPTER FOUR

PRESENTATION AND ANALYSIS OF RESEARCH FINDINGS

4.1 Introduction

This section presents the results and interpretations of the study. This section presents the descriptive and inferential statistics on the factors affecting the degree of adoption of blockchain technology in the accounting profession of Kenya.

4.2 General Information

This section presents the findings on the overall response rate and the descriptive statistics for the demographic profiles of all the respondents.

4.2.1 Response Rate

The researcher administered online questionnaires to the selected sample of 54 firms and 34 firms filled in the questionnaires and their respective responses were received for further analysis of the results. This represents a response rate of 63% which is good

Table 4.1:Response rate

RESPONSE	FREQUENCY	PERCENTAGE
Submitted	34	63%
Unsubmitted	20	37%
TOTAL	54	100%

Primary data (2019)

4.2.2 Gender

The results in Table 4.2 indicate that most of the respondents were male that is to say 26 males and 8 female respondents which shows disproportionate representation in the study in terms of gender. This could be as a result of most firms registered with ICPAK having male owners therefore indicating male dominance in the accounting industry at this given point in time.

Table 4.2: Gender

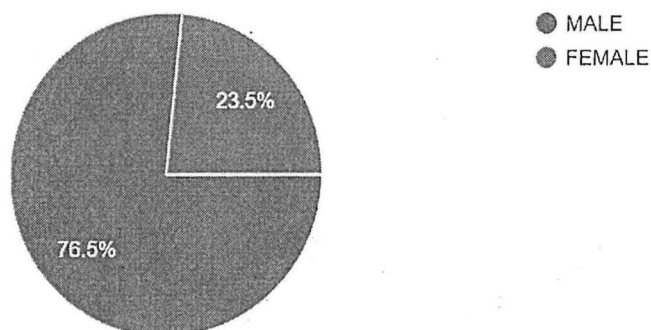
GENDER	FREQUENCY	PERCENTAGE
Male	26	76.5%
Female	8	23.5%
TOTAL	34	100%

Primary data (2019)

Figure 2: Gender

1. Gender of Respondent

34 responses



4.2.3 Age

In terms of age distribution among respondents, the research study results showed that most of the respondents to the survey were aged between 30 to 40 years that is 38.2% of the total number of respondents followed by respondents in the age group between 40 to 50 years who were 29.4% of the total population. This indicates that ICPAK gives registration and licenses to firms that have qualified and experienced owners.

Table 4.3: Age distribution

AGE GROUP	FREQUENCY	PERCENTAGE
18-30	5	14.7%
30-40	10	29.4%
40-50	13	38.2%
Above 50	6	17.6%
TOTAL	34	100%

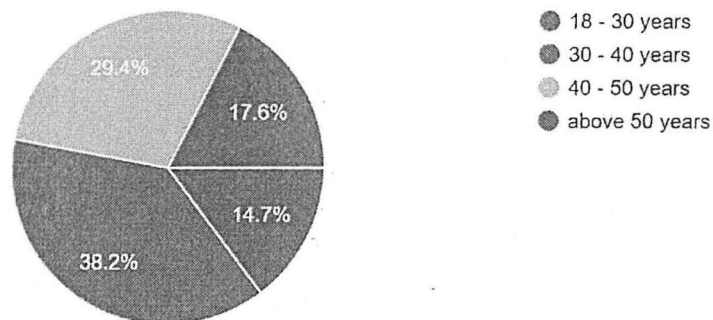
Primary data (2019)

Furthermore, the age group above 50 was represented by 17.6% of the total population which indicates that ICPAK requires firm owners that have been in practice for a long time to surrender their licenses to allow younger professionals that are familiar with contemporary trends to foster the accounting profession as older individuals move to governance positions. Lastly, the accounting practitioners between ages of 18 to 30 were the had the least representation of 14.7% of the total population which indicates that the youth are not yet in the positions of firm ownership and could also be as a result of ICPAK policy of not handing out practicing certificates to recent CPA finalists until a given period of time.

Figure 3: Age of Respondents

2. Age of Respondent

34 responses



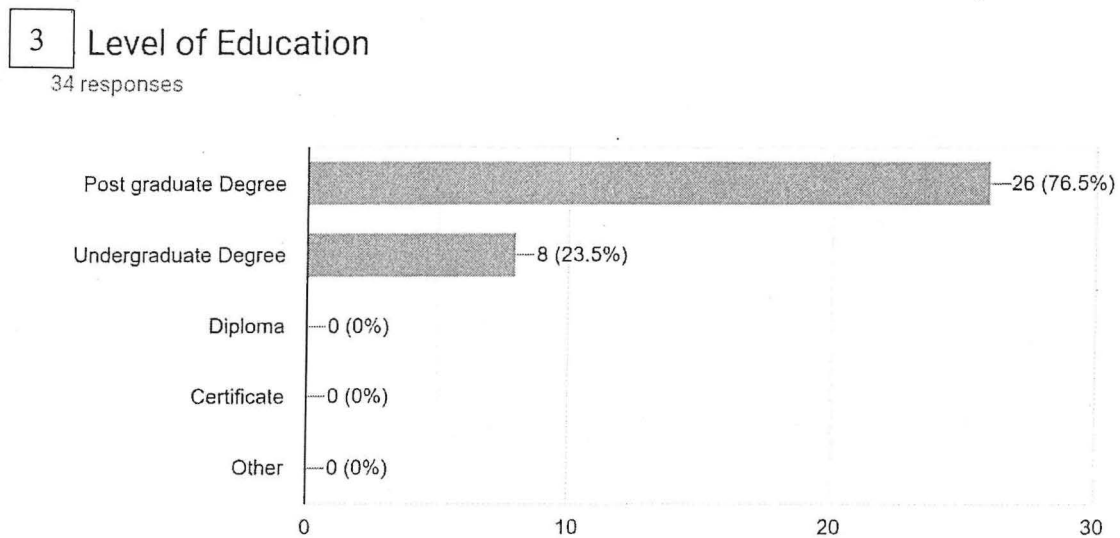
Primary data (2019)

4.2.4 Level of education

In as far as education and academic credentials is concerned, the research study results show that the Kenyan accounting sector demands high levels of academic qualification from all individuals in the industry. Most of the accountants registered with ICPAK have post graduate degrees that is to say 26 respondents accounting for 76.5% of the responses whereas the other 8 respondents have an undergraduate degree accounting for 23.5% of the sample.

There were no respondents with only a diploma or certificate as seen in Table 4.4.

Figure 4: Level of education



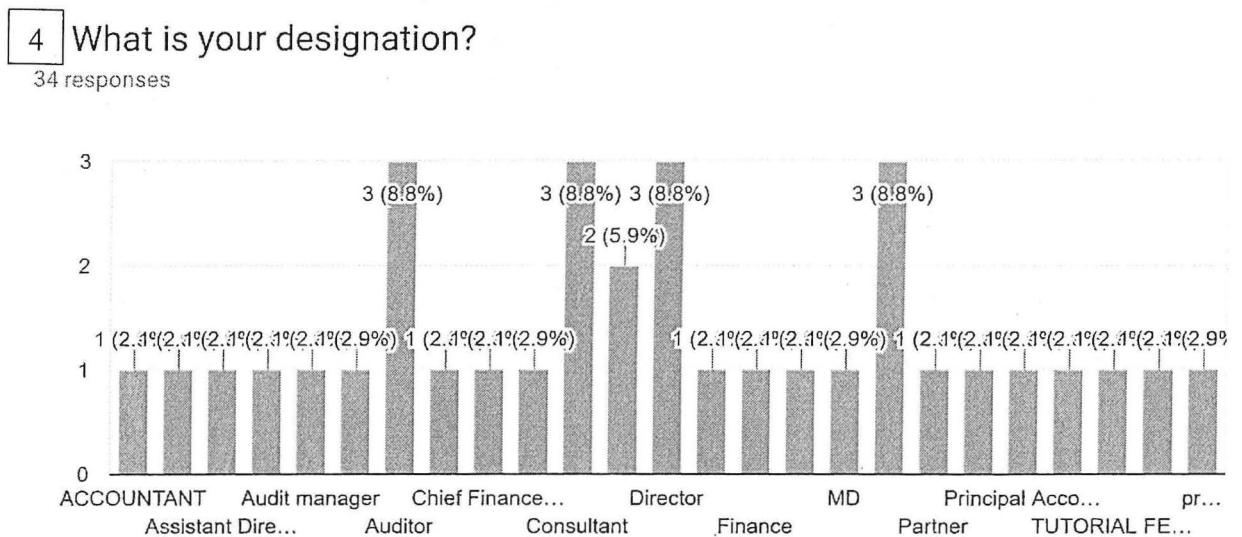
Primary data (2019)

4.2.5 Position in the organization

The study results showed that most of the respondents of the accounting firms were in senior management positions and middle managerial positions.

Some of the senior positions included senior accountant, director, managing partner, principal accountant, chief finance officer, assistant director-accounting services, audit manager whereas some of the middle managerial positions included auditor, consultant, audit associate, audit senior, practitioner.

Figure 5: Position in Accounting Firm



Primary data (2019)

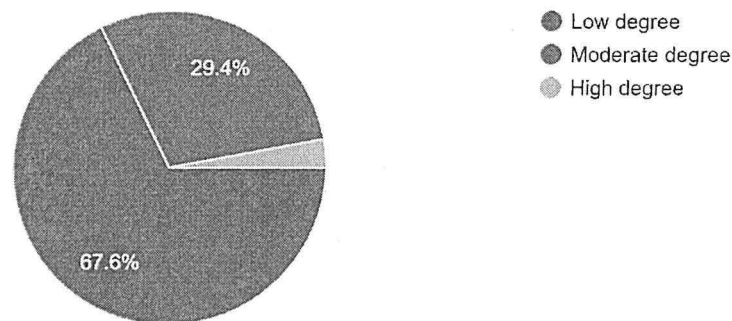
4.2.6 Extent to which Blockchain Technology has been Adopted in Kenyan Accounting Sector

Most of the study results showed that blockchain technology adoption in the Kenyan accounting space is to a lower extent with 67.6% of the respondents selecting low degree and 29.4% selecting moderate degree as shown below.

Figure 6: Extent of blockchain technology adoption

5 To what extent do you think blockchain technology has been adopted in the accounting profession of Kenya?

34 responses



Primary data (2019)

4.3 Descriptive Statistical Findings

This section explains the descriptive findings for each of the Technology Acceptance Model variables under study for as long as Blockchain Technology Adoption is concerned. The Technology Adoption Model has two arms that is perceived usefulness and perceived ease of use.

4.3.1 Perceptions Accountants have regarding Blockchain Technology

Perceived Usefulness was used to establish Kenyan accountants' perception of blockchain adoption within their operations because it is related with the users' faith in the technology's capability to facilitate augmentation in performance and productivity of operations. Perceived usefulness was tested using three dimensions that is blockchain potential to reduce misleading published information authority to make updates to financial information and blockchain accounting versus conventional accounting.

4.3.1.1 Blockchain Potential to Reduce Misleading Published Information

Many the accountants believe blockchain technology will work well in their operations by reducing the number of misleading published information with 29.4% selecting the option it will definitely work and 26.5% selecting it is likely to work. Some of the reasons for their selected answers are it will bring credibility and reliability, correct end results if information is entered into the system correctly from the beginning, minimize alteration of data by everyone, system brings forth systematic efficiency benefiting all parties because all parties value timely accurate information, common storage will encourage transparency and accuracy of information, easy access to data, all interests are addressed, the data storage for all stakeholders ensures comparison of information hence reduced collusion and inaccuracies.

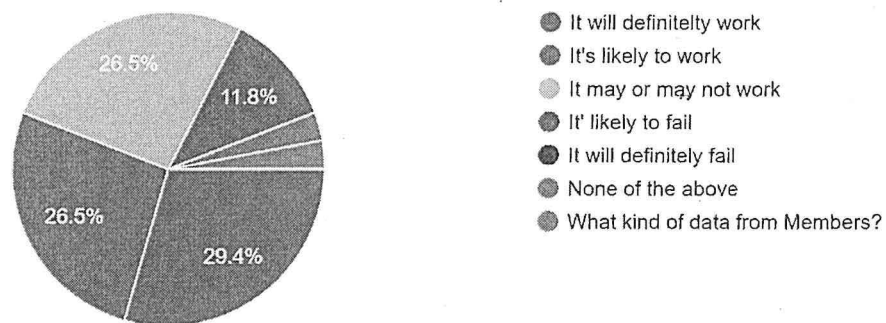
Another 26.5% are not sure if the blockchain system will work or not in the accounting space. The reasons brought forward were corruption, possibilities are limitless, lack of understanding of risks inherent to using blockchain technology, it would depend on the extent to which the technology is adopted by other stakeholders besides the accounting firms.

Lastly 11.8% fall in the category of it is likely to fail and another 5.8% in the category of it will definitely fail or none of the above. Some reasons put forward include corruption, with changing tax laws organizations will shy from exposing their information through blockchain, there will be some form of control in doing changes to transactions, risk of loss of confidentiality, all stakeholders need to be involved and comprehensive sensitization undertaken to ensure success, data changes very frequently, infringement of confidentiality and most people do not like it when their information is accessed by many accountants.

Figure 7: Blockchain Potential to Reduce Misleading Published Information

1(a) What do you think of the possibility of reducing misleading published information in company financial stat...re any changes and updates are made?

34 responses



Primary data (2019)

4.3.1.2 Authority to make updates to financial statements

There were slightly more respondents that preferred that the authority to make changes to financial information be accorded to all stakeholders that is total of 47.1% while those that wanted authority to make changes to financial data to remain with accountants, auditors and top management were 44.1%. None of the above option took up 8.8%.

Some of the reasons for decentralized decision making included for purposes of credibility, there will be minimized disagreement to decisions since everyone is involved hence more, a change is deliberate therefore needs authority from all stakeholders, enhance transparency, to prevent one

party from misrepresenting data, risks should be mitigated at all levels, ensures protection of data since access is limited, these are the key stakeholders understanding the impact of the financial, it is important that any party to a transaction is involved in any alterations relating to the transaction, it will create more controls in the organization and hence openness of transactions.

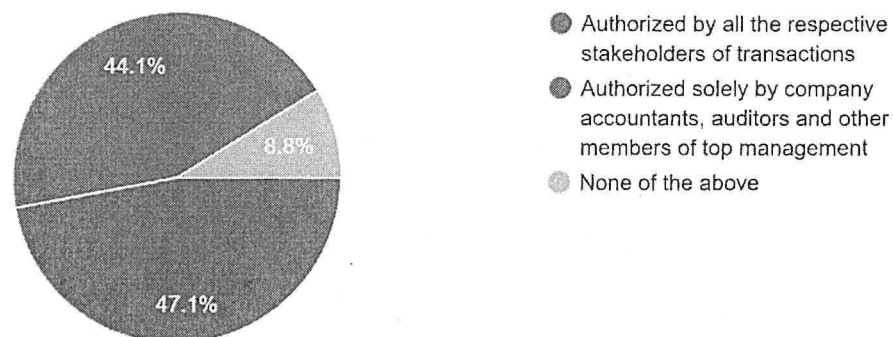
The reasons put forward by the second group of respondents as to why authority to make changes to financial data should remain in the hands of a few top management, auditors and accountants were there has to be authority delegated to specific individuals, they have the know-how, management and auditors have a right to report to shareholders on performance and hence are the right respondents to changes, it is easier for few individuals to arrive at a consensus, getting everybody's authorization maybe time-consuming.

The reason put forward by the group that chose none of the above takes in perspective the fact that for any changes to be made there must be an extent of that change, scope and reason therefore the decision must depend on extent and reason.

Figure 8: Authority to make updates to Financial Statements

2(a) Regarding authority to make changes and updates to financial statements, would you prefer if these updates and changes were:

34 responses



Primary data (2019)

4.3.1.3 Blockchain Accounting Versus Conventional Accounting

Accountants were presented with both sides of blockchain technology features and components versus the features and elements of conventional accounting and their views collected on the matter.

Many of the respondents selected blockchain accounting to conventional accounting practice with the majority making up 73.5% of the total respondents and the rest accounting for 26.5%.

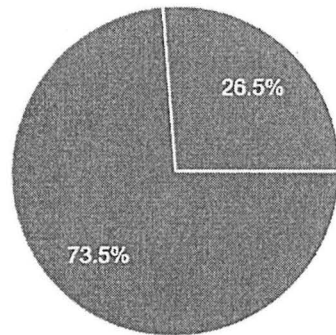
The reasons put forward by the accountants that preferred blockchain accounting to conventional accounting include blockchain is the new development in information sharing in the financial sector where all participants in the market should have asymmetric information, risk of being unable to trade with the rest of the world in case Kenyan accounting remains traditional, financial information should be easily verifiable by all stakeholders, to achieve inclusivity and honesty, no disagreement to decisions, enhanced transparency, enhance knowledge transfer, to prevent any malicious intent and use of information, innovation is key to growth of any business, eliminate risk of loss of past data thus creating easy retrieval, involves the different stakeholders, business is borderless and global in nature and ability to share information for decision making is progressive in nature.

Accountants that prefer conventional accounting practice brought some ideas in support of their perspective which include integrative networks would encourage espionage, process delays, in practicality most firms would not be willing to share information, the potential for a centralized system to improve data integrity and accuracy as well as save time and reduce resource requirements would have great long term benefits.

Figure 9: Blockchain Accounting Versus Conventional Accounting

3(a) What would you prefer?

34 responses



- Kenyan organisations take up accounting systems that have members participating on integrative networks that store company financial records on a permanent, readily-available, easi...
- Kenyan organisations remain using centralised systems of accounting that provide financial information users with subjective information from accountants, auditors and to...

Primary data (2019)

4.3.2 Factors Influencing the Adoption of Blockchain Technology

Perceived ease of use is concerned with how the use of the elements of a new technology satisfy the user and thus make the technology agreeable to the user. Perceived ease of use and familiarity with Blockchain technology intended to discover the factors influencing the adoption of blockchain technology in the accounting profession of Kenya.

The mean, median, mode and standard deviation for each of the factors is shown below.

Table 4.4: Factors influencing the Adoption of Blockchain Technology

FACTOR	Mean	Mode	Median	Standard Deviation
Limited Access to Internet	2.62	1	2	1.415
Organizational Policies Blacklisting use of Blockchain	2.65	3	3	1.228
Presence of Efficient Means of Transacting Between Businesses and Customers	3.39	4	4	1.116
Quality of Blockchain System to Match Job Goals	3.15	3	3	1.132
Result Demonstrability, Observability and Communicability of the System to Others	3.5	3	3	1.161
Perceived Enjoyment in Using the Blockchain System	3.06	2	3	1.229

FACTOR	Mean	Mode	Median	Standard Deviation
Personal Innovativeness and Willingness to Try out New Technology	3.39	4	4	1.298
Trialability	3.26	4	3	1.263
Objective Usability	3.5	3	3	1.149
Compatibility with the norms of accounting	3.15	2	3	1.209
Complexity involved in usage	3.47	3	3.5	1.107
Relative Advantage Obtained from its Use	2.88	3	3	1.149
Social Influence from Peers in Accounting	3	2	3	1,303
Relevance to Jobs in Question	2,71	3	3	1.142
Accessibility of Blockchain Technology	3.79	4	4	1.095

FACTOR	Mean	Mode	Median	Standard Deviation
Computer Anxiety by Professionals in Accounting	3.09	2	3	1.240
Prior adverse experience with Blockchain Technology	2.82	2	3	1.380
Inadequate Facilitating Conditions like Time and Money	3.5	4	4	1.237
Lack of Management Support	3.65	3	4	1.125
Quality of Internet Connection and Penetration in Kenya	3	4	3	1.279
Security and Privacy Levels of Blockchain System	3.53	5	3.5	1.261

Primary data (2019)

The mean shows the average for which each factor was selected by the respondents and the standard deviation shows the degree of the variation in responses chosen by each of the respondents for each factor. The other significant measure is mode and median whereby mode shows the number that was chosen the most by the respondents for each factor and median is the

most central value among the numbers chosen for each factor. The insights provided by these numbers facilitated proper analysis and discussion of results.

4.4 Inferential Statistics

The research study intended to establish the factors influencing the degree of blockchain technology adoption in the accounting sector of Kenya. The inferential statistics' model used was ordinal regression to ascertain the relationship between factors influencing blockchain technology adoption and extent of blockchain technology adoption in the accounting profession.

4.4.1 Ordinal Regression

The p-value of 0.002 attained from the ordinal regression tests indicates that the study is significant because it is less than the standard 0.005 as shown below.

Table 4.5: Model Fitting Information

Model	-2 Log Likelihood	Chi-Square	Df	Sig.
Intercept Only	55.462			
Final	.000	55.462	29	.002

Link function: Logit.

The Goodness-of-Fit results of 1 portrayed a perfect fit for the study therefore ordinal regression was the best model for the research study inferential analysis as shown below.

Table 4.6: Goodness-of-Fit

	Chi-Square	df	Sig.
Pearson	.011	58	1.000
Deviance	.023	58	1.000

Link function: Logit.

This study used the Nagelkerke results under the Pseudo R-Square to ascertain the magnitude of the effect the independent variable has on the dependent variable.

Table 4.7: Pseudo R-Square

Cox and Snell	.814
Nagelkerke	.991
McFadden	.976

Link function: Logit.

CHAPTER FIVE

DISCUSSIONS, CONCLUSIONS AND RECOMMENDATIONS

5.1 Introduction

In this chapter the two research questions of the research study are answered in depth based on the resulting responses and findings. Thereafter relevant conclusions and recommendations are made to foster other researches in this field.

5.2 Discussions

This section presents the study findings as they relate to the two research objectives of the study. Initially the study established the demographic characteristics of the respondents and male dominance in the ownership of accounting firms in Nairobi was discovered since most firms registered with ICPAK had male owners at that time and this is supported by the fact that 76.5% of the respondents were male. The age distributions had 38.2% of the respondents between 30 to 40 years, 29.4% between ages 40 to 50 years, 17.6% above 50 years and 14.7% between 18 to 30 years. This indicated that most firms consist of accountants with years of experience and are also not too old to perform activities. There were limited responses from the youth accountants because the study targeted registered accountants and ICPAK does not give licenses to recent CPA finalists until after a specified period. The study also showed that the field of accounting demands highly qualifications and academic credentials since 76.5% of the respondents had post graduate degrees and the rest of the 23.5% had undergraduate degrees therefore the least qualification any respondent had was an undergraduate degree. The main respondents to the research study were members of senior management such as managing partner and middle management which was the intention of the research. During investigation and research, it was affirmed that all the 34 respondents knew what blockchain technology is and the study further found out that generally the degree of blockchain technology adoption in the accounting profession of Kenya is low since 67.6% of the responses from accountants described the adoption of the technology as low and 29.4% declared the adoption extent of blockchain in their activities at a moderate degree. The research study's main mandate was to answer two questions regarding the perceptions public accountants in Kenya have on the emergent use of blockchain technology in their operations and thereafter establish the factors influencing the adoption of blockchain technology in the accounting profession of Kenya.

5.2.1 Perceptions Public Accountants in Nairobi Kenya have about the emergent use of Blockchain Technology in Accounting

The study included a couple of open-ended questions that were meant to find out the perception accountants had of blockchain technology incorporation into accounting activities from three perspectives that is blockchain potential to reduce misleading published information, authority to make changes and updates to financial statements and lastly blockchain accounting versus conventional accounting.

5.2.1.1 Blockchain Potential to Reduce Misleading Published information

Majority of the accountants agreed that blockchain has the potential to reduce misleading published information with this group represented by a total of 55.9% of the total population. Some of the reasons brought to light by the proposers of blockchain in accounting were common storage will encourage transparency and accuracy of information provided, easy access to data, credibility and reliability, blockchain data storage ensures comparison of information thus reduced collusion and inaccuracies, timely and accurate information if such a system is implemented therefore systematic efficiency that benefits all parties, when information is entered into a system correctly the end result will be correct. Many of these responses concur with Golden (2016) whose report asserted that blockchain advances consumer and stakeholder trust, since the real time nature of blockchain leads to increased transparency and integrity the technology benefits stakeholders of various organizations by allowing consistent and timely data flow that most stakeholders are interested in knowing about.

The other 26.5% were not sure if blockchain technology will reduce misleading information and some of their perspectives included there is lack of understanding of the risks that are inherent to using blockchain technology, all stakeholders need to be involved and comprehensive sensitization undertaken to ensure success, whether it would work or not would depend on the extent to which the technology is adopted by various parties which concurs with the insights of Dai & Vasarhelyi (2017) whose research paper asserted that accountants and auditors need to get essential training and collaboration from IT professionals in order to use the technology correctly and efficiently and further blockchain is made in a way that it can only provide substantial benefits to companies if it is widely adopted that is to say many participants are needed to ensure security of the ledger.

The opposers of blockchain's ability to reduce misleading information who were the minority totaling to 11.8% put across points like blockchain inherent risk of losing confidentiality, also corruption by individuals and there will still be some form of control in doing changes to transactions which conforms to the assertions of Rückeshäuser (2017) that top management's involvement in fraud may not totally eliminate misleading information even with blockchain technology because of existence of private blockchains where unscrupulous members can still collide to mislead the masses.

5.2.1.2 Authority to make updates to financial statements

The number of people that selected blockchain's feature of decentralizing authority to make changes was 3% more than the opposers of giving decision making authority to all stakeholders. The reasons put forward by the majority of accountants that preferred stakeholder involvement in changes to the financial statements included the fact that decentralizing the power will create more controls in the organizations, for credibility reasons, there will not be any disagreement to decisions made as everyone is involved, risks are mitigated at all levels, protection of data since access is limited, enhance transparency. The positive factors all concur with findings of Rückeshäuser (2017) and Golden (2016).

The accountants that preferred centralized authority for updates to financial statements put forward reasons such as getting everyone's consent maybe time consuming, the few people with authority have the knowledge and know-how, there has to be delegation of authority to specified individuals, for management and auditors have a responsibility to report to shareholders on performance that is why they are the right respondents.

Another 8.8% ascertained that they do not belong to any the above options because of reasons-such as every change has different extent and reason why it is done therefore, they needed more insights in the type of updates and changes made to financial data therein. The research will endeavour to be more specific in the future.

5.2.1.3 Blockchain Accounting Versus Conventional Accounting

The majority of 73.5% of the accountants that responded preferred blockchain accounting to conventional accounting because blockchain is the new development in information sharing in the financial sector and all participants in the market must have asymmetric information, risk of Kenya failing to trade with other nations that have taken up the practice, to achieve inclusivity and

honesty, agreement regarding all decisions because of involvement, centralised systems are prone to manipulation, transparency, enhance knowledge transfer, reliable information availed to all stakeholders without barriers, elimination of risk of loss of past data, more involving for the stakeholder and all these concur with suggestions by (Lagaras, 2018).

On the other hand, 26.5% of the respondents preferred conventional accounting because of delays in the process of requiring everyone to participate, in practicality firms will not be willing to share information, integrative networks encourage espionage, centralised systems have potential to improve data integrity and accuracy.

5.2.2 Factors Influencing the Degree of Adoption of Blockchain Technology in the Kenyan Accounting Profession

The research study continued to seek for reasons why the adoption level is low and used standard variables guided by the technology adoption model to ascertain the underlying reasons for the low level of adoption within the industry. The various variables that could essentially be the reasons why blockchain adoption is low were given rankings based on mainly mode and median to determine the most significant factors that have caused the relationship. The mean and standard deviation can also give insight in the grading the factors. In effect the study established all these metrics to conclude on what the most important factors are in explaining the low adoption degree of blockchain technology.

Internet access had a mode of 1, median of 2, a mean of 2.62 and a standard deviation of 1.415 therefore the study indicated that Kenyan internet access is not the main reason underlying the low degree of blockchain technology adoption.

Organizational policies, procedures and norms are very key in dictating the technology that is used by the employees. Following the results from the study, accounting firms' organizational policies were discovered not to be the main reason blockchain technology has a low degree of adoption because of the mode of 3, median of 3, mean of 2.65 and standard deviation of 1.228.

The efficiency in means of transacting between businesses and customers had a mode of 4, median of 4, mean of 3.39 and a standard deviation of 1.116. From this, the study established that Kenyan

accountants are comfortable with the existing modes of transacting which is one of the fundamental reasons blockchain adoption is at a low rate.

The ability of the blockchain system to carry out tasks relevant to the accounting profession was investigated and had a mode of 3, a median score of 3, a mean of 3.15 and standard deviation of 1.132. From this it was established that blockchain's ability to match job goals is not the main factor underlying its adoption however keen interest was paid to the high variation that is above 1.

The ability of the blockchain system to have clearly identifiable results that can be explained and shared with others is a key factor for any technology to be adopted quickly. A mode of 3, median of 3, mean of 3.5 and a standard deviation of 1.161 showed that accountants do not regard result demonstrability, observability and communicability of the blockchain system to others as a main reason for its adoption level. The high extremity as seen from the standard deviation above 1 deserved investigation thus the incorporation of mode and median.

The satisfaction and happiness the user derives from using a technology system scored a mode of 2, median of 3, mean score of 3.06 and standard deviation of 1.229 which indicated that accountants do regard anticipated enjoyment in using the blockchain system as the main reason underlying the adoption level of the technology.

The personal novelty and zeal to try out new technology scored a mode of 4, median of 4, mean of 3.39 and a standard deviation of 1.298 therefore deducting that individual willingness and innovation to try out new technology in Kenya is low and a significant factor as to why blockchain technology's adoption level in Kenya is at a low degree.

The degree to which any innovation would be experimented with before adopting it also known as trialability scored a mode of 4, median of 3, mean of 3.26 and a standard deviation of 1.263 which indicated that accountants feel this is among the main factors behind the level of blockchain technology adoption in accounting firms of Kenya.

The measure that facilitates system comparison as regards finishing tasks is known as objective usability and had a mode of 3, median of 3, a mean of 3.5 and standard deviation of 1.149 therefore leading to discovery that objective usability is not the main reason behind the degree of blockchain technology adoption in Kenya.

The study tried to establish if blockchain technology relates to the norms of accounting and tasks at hand and a mode of 2, median of 3, a mean score of 3.15 and a standard deviation rating of 1.209 which showed agreement among accountants that the low level of blockchain technology adoption is not because it does not match job goals.

The complexity of understanding the blockchain technology system usage was a valid factor for querying in this study and the mode 3, median of 3.5, mean score of 3.47 and standard deviation of 1.107 indicated congruence among accountants that blockchain systems are not hard to use and this is not the main reason underlying the degree of adoption.

The comparative advantage associated with the use of blockchain technology in accounting was also tested for and a mode of 3, median 3, mean score of 2.88 and standard deviation of 1.149 and from this research it was discovered the level of blockchain technology adoption in the accounting profession of Kenya is not mainly because other systems give more benefits.

The pressure from colleagues in similar professions that have had an encounter with the technology was tested for and a mode of 2, median of 3, mean score of 3 and standard deviation of 1.303 indicated that accountants do not think this is the main reason underlying the low degree blockchain technology adoption in their industry.

The ability for blockchain technology to meet specific job requirements and needs at a given time was tested for and a mode 3, median of 3, mean score of 2.71 and standard deviation of 1.142 established that accountants regard blockchain as very useful and relevant to the jobs in question and this is not the reason underlying its adoption.

The ease with which blockchain technology is attainable for potential users was tested for and mode of 4, median of 4, a mean score of 3.79 and standard deviation of 1.095 showed that this is the main reason behind the low level of blockchain technology adoption in the accounting profession of Kenya. Agreement from the respondents showed Blockchain technology is not very accessible.

The attitude of accountants towards use of computers in their professional practice was tested for and a mode of 2, median of 3, mean score of 3.09 and standard deviation of 1.240 showed that accountants are not worried about the use of computers in their practice.

Any negative past experience of accountants regarding the use of a blockchain system was assessed and a mode of 2, median of 3, mean score of 2.82 and standard deviation of 1.380 indicated that the accountant's generally had no previous bad experience with blockchain this is not the strongest factor underlying blockchain technology adoption level in Kenya's accounting profession.

Supporting facilities like time and money must exist in any environment for technology adoption levels to increase. The presence of incentives like time and money was tested for and a mode of 4, median 4, a mean score of 3.50 and a standard deviation of 1.237 established that the facilitating conditions are inadequate and this is among the main factors underlying the low level of blockchain technology adoption in Kenyan accounting practice. This finding is similar to the assertions of Dai & Vasarhelyi (2017) where the researchers highlighted the need for substantial investments in terms of time and money in order for blockchain technology to become more popular.

Management of any given organization plays a very big role in the technology that the organization adopts and uses in operations therefore support from management was tested for and a mode of 3, median of 4, mean of 3.65 and standard deviation 1.125 indicated that accountants regard the management support of their various organizations as insufficient and this is among the main factors underlying the low adoption level of blockchain technology in their industry. However, this may not be ultimately the case because some managers support with the best facilities according to company resources.

The quality of the internet within Kenya and the magnitude of its penetration countrywide was another factor that deserved investigation and a mode of 4, median of 3, mean score of 3 and standard deviation of 1.279 indicated that accountants are not satisfied with the penetration levels of internet in all parts of Kenya therefore internet penetration and quality is one of the reasons causing the low adoption levels of blockchain technology in Kenya's accounting sector.

The safety and confidentiality of any accounting system is very important in determining its adoption level and reasons why it is not in use in each market. The mode of 5, median of 3.5, mean of 3.53 and standard deviation of 1.261 indicated that accountants are not entirely contented with the security and privacy levels of Blockchain technology within their operations and it is also among the main reasons behind the low level of adoption.

5.2.2.1 Ordinal Regression

The p-value of 0.002 was below 0.005 which showed that the research study is significant in the areas under review and the goodness of fit value of 1 also indicated a perfect fit therefore ordinal regression was the best model for the inferential statistics to understand the relationships between variables better.

The Nagelkerke is the most commonly used tool for analyzing if a significant relationship exists between the independent variable and the dependent variable. In this case factors affecting the adoption of blockchain technology are the independent variables and the extent of blockchain technology adoption in the accounting profession of Kenya is the dependent variable. The Nagelkerke results show that the independent variables have a 99.1% effect on the dependent variable.

5.3 Conclusions

This section of the research study draws conclusions for the general and specific research objectives of the study from the results and findings.

5.3.1 Perceptions Accountants in Kenya have about the emergent use of Blockchain Technology in Accounting

The research study concluded that majority of practicing accountants in Kenya's capital Nairobi are optimistic about the benefits blockchain technology can provide when incorporated in the operations of accounting practice. The main benefits accountants perceive from its use are transparency, stakeholder involvement which increases agreement in decision making, reliability of information since manipulation of data by one party is not easy, easy access to data. However still, there is still a substantial number of accountants that do not understand how exactly blockchain technology works and this makes them skeptical about its use. Since the technology is still emerging, continuous conferences and trainings about blockchain accounting will bring more understanding in the area and eventually increase adoption with time.

Regardless of the fact that the benefits of blockchain technology incorporation in accounting practice outweigh the potential risks and vulnerabilities, more research into proper and secure maintenance of blockchain systems is required to convince the sporadic pessimists of blockchain accounting who are against blockchain accounting because of threats such as private blockchains

are similar to centralized systems and still have potential for misrepresenting data, loss of confidentiality, amount of time taken by involving all stakeholders of transactions.

5.3.2 Factors Influencing the adoption of Blockchain Technology in the Accounting Profession of Kenya

The main factors that accountants suggested are underlying the low degree of blockchain technology adoption in their operations were established by the research study based on mode, median, mean and standard deviation and keen focus must be paid to these reasons before blockchain technology is accepted by the masses in the accounting profession.

The main factor highlighted by most respondents was the accessibility of blockchain technology whereby most accountants related the low degree of blockchain adoption to its elusive nature therefore given the availability of blockchain technology increases, adoption degree within the accounting profession will also increase.

The other factor was the security and privacy levels of the blockchain system whereby most responses from accountants agree that institution of a blockchain system in accounting reduces levels of confidentiality within organizations and pertinent data may fall in the wrong hands.

Supporting facilities such as money and time was also a relevant factor brought up by the accountants to explain the low adoption levels of blockchain technology in Kenya. More money needs to be set aside and time in form of sensitization for blockchain technology adoption to increase.

Many accountants also suggested that there already exist efficient ways of transacting between customers and businesses such as M-pesa and given that these systems are already in place and working well, blockchain technology adoption is low.

Accountants sighted individual innovation and inclination to try out new technology is quite low among Kenyans since so many people are not willing to change what they are used to hence low level of blockchain technology adoption.

The trialability of blockchain technology in accounting professional practice was also another factor highlighted to cause the low levels of adoption of the technology. Accountants do not regard

the number of experiments carried out before adoption of the technology as enough for them to fully adopt the system.

The quality of internet connection and penetration in Kenya was also considered to be one of the main reasons blockchain technology adoption is at low levels. Internet quality and penetration maybe up to standard in the capital Nairobi but in the outskirts of Kenya the quality and penetration levels of internet are not as desirable enough for accounting firms to pick up blockchain technology because they may end up losing nationwide clients that do not use the technology.

Support from management was also brought to light by the responses of the accountants as they believe that more support from management in terms of training and facilitation of other resources is needed for blockchain technology adoption to increase within their accounting firms.

5.4 Recommendations for Practitioners and Policymakers

From the results and analysis of the study, more sensitization of accountants regarding blockchain as a disruptive technology in their industry should be availed in form of conferences, trainings and simulation studies to increase the whole understanding of the blockchain system and how to keep it secure. The accounting firms together with their regulating bodies should also increase investment in blockchain technology systems provided they see the cause for it and potential benefits they can accrue from it thereby increasing the accessibility of the technology. Once the technology is available, issues like trialability can be solved and technical know-how of the system increased.

Investment should not only be in blockchain systems but also in the environment within which the technology is meant to operate. Platforms like the internet and its penetration must be increased greatly to support the real-time technology.

Regulatory bodies for blockchain technology should also be put in place to guide the proper adoption of the technology within the multi-dimensional financial and economic environment of a rich country like Kenya.

Furthermore, funds can be acquired in form of donations and grants from superpower countries and their respective companies that are thriving with the use of blockchain technology and want to increase its adoption across the world. Such countries include the United States of America, China, Singapore.

5.5 Research Areas for Further Study

The research study focused mainly on perceptions accountants have on blockchain accounting and the factors influencing the extent of blockchain technology adoption in Kenya. The factors extracted from the technology adoption model were rated based on the Statistical Package for Social Sciences and most relevant factors were established. Even if the study results match existing literature on blockchain technology adoption in accounting, the conclusions and findings are entirely based on figures produced from the statistical procedures and other researchers in the field should opt to use other quantitative methods of analysis and data collection so as to test if the results obtained still concur with existing literature or variables have changed with time.

Other areas that need investigation include the effect blockchain technology will have on accounting jobs and tasks and how accountants will work alongside blockchain technology.

5.6 Limitations of the Study

The main limitation to the study was the inability to get all the required responses from the chosen sample. This was ideally because most accounting firms were very busy and the amount of work they had did not permit some of them to participate in the study and submit timely responses.

Another limitation to the study was the study was targeted at accounting professionals only and some other individuals that felt like they could contribute to the study were not among the sample for example accounting and Information Technology lecturers.

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APPENDIX: QUESTIONNAIRE

This questionnaire is meant to gather data from experienced professionals in the accounting field of Kenya about recent disruptive technology trends, specifically blockchain technology, and the possible underlying reasons of its levels of adoption within the Kenyan accounting space. This questionnaire will first ascertain an individual's level of familiarity with financial technology thereafter, the form will have two arms of inquiry; perceived usefulness and perceived ease of use. Please follow the sections below and fill out the questionnaire to best of your knowledge. Thank you.

Section A: Background Information

1. Gender of Respondent

Male Female

2. Age of Respondent

20 - 30 years

31 – 40years

41 – 50years

Above 50 years

3. Highest Level of Education

Post graduate Degree

Undergraduate Degree

Diploma

Certificate

Other

4. Kindly state the organization you are representing

5. Department _____

6. Designation _____

STATEMENT	Strongly disagree	Disagree	Neutral	Agree	Strongly agree
	1	2	3	4	5
Risk of financial loss outweighs possible gain					
Quality of blockchain system to match job goals					
Result demonstrability, observability and communicability of the system to others					
Perceived enjoyment in using the blockchain system					
Personal innovativeness and willingness to try out new technology					
Trialability (the degree to which an innovation maybe experimented with before adoption)					
Objective usability (a construct that allows for a comparison of systems in completion of specific tasks)					

Section C: Perceived usefulness of blockchain technology

1. (a) What do you think of the possibility of reducing misleading published information in company financial statements by storing data from members (such as creditors, banks, government, finance departments, CMA) in a centralized blockchain ledger requiring mutual consent from all members before any changes and updates are made?

It will definitely work []

It is likely to work []

It may or may not work []

It is likely to fail []

It will definitely fail []

(b) Kindly explain the reason for your answer above.

2. (a) Regarding authority to make changes and updates to financial statements, would you prefer if these updates and changes were:

Authorized by all the respective stakeholders of transactions (blockchain accounting) []

Authorized solely by company accountants, auditors and other members of top management (conventional accounting) []

(b) Please explain the answer you have chosen above.

3. (a) What would you prefer?

Kenyan organisations take up accounting systems that have members participating on integrative networks that store company financial records on a permanent, readily-available, easily-viewable, easily-accessible, cloud, distributed ledger platform that is immutable unless all participating members of the blockchain accept the changes []

Kenyan organisations remain using centralised systems of accounting that provide financial information users with subjective information from accountants, auditors and top management at a certain time in a given financial year and whose reliability can be hardly identified by some stakeholders []

(b) Please explain the answer you have chosen above.

Section D: Perceived Ease of Use

1) How likely are you to recommend using financial technology solutions to peers?
 Very unlikely 1 [] 2 [] 3 [] 4 [] 5 [] Very likely

2) What factors do you think are hindering the extent of blockchain use in the operations of accounting practice? Kindly rate the following factors on the scale of 1-5 where;

5=Strongly agree, 4=Agree, 3=Neutral, 2=Disagree, 1=Strongly disagree

STATEMENT	Strongly disagree	Disagree	Neutral	Agree	Strongly agree
	1	2	3	4	5
Compatibility with the norms of accounting					
Complexity involved in usage					
Relative advantage obtained from its use					
Social influence from peers in accounting					
Relevance to the jobs in question					
Accessibility of blockchain technology					
Computer anxiety by professionals in accounting					
Prior adverse experience with blockchain					

STATEMENT	Strongly disagree	Disagree	Neutral	Agree	Strongly Agree
	1	2	3	4	5
Inadequate facilitating conditions like time and money					
Lack of management support					
Quality of internet connection and penetration in Kenya					
Security and privacy levels of blockchain system					

THANK YOU FOR TAKING TIME OFF TO PARTICIPATE IN THE STUDY.

FACTORS INFLUENCING THE ADOPTION OF BLOCKCHAIN TECHNOLOGY IN THE ACCOUNTING PROFESSION OF KENYA

ORIGINALITY REPORT

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SIMILARITY INDEX	INTERNET SOURCES	PUBLICATIONS	STUDENT PAPERS

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