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ASSESSING THE ROLE OF CRYPTOCURRENCY PROJECT IN ETHIOPIA: THE CASE STUDY OF ACHIVERSKLUB SCHOOL OF CRYPTOCURRENCY

BY: TSEGA ASEFA

PROJECT PAPER SUBMITTED TO ADDIS ABABA UNIVERSITY IN PARTIAL FULFILLMENT OF THE REQUIREMENT FOR THE MASTER'S DEGREE IN PROJECT MANAGEMENT

ADVISOR: DR. MENGISTU BOGALE

June 2018

Letter of Certification

ADDIS ABABA UNIVERISTY SCHOOL OF COMMERCE

This is to certify that **Tsega Asefa** has carried out this project work entitled "ASSESSING THE ROLE OF CRYPTOCURRENCY PROJECT IN ETHIOPIA: THE CASE STUDY OF ACHIVERSKLUB SCHOOL OF CRYPTOCURRENCY" was under my supervision and this work is original and suitable to submit to Addis Ababa university school of commerce for the partial fulfillment of the requirement for the master's degree in project management.

Adviser: Mengistu Bogale (PhD)

Signature: _____

Date: June 25, 2018

Approval Board Committee:

Examiner ----------Signature----------Date----------

Examiner ----------Signature----------Date----------

Statement of Declaration

I, Tsega Asefa, declare that this research paper entitled "ASSESSING THE ROLE OF CRYPTOCURRENCY PROJECT IN ETHIOPIA: THE CASE STUDY OF ACHIVERSKLUB SCHOOL OF CRYPTOCURRENCY" is the work of my own effort and study. All sources of data and information that are used for the research are acknowledged.

TSEGA ASEFA

Student ID: GSR/0245/09

Date: June 25, 2018

Signature _____

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Abbreviations and Acronyms

AGTech: Agricultural and Technology

ACK: Achiverklub

Alt-coin: Alternative Coin

BCN: Bitclub Network

BTC: Bitcoin

IT: Information Technology

MoST: Ministry of Science and Technology

SDG: Sustainable Development Goals

UNECA: United Nations Economic Commission for Africa

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Abstract

Nowadays, Blockchain Technology and Cryptocurrency have gained the attention of world media, both technological and business sectors. This study assessed the importance of implementing Cryptocurrency project in Ethiopia by collecting empirical data. "Cryptocurrency is a digital currency in which encryption techniques are used to regulate the generation of units of currency and verify the transfer of funds, operating independently of a central bank "(Cambridge Dictionary, 1995). Cryptocurrency uses the technology called Blockchain, Blockchain is a shared ledger or a continually updated list of transaction. This ledger keeps every transaction that has ever happened in a completely decentralized form and distributed among users. Because of that, third parties such as (Bank and central bank etc.) who were traditionally in charge of the ledger are no longer needed. The technology is huge, and it has applications not only in currency but in other industries such as land registration, voting and smart contracts. This study employed a case study which is used to "provide quantitative or numerical description of trends, attitudes and opinions of participants, hence participants were selected based on their knowledge and experience of the technology. The source of data were both primarily and secondary, such as, published or unpublished and public or private documents. The collected Cross-sectional data were organized and analyzed through descriptive data analysis technique so that the research can come to a conclusion and derive important information. The research finding shows the important role of Cryptocurrency and its backbone Blockchain technology to minimize the current Ethiopia's foreign currency problems and to further help the country meet its millennial development goals.

Keywords: Altcoin, Blockchain, Bitcoin, Cryptocurrency, and Decentralized

CHAPTER ONE: INTRODUCTION

1.1. Background of the Study

Cryptocurrency is a medium of exchange using cryptography to secure transactions and control the creation of new units. Its main characteristics are transparency, changeability (easy to exchange) and security (privacy) a few examples of Cryptocurrncies are: Bitcoin cash, Ethereum, Zcash, Monero, and Ethereum classic. Bitcoin was the only currency of its kind until 2011 when Litcoin and Namecoin were released. Today, there are thousands of Cryptocurrencies out there powered by the Blockchain technology, however, Bitcoin remains the king of Cryptocurrency (Achiversklub, 2018)

Since the creation of Bitcoin in 2009, numerous private Cryptocurrencies have been introduced. Bitcoin is by far the most successful one and it has value like a **"digital gold"**. It has been getting a lot of media attention, and its total market value has reached 20 billion USD in March 2017. More importantly, a number of central banks started recently to explore the adoption of Cryptocurrency and Blockchain technologies for retail and large-value payments. Many proponents believe that Cryptocurrency and Blockchain technology will have a significant influence on the future development of payment and financial systems. While policy makers concern about the opportunities and challenges brought about by these technological advances, there is very little guidance provided by economic theory regarding the appropriate usage of these technologies and the optimal design of these systems. (Kitamara, 2017)

Cryptocurrencies have many diff erent aspects, and can therefore be viewed from various angles, including the financial and economic perspective, legal, political and sociological, as well as technical and socio-technical perspectives. This project is designed to assess the importance of using Cryptocurrencies in Ethiopia and how AchversKlub school of Cryptocurrency project is planning to implement the project. The project idea came from AchiversKlub School of Cryptocurrency headquartered in South Africa. The school senior instructor and founder Dr Edson Pindza together with his Ethiopian wife Hanna Tekle Pindza are teaching Blockchain technology and Cryptocurrency in some African countries such as Gabon, South Africa, Congo, Kenya and to some extent in Ethiopia. To widen its sphere in Ethiopia, AchiversKlub has planned and currently working on opening a Cryptocurrency school in Addis Ababa. The purpose of the school is to

introduce and educate the government and the people of Ethiopia about this alternative coin and their usages.

1.2. Statement of the problem

Currently, Ethiopia's Currency Birr is facing a huge devaluation due to a balance of payment related problems caused by shortage of export items and the recent political instability. The National Bank of Ethiopia is not giving import permissions for importers except for critical import items like Medicine, food or fertilizers. Since Ethiopia's economy is a closed market (in terms of currency usage and related trade rules), every single dollar that we use to buy something from abroad must be legally provided by the banks (in the form of LC-letter of credit). However, owing to the tremendous shortage of foreign currencies, these grants given by the banks for importers have always been either delayed, or not of the required quantity, inconsistent and completely unbalanced with the demand. This has forced business people to use illegal ways of getting foreign currency (National Bank of Ethiopia, 2017)

This in turn has led to either paying higher Birr for a dollar value on the black market, or bribing bank officers to get foreign currency priority or present undervalued Performa invoices (declaring much lower prices for the materials they are planning to buy from abroad by pre-agreeing with their suppliers to pay the difference in cash which is purchased from the black market). The overall effects of these malpractices are, in most cases, the money or transaction statements are very small and insignificant amount, but considerably affect the government's income.

It can also be said that Ethiopia's business sector is very much discouraged by the high value of US dollar and the shortage of foreign currencies. This in turn is affecting the actual consumers/buyers, who are ultimately paying the price due to the Dollar shortage and they are discouraged and affected by price increment literally in almost all commodities. When we assess the current market, there is an average to high price increment on domestic and non-imported products like salt, onions, carrots etc. sellers are giving excuses on the high value of dollar which has very little influence over that. From the market assessment, it can be said that there is a frustration over the majority of the society on the regular increase of US dollar and other foreign currencies exchange rates.

By considering the above problems the research is designed to assess the importance of using Cryptocurrencies to create market stability through implementing Cryptocurrency Project. The use

of Cryptocurrency is believed to solve the current Ethiopia's foreign exchange problem as it will create a new opportunity for accessing the foreign market. In general, the research is intended to show how digital currencies can be another alternative means to do businesses in different way.

1.3. Research Questions

This research is believed to answer the following research questions.

I. What makes Cryptocurrency special from other currencies?
II. Can Cryptocurrencies Project be Successful in Ethiopia?
III. Can Cryptocurrency Project solve the current Ethiopia foreign Exchange problems?

1.4. Objective of the Study

The general objective of the research is to evaluate the unique characteristics of digital currencies from Fiat (Traditional) Currency and identify the advantage it would bring if it is implemented in Ethiopia.

1.4.1. Specific Objective

Specific objectives of the research are:

1. Assessing the acceptance level of Cryptocurrency Project in Ethiopia.
2. Analyzing whether the use of Cryptocurrencies could solve the current foreign exchange problems.

1.5. Significance of the Study

According to Michael et al. (2016) there is enormous interest in Blockchain-based business applications hence, numerous start-ups working on them. The adoption has a strong support, even governments and large financial institutions such as Visa, Mastercard, Banks, and NASDAQ, are investing in exploring applications of current business models and searching for new business models in the world of Blockchain and Cryptocurrency. Some would like to say that they are even ahead of the curve in terms of knowledge and application of Blockchain. In this regard, the researcher wants to learn and indicate the importance of Cryptocurrency for Ethiopia and identify the possible ways of how Ethiopia could benefit by opening its door for Cryptocurrencies.

As this is the first work in the area, the research findings could help as a source of data for the upcoming researchers, practitioners, academicians, and project/ program planners by serving as a reference material. In addition, this research paper is believed to show some significant points that

needs to be withdrawn from Blockchain and Cryptocurrency technology. Likewise, it can also help for Ethiopia's policy makers to revise the current policies on alternative currencies like Cryptocurrency.

1.6. Scope of the Study

Cryptocurrency, by its nature is a vast topic to study and know about, even while this research paper is prepared, different new digital currencies are being released. Since the technology is Cyber based there are pessimist perspectives and thoughts, like the technology vulnerability to hackers, fraudulent activity; its unique nature to become an income source for terrorists and its difficulty for government supervision and taxation. However, this research paper is limited to assessing the importance of using Cryptocurrency in Ethiopia to solve the current foreign currency shortages and problems by studying different scholars view and by analyzing the practices of other African countries trends regarding Blockchain and Cryptocurrency. Other diminutions of the technology are beyond the scope of this research paper.

1.7. Limitations of the Study

While conducting this research the researcher has faced two limitations. The first limitation was, even-though the media is talking about the power and importance of Blockchain technology and digital currencies, Ethiopia is very much behind in applying this technology and open its door for alternative currencies. On May/ 3-5/ 2018, Ministry of Science and Technology arranged a forum on Blockchain to create awareness on the technology. The forum was organized together with IOHK (the company who innovated Cardano Digital Currency), Blue Moon (that works on different IT initiatives) and MoST (Ministry of Science and Technology). The major discussion points were how this technology could transform Ethiopia, mainly in agriculture and Ekub (traditional Ethiopian banking system). During the forum the importance of Cryptocurrency was raised from participants and moderators, however, it can be sensed that there are gray areas that no one dares to discuss about it fully.

The second limitation was finding people who know the technology very well. During the national Blockchain technology forum, there were attendees who came from different information technology sectors, however, finding people who are passionate and visionary about digital currency was tiresome and challenging.

1.8. Organization of the Paper

The paper is organized into five chapters, the first chapter deals with introductory of the study under which consisting the background of the study, statement of the problem, research questions, objectives of the study, significance of the study, scope of the study, limitations and definition of term are discussed in detail. The rest of the paper is organized as: Chapter two presents theoretical and empirical review of the literature related to the concept of Cryptocurrency and Blockchain Technology. The third chapter deals with the research design used to study the research problem, sample size and characteristics as well as the selection methodology to find answers to the research questions. It also discusses about the data collection tools and method employed to analyze it. Under chapter four results and discussions have been presented. Chapter five, deals with summary, conclusions and recommendations. This chapter summarizes the outcome of the collected data and reaches at a conclusion. It also gives the researcher's recommendations for Ethiopia to implement for this technology to be successful and be used in a proper and legal way. In addition to these, list of references and copy of questionnaire are attached to the last part of the research project.

1.9. Definition of Terms

BIP: Bitcoin Improvement Proposals. A set of proposals that, members of the Bitcoin community have submitted to improve Bitcoin (ACK, 2018).

Bitcoin: The name of the currency unit (the coin), the network, and the software.

Block: A grouping of transactions, marked with a time-stamp, and a fingerprint of the previous block. The block header is hashed to produce a proof of work, thereby validating the transactions. Valid blocks are added to the main Blockchain by network consensus (ACK, 2018).

Blockchain: A list of validated blocks, each linking to its predecessor all the way to the genesis block (ACK, 2018).

Cryptocurrency or cryptographic currency: A Cryptographic currency or Cryptocurrency is a digital asset system designed to work as a medium of exchange that uses Cryptographic primitives to secure the control and creation of currency units (ACK, 2018).

Proof-of-work (PoW): Represents a system that fulfills a high-level characteristic that every transaction in the network needs to have (Michael et al. 2016).

Reward: An amount included in each new block as a reward by the network to the miner who found the Proof-Of-Work solution. It is currently 25BTC per block (Michael et al. 2016).

Trusted third party(TTP): A trusted third party(TTP) refers to the requirement of having an intermediary between two parties A and B which is required to be trusted so that A and B can transact or interact securely according to the respective protocol (Michael et al. 2016).

Virtual currency: A digital representation of value that is neither issued by a central bank or a public authority, nor necessarily attached to a fiat currency, but is accepted by natural or legal persons as a means of payment and can be transferred, stored or traded electronically (Michael et al. 2016).

Wallet: Software that holds all Cryptocurrency addresses and secret keys. The wallets are used to send, receive, and store Cryptocurrencies (Michael et al. 2016).

CHAPTER TWO: REVIEW OF RELATED LITERATURE

2.1. Introduction

This chapter gives a detail theoretical and conceptual explanations of how Cryptocuruncies originally evolve and how it gets acceptance so quickly and how it is benefiting the world especially Africa.

2.2. Theoretical Review

There were many innovations on Cryptocurrency before the successful decentralized Cryptocurrency, Bitcoin. Aljosha et al. (2017) on their book called "Blocks and Chains Introduction to Bitcoin, Cryptocurrencies, and their Consensus Mechanisms" stated several approaches and proposals before the first decentralized Cryptocurrency, Bitcoin, these are:

B-money: In 1998, Wei Dai proposed b-money, an anonymous and distributed electronic cash system. In his proposal, he described two protocols based on the assumption that an untraceable network exists where senders and receivers are identified only by digital pseudonyms such as their public keys, and that every message is signed by its sender and encrypted to the receiver. B-money also allowed the creation of money based on previously unsolved cryptographic puzzles. **Bit-gold:** In 1998, Nick Szabo designed a new digital currency called Bit-gold. His system also relied on cryptographic puzzles which, after being solved, were sent to a Byzantine fault-tolerant public registry and assigned to the public key of the solver. This allowed network consensus over new coins to be obtained. To address the problem of double-spending without a central authority, Szabo's scheme was designed to mimic the trust characteristics of gold.

Hashcash: Adam Back proposed Hashcash, a proof-of-work (PoW) system based on cryptographic hash functions to derive probabilistic proof of computational work as an authentication mechanism. The requirements of this system were that, on the one hand, it should be hard to find a valid solution, but on the other, it should be easy to verify any given solution. With Hashcash, the purpose of the PoW was to ensure that it was computationally hard for a spam.

Bitcoin was the first decentralized cryptocurrency by the pseudonymous developer Satoshi Nakamoto. In 2008, an individual (or group) writing under the name of Satoshi Nakamoto published a paper entitled "**Bitcoin:** A Peer-To-Peer Electronic Cash System". This paper described a peer-to-peer version of the electronic cash that would allow online payments to be sent

directly from one party to another without going through a financial institution. Bitcoin was the first realization of this concept. Now **"Cryptocurrencies"** is the label that is used to describe all networks and mediums of exchange that uses cryptography to secure transactions as against those systems where the transactions are channeled through a centralized trusted entity. A few months later, an open source program implementing the new protocol was released, beginning with the Genesis block of 50 coins. Anyone can install this open source program and become part of the Bitcoin peer-to-peer network. It has grown in popularity since then. (Michael, et al. 2016)

Bitcoin, like gold, also serves as a store of value: it has appreciated over time. Hileman & Rauchs, (2017) stated that, Gold is not necessarily a better option than Bitcoin as an investment, since it has few advantages over virtual assets, apart from that it has held the role of shelter value for longer. In addition, it may cost investors who are over 40 years old to change their minds about traditional investments such as gold that we do not find in the millennial, which are accustomed to the Internet and which also understand the decentralized nature of Crypto-currencies.

2.3. Users of Cryptocurrency

Cryptocurrencies are, as the name suggests, intended to be used as currencies. Therefore, they attract a variety of different people, including technology enthusiasts, businesses and investors, ideologists, researchers, cypherpunks, libertarians, public authorities and policy makers, financial regulators, banks, and also criminals, who exploit anonymity measures and make use of the fact that criminal investigation and de-anonymization techniques are lagging behind. In contrast to that, the distributed nature of Bitcoin-like cryptocurrencies also attracts activists and individuals living in oppressive regimes, as these enable them to manage their digital assets despite political sanctions. This highlights the important role that decentralized currencies can play for people of such countries (Aljosha et al. 2017).

According to Boston Federal Reserve, (2016) report, 0.87% of US consumers are estimated to have owned cryptocurrency in 2015, which amounts to around 2.8 million people in the US alone. Based on using their own user data, Coinbase and ARK Research estimate that in 2016 around 10 million people around the world have owned bitcoin and 2.9 million and 5.8 million unique users actively using a cryptocurrency wallet.

2.4. The Cryptocurrency Industry

The Cryptocurrency industry is composed of many important actors and groups: **exchanges, wallets, payments companies, and mining.** Exchanges can be used to buy, sell and trade Cryptocurrencies for other Cryptocurrencies and/or national currencies. Wallets provide a means to securely store Cryptocurrencies by handling key management. The payments sector is composed of companies that provide a wide range of services to facilitate Cryptocurrency payments. Finally, the mining sector is responsible for confirming transactions and securing the global record of all transactions (the 'Blockchain') (Hileman & Rauchs, 2017).

According to Hileman & Rauchs, (2017), a growing number of companies in the industry can thus be considered universal Cryptocurrency platforms given the diverse range of products and services they offer to their customers. It can be observed that wallets are progressively integrating exchange services within the wallet interface as a means to load the wallet, while exchanges often also provide a means to securely store newly acquired Cryptocurrency within their platform. Similarly, payment companies increasingly offer fully fledged money transfer platforms that enable the storage and transfer of Cryptocurrencies, and often include an integrated currency exchange service.

Aljosha et al, (2017) on their book mentioned that, early works in the area of Cryptographic currencies or Cryptocurrencies mostly focused on required Cryptographic primitives as well as the privacy guarantees that could be achieved in such systems. Thereby, these systems themselves still had to rely on trusted third parties (TTPs) to be able to guarantee correct operation. This necessity changed in 2009 when Bitcoin was launched as the first decentralized distributed currency that removed the dependency on TTPs. Bitcoin achieves this through a novel combination of well-known primitives and techniques, for example, proof-of-work(PoW), to eventually establish agreement (or consensus) among all nodes on the transaction ledger. The resulting consensus approach, termed Nakamoto consensus, allows for permission less participation by potentially anonymous actors. One core element of Bitcoin and Nakamoto consensus is the Blockchain.

2.5. What is Blockchain Technology?

A Blockchain is a distributed database of records, or public ledger of all transactions or digital events that have been executed and shared among participating parties. Each transaction in the public ledger is verified by consensus of a majority of the participants in the system. The

Blockchain contains a certain and verifiable record of every single transaction ever made. The main hypothesis is that the Blockchain establishes a system of creating a distributed consensus in the digital online world. This allows participating entities to know for certain that a digital event happened by creating an irrefutable record in a public ledger. It opens the door for developing a democratic open and scalable digital economy from a centralized one. There are tremendous opportunities in this disruptive technology, and the revolution in this space has just begun. And it has the potential to become the new engine of growth in digital economy where we are increasingly using Internet to conduct digital commerce and share our personal data and life events (Michael et al. 2016).

As Michael et al. (2016) said; current digital economy is based on the reliance on a certain trusted authority. All online transactions rely on trusting someone to tell us the truth— it can be an email service provider telling us that our email has been delivered; it can be a certification authority telling us that a certain digital certificate is trustworthy; or it can be a social network such as Facebook telling us that our posts regarding our life events have been shared only with our friends or it can be a bank telling us that our money has been delivered reliably to our dear ones in a remote country. The fact is that we live our life precariously in the digital world by relying on a third entity for the security and privacy of our digital assets. The fact remains that these third-party sources can be hacked, manipulated or compromised.

This is where the Blockchain technology comes handy. It has the potential to revolutionize the digital world by enabling a distributed consensus where every online transaction involving digital assets, past and present, can be verified at any time in the future. It does this without compromising the privacy of the digital assets and parties involved. The distributed consensus and anonymity are two important characteristics of Blockchain technology. Bitcoin, the decentralized peer-to-peer digital currency, is the most popular example that uses and intrinsically tied to Blockchain technology. It is also the most controversial one since it helps to enable a multibillion-dollar global market of anonymous transactions without any governmental control. However, Blockchain technology itself is non-controversial and has worked flawlessly over the years and is being successfully applied to both financial and non-financial world applications (Michael et al. 2016).

2.6. Blockchain Technology: How does it work?

It is useful to think of a Blockchain as a database that incrementally gets built up by a network of participating parties who run the same software, and that is subject to the constraints and rules set by the underlying software they run. A Blockchain, as the name suggests, gets built up by blocks of data gradually being "chained" together. It could almost be imagined as a spreadsheet that is gradually built by new cells being chained on. A Blockchain database continues to be built and maintained so long as the software continues to be run. Thus, unlike a centralized database held by a single entity, it continues to stay "alive" even if individual participants pull out (or go bankrupt, for example). It creates an indelible record, resistant to tampering by any individual party (Michael et al. 2016).

According to a research done by Tsega, (2018) Bitcoin uses cryptographic proof instead of the trust-in-the-third-party mechanism for two willing parties to execute an online transaction over the Internet. Each transaction is protected through a digital signature, is sent to the "public key" of the receiver and is digitally signed using the "private key" of the sender. In order to spend money, the owner of the Cryptocurrency needs to prove his ownership of the "private key". The entity receiving the digital currency then verifies the digital signature, which implies ownership of the corresponding "private key", by using the "public key" of the sender on the respective transaction.

Each transaction is broadcasted to every node in the network and is then recorded in a public ledger after verification. Every single transaction needs to be verified for validity before it is recorded in the public ledger. The verifying node needs to ensure two things before recording any transaction:

I. Spender owns the Cryptocurrency, through the digital signature verification on the transaction.
II. Spender has sufficient Cryptocurrency in his account, through checking every transaction against the spender's account, through checking every transaction against the spender's account, or "public key" that is registered in the ledger. This ensures that there is sufficient balance in his account before finalizing the transaction.

However, there is question of maintaining the order of these transactions that are broadcasted to every other node in the Bitcoin peer-to-peer network. The transactions do not come in order in which they are generated, and hence there is a need for a system to make sure that double-spending of the Cryptocurrency does not occur. Considering that the transactions are passed node by node

through the network, there is no guarantee that orders in which they are received at a node are the same order in which these transactions were generated. The above means that there is a need to develop a mechanism so that the entire network can agree regarding the order of transactions, which is a daunting task in a distributed system. The Bitcoin solved this problem by a mechanism that is now popularly known as Blockchain technology. The Bitcoin system orders transactions by placing them in groups called blocks and then linking these blocks through what is called Blockchain. The transactions in one block are considered to have happened at the same time. These blocks are linked to each-other (like a chain) in a proper linear, chronological order with every block containing the hash of the previous block.

There remains one more problem: Any node in the network can collect unconfirmed transactions and create a block and then broad cast it to the rest of the network as a suggestion as to which block should be the next one in the Blockchain. How does the network decide which block should be next in the Blockchain? There can be multiple blocks created by different nodes at the same time. One can't rely on the order since blocks can arrive at different orders at different points in the network. Again, Bitcoin solves this problem by introducing a mathematical puzzle: each block will be accepted in the block chain provided it contains an answer to a very special mathematical problem. This is also known as "proof of work": a node generating a block needs to prove that it has put enough computing resources to solve a mathematical puzzle. For instance, a node can be required to find a "nonce" which when hashed with both transactions and hashes of previous blocks produces a hash with certain number of leading zero.

The average effort required is exponential in the number of zero bits required but verification process is very simple and can be done by executing a single hash. This mathematical puzzle is not trivial to solve, and the complexity of the problem can be adjusted so that on average it takes ten minutes for a node in the Bitcoin network to make a right guess and generate a block. There is very small probability that more than one block will be generated in the system at a given time. The first node, to solve the problem, broadcasts the block to the rest of the network. Occasionally, however, more than one block will be solved at the same time, leading to several possible branches. However, the math needed to be solved is very complicated and hence the Blockchain quickly stabilizes: after this, every node agrees about the ordering of blocks.

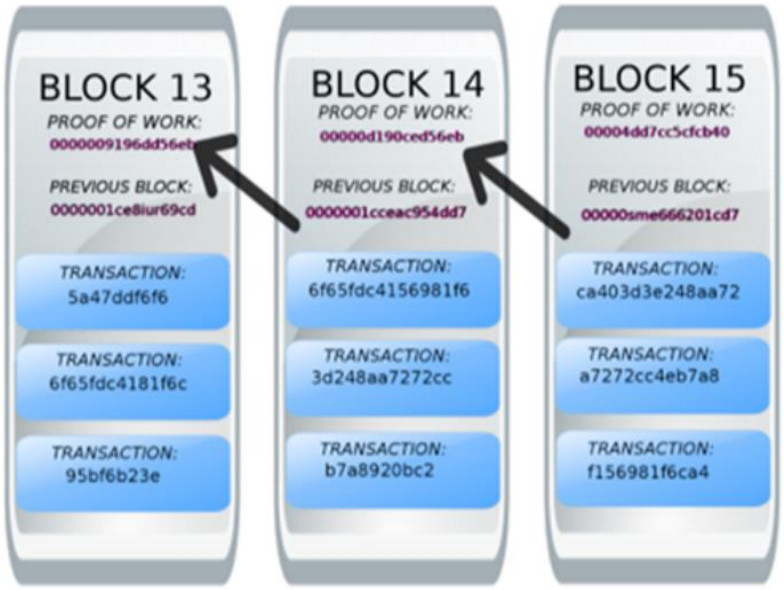


FIGURE 2.1: Illustration of a Blockchain (BlockChain Technology & the Semantic Web, 2017)

The nodes donating their computing resources to solve the puzzle and generate blocks are called "miner nodes" and are financially awarded for their efforts. BlockChain is Bitcoin's backbone technology. The distributed ledger functionality coupled with the security of BlockChain makes it a very attractive technology to solve the current financial as well as non-financial industry problems of the world (Michael et al. 2016).

2.7. Cryptocurrency in Global context

Nine years since the birth of Bitcoin, governments and central banks around the world are increasingly recognizing the potential upsides -- and downsides -- of digital currencies. In addition, the Bank for International Settlements, popularly known as the central bank, issued a paper analyzing the nature of Cryptographic money, urging central banks to consider issuing their own Crypto coins. Over 100,000 merchants worldwide accept Bitcoin. Notable ones include **Microsoft** and **Expedia**, as well as the online electronics retailer **Newegg**. There is also a service like Shakepay and Bittrex to convert Cryptocurrencies into USD or Euros for a fee (Achversklub, 2018).

Another notable aspect is the SEMRUSUS search engine analytic study, with a database of 120 million keyword searches related to Bitcoin in the US. Since April 2017, searches about Bitcoin have increased by 450%, while since June 2017 Google searches for Ethereum reaches similar

numbers more and more people are realizing the importance of the Blockchain phenomenon and the cryptocurrencies (Achversklub, 2018).

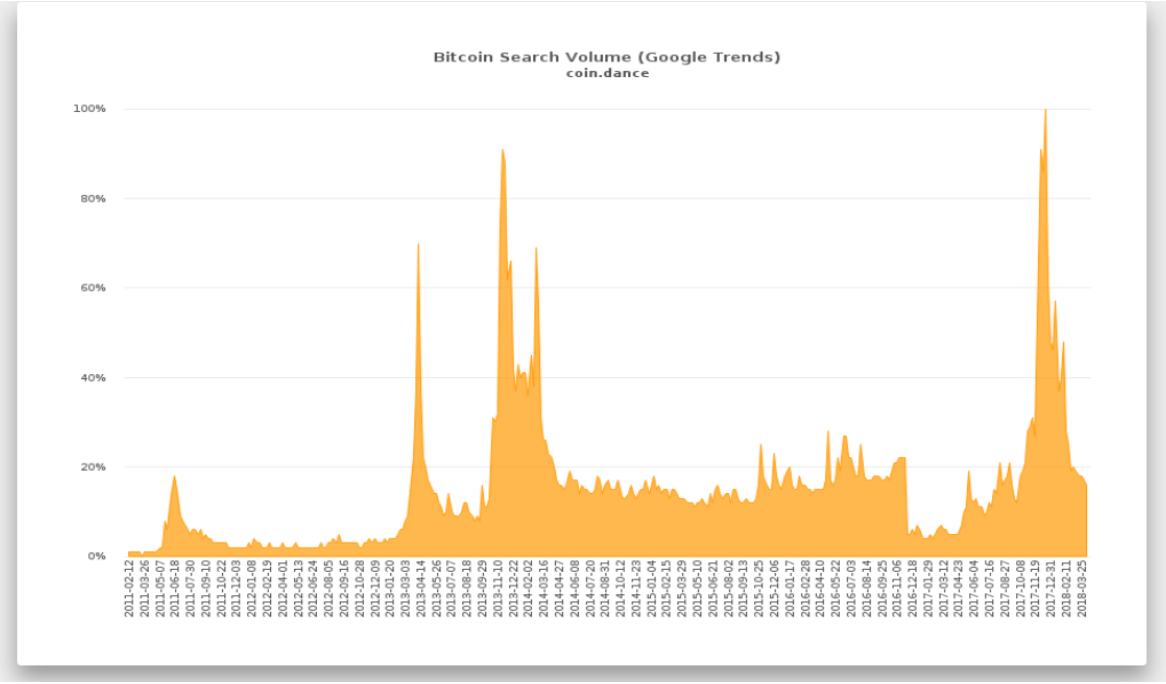


FIGURE .2.2. Bitcoin Search Volume **(**Coin Dance Bitcoin Statistics on June/6/2018)

The leading user of Blockchain technology in the world is Estonia, well known as the birth place of Skype, it now hosts a number of Bitcoin ATMs and startups such as Paxful, a global peer-to-peer buying and selling service for bitcoin. Estonia is well positioned to be a place where Cryptocurrency users can certainly feel welcome. They are willing to implement innovations like Blockchain technology for Healthcare, banking service and even governance by allowing its citizens to become "**e-residents**" this service also gives Estonian citizens and businesses digital authentication. It was also one of the first to use Blockchain-based **e-voting** service that enables people to become shareholders of NASDAQ's Tallinn Stock Exchange.

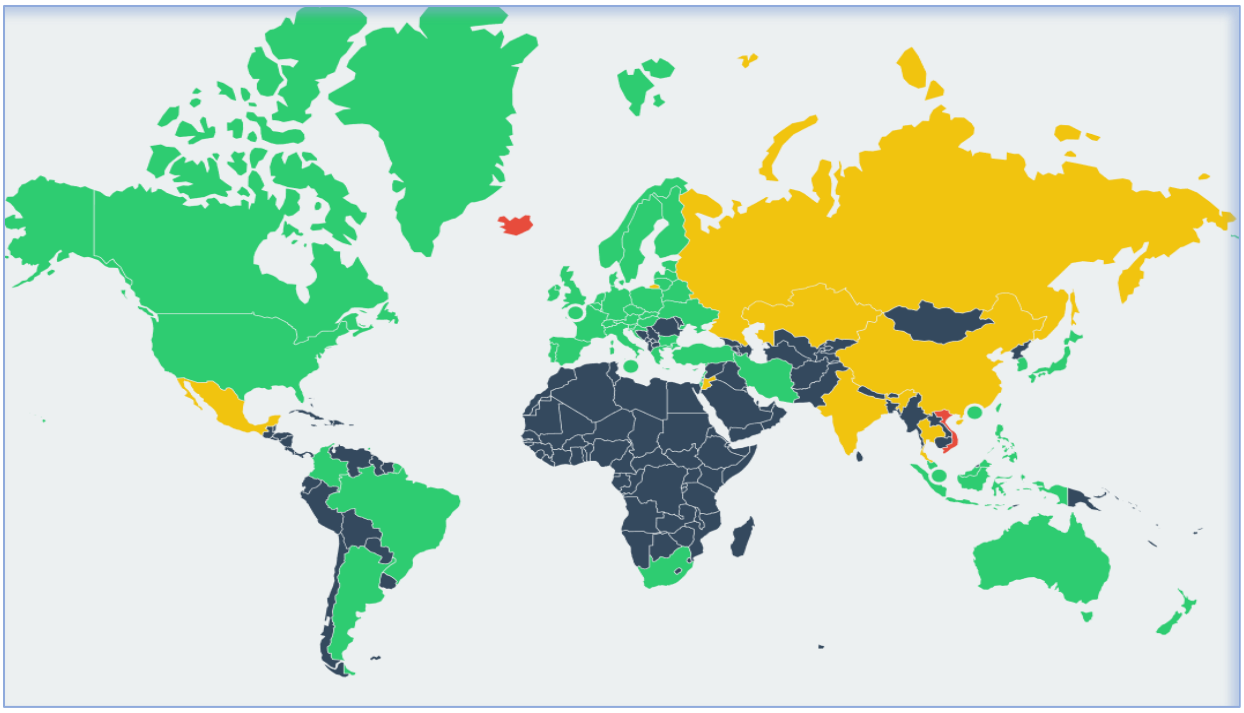


FIGURE 2.3: Legality of Bitcoin by country (bitlegal.io)

The US, the Dutch, Sweden, South Korea, Canada and UK respectively are among the most daring when it comes to experimenting with digital currencies. According to Coin Market Cap, Japan and South Korea are home to several high traffic Cryptocurrency exchanges (Hileman & Rauchs, 2017).

2.8. Digital Currency in Africa

According to the World Bank report mobile money transfer in Kenya, has a tremendous impact on the society. There is an implementation mobile banking kiosk even in the rural areas, this has been the game changer for the rural poor who have generally had scarce access to financial institutions, and for whom the trip to the nearest bank is too high in terms of travel cost or lost time at work. According to the world bank report a research conducted by Georgetown University on 2016 shows that because of the use of mobile phone and M-PESA (Digital Currency), around 200,000 Kenyans moved out of poverty and most women in Kenya moved from subsistence farming to business of retail sales and their saving went up as a result. As mobile phone ownership grows, this may be a way to jump past the traditional ways to access a financial institution and bring access to people where they are (World Bank, 2018).

On November 2017, United Nations Economic Commission for Africa, Blockchain Technology in Africa report mentioned the importance of Blockchain Technology and Cryptocurrencies to meet the SDGs and Agenda 2063 a vision of global and continental development that recognizes the critical role of technologies and innovation in tackling most of the challenges of sustainable development. The report stated the advantages of Blockchain Technology like its form of decentralization, security, and transparency, high resistance to outrage, audit ability and efficiency.

According to UNECA (2017) report, in Africa, despite the development of 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.

2.9. How Blockchain Technology and digital currencies could help Ethiopia

According to UNECA and World Bank 2017 report; there are numerous advantages of Cryptocurrency and Blockchain for Africa, this research paper selects and presents the technology's advantage that addresses the Ethiopian context, some of them are:

I. Blockchain technology can be a means to have a decentralized global bank account, accessible simply by downloading an open source wallet from the internet, rather than having to set up with a formal financial institution.
II. Digital currencies or the technology providing the basis for a richer set of financial Remittances services and Bitcoin has the potential to be used as an intermediary currency between other, more dominant, currencies, and thus may be useful for remittances.

Remittances are a vital element of the Ethiopia's economy (for example last year in 2017, Ethiopia earned less than a Billion Dollar from foreign trade exports but managed to bring in more than 3 Billions of Dollars from Remittances, as of Commercial Bank of Ethiopia's 2016/2017 annual report), rather than using companies like Western Union, Dahabsill or others, any Ethiopian who

is living outside Ethiopia might use a service that transfers US dollars into digital currencies and enables a family member in Ethiopia to "withdraw" Birr on the other side.

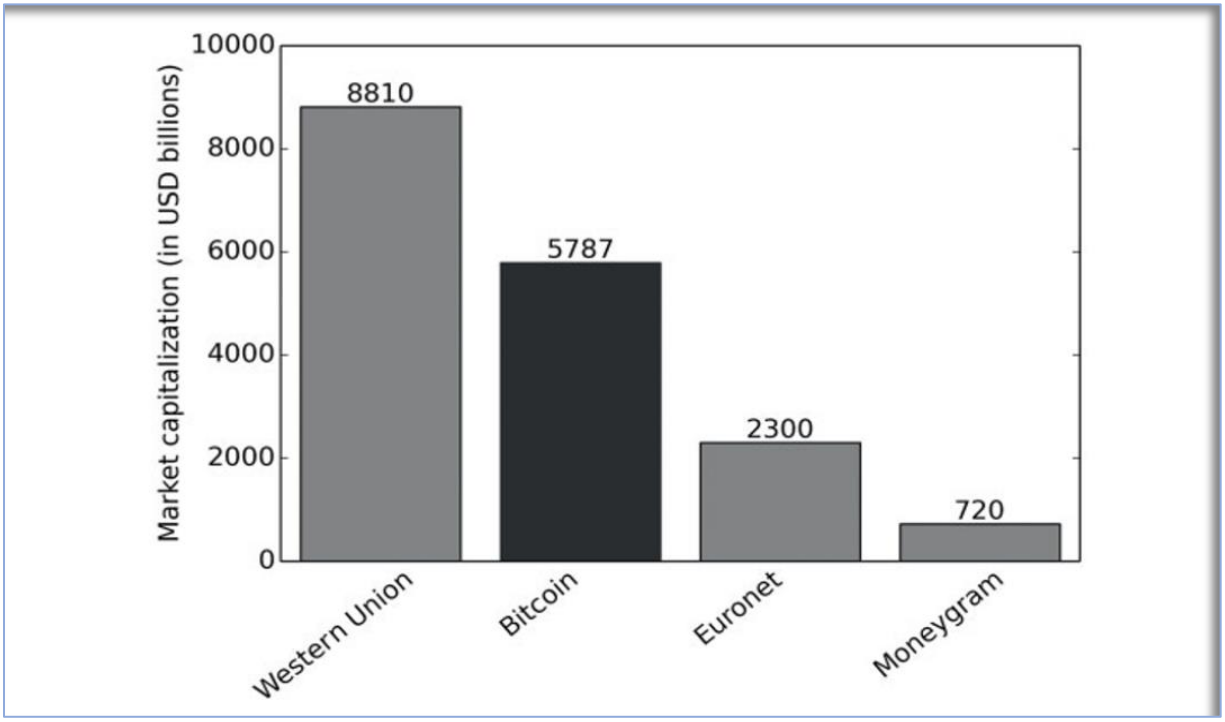


FIGURE 2.4. Money Transmitters Market Capitalization versus Bitcoin (Google Finance,Yahoo Finance and Blockchain.info on May 20th, 2018)

Banks have their own service charges and transfer time; digital currencies theoretically could be used to bypass such banks to form an alternative remittance channel. In a related data, the average fee in the remittance market is reported to be in the range of 8% to 9% (World Bank, 2014).

III. Digital currency also has potential to facilitate small-scale international commerce. Local merchants in Ethiopia may struggle to access international payments systems to sell their goods abroad or to get dollar or other currency permit.

Bitcoin was used as an intermediary currency to facilitate transfers between other currencies. This may assume the user has access to a bank account but struggles with the cost and difficulty of international transfers or e-commerce systems. It is possible, however, to focus on the digital currency system as a type of decentralized bank. If a person has a personal computer or a mobile phone that can be used to download a digital currency wallet, they can obtain a public key that represents their account on the global system (Tsega, 2018).

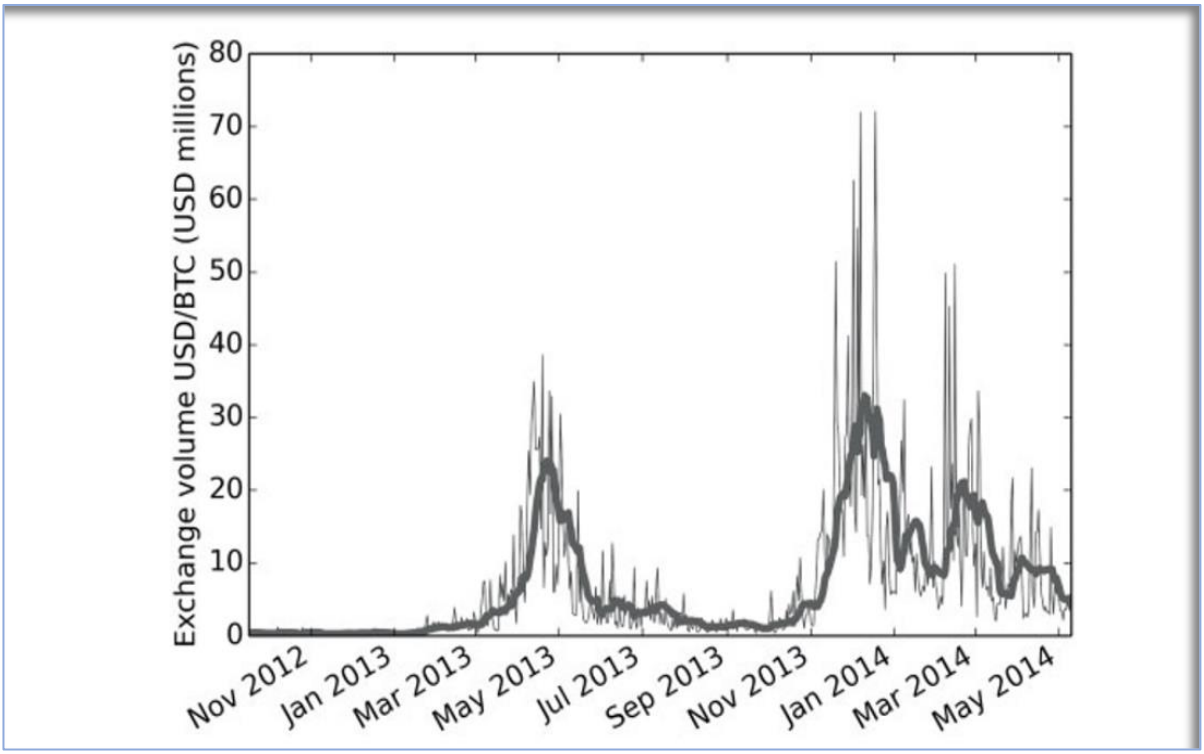


FIGURE 2.5. BTC/USD Traded Volume (Blockchain.info)

Figure 2.4. shows the daily traded volume between USD and Bitcoin across the largest exchanges. In comparison, daily turnover in global foreign exchange markets was USD 5.3 trillion in April 2013 (Bank for International Settlements, 2013). Thus, the liquidity of the Bitcoin market is only a very small fraction of other established financial markets. (Blockchain, 2018)

IV. Digital currencies could be an infrastructure for everyday local payments in precarious, informal settings.

In this sense, digital currencies have potential to complement, or compete with, mobile banking applications. The politics of mobile banking are tricky, though, involving struggles between regulators, banks and tele-com companies. The idea that mobile Bitcoin wallets can serve as a type of bank account intersects with a broader suggestion that Bitcoin can be used by individuals—including richer individuals—as a replacement currency in countries with unstable national currencies. Thus, an individual can escape from their own sinking currency system and climb aboard a different "life-raft" system.

2.10. Blockchain and Digital Currency Initiatives in Ethiopia

While conducting this research the researcher has found several institutions and individuals who are working and planning to work on Blockchain and Cryptocurrencies. Most startups and the technology users are used for this research. However, the center of the research is mainly on AchversKlub school of Cryptocurrency which is planning to implement school of Cryptocurrency project in Ethiopia. Achiversklub school of Crypturrency project was started in 2017, well before other initiatives introduced the technology to Ethiopia. AchiversKlub, plans to give a classroom-based courses and correspondence or online courses of Cryptocurrency, in order to introduce the technology widely in Ethiopia, for us to learn and be able to use alternative coins other that fiat currency.

An eye-opening issue that attracted most technology users was, the Ethiopian Government opening its door for Blockchain technology through Ministry of Science and Technology. On May/3/18 Ethiopia has signed an agreement with British engineering company IOHK to start Blockchain initiatives for the first time. IOHK is an engineering company that builds Cryptocurrencies and Blockchains for academic institutions, governmental entities and corporations. It is also a research firm with dense academic connections in Europe, America, and Asia with many employees holding PhD in computer science, Math or Physics. IOHK focuses on practical, peer reviewed research to create live protocols, and the technological underpinnings to next-generation Cryptocurrencies (Blockchain Forum Ethiopia, 2018).

According to the information gathered from the Blockchain Forum, IOHK is well known by a Cryptocurrency called Cardano (ADA). Cardano is the first blockchain that was built with the philosophy of using academically peer reviewed research and aimed at overcoming the scalability and regulatory limitations that most Cryptocurrencies will face. According to IOHK, Cardano was inspired by the best features of existing Cryptocurrencies including Bitcoin, Ripple, and Ethereum, but is highly scalable and uniquely designed to offer consumers privacy, while offering regulatory transparency.

IOHK's work in Ethiopia

IOHK is working in partnership with the Ethiopian government to explore the potential for Blockchain applications in Ethiopia. They are holding an event in Addis Ababa that will highlight

potential use cases. Ministries, entrepreneurs and start-ups are involved in the event and in supporting the development of the Blockchain industry in the country.

Haskell School in Ethiopia

Working in partnership with the Ethiopian government to train local 30 to100 developers, IOHK will offer courses in the financial programming language that will provide skills and training to feed in to the local economy, while some graduates will go on to work in the global economy or be hired by IOHK. Training will be delivered by world-class industry professionals in Addis Ababa, and some students will also receive training at IOHK's Edinburgh University research headquarters.

Biodiversity Initiative

IOHK is working on an initiative surrounding biodiversity in Ethiopia. With species extinction posing an increasingly pressing problem, particularly in the Equatorial belt, scientists have demonstrated that, with proper funding, they can recover an endangered species. Blockchain allows for the creation of an inter-species payment token capable of moving large sums of money between humans and animals. The token, called Linnaeus, is held in a digital wallet by an endangered animal, which is entitled to it simply on account of its existence. Linnaeus is spent on behalf of the animal. Linnaeus will secure an agreement between IOHK and the government of Ethiopia to trial in protected areas of southern and western Ethiopia later this year. As Ethiopia has 1,000 of the 5,000 surviving Northern giraffes in the world, this may be species that receives the forest Linnaeus (Blockchain Forum Ethiopia, 2018).

CHAPTER THREE: METHODOLOGY AND RESEARCH DESIGN

In this research paper, literature related to the Blockchain, Cryptocurrency and the application of Bitcoin and other Crypto-currencies were reviewed. Moreover, both primarily and secondary data such as, published and unpublished, public or private documents were reviewed. Questionnaires were distributed to the technology users to know their trends, attitudes or opinions; hence, participants were selected based on their knowledge and experience of the technology.

3.1. Research Design

According to Saunders (2009), the most commonly used research designs are explanatory, exploratory, and descriptive which are selected based on the purpose of the study. From this research designs the researcher used descriptive. The data were collected, organized and analyzed through descriptive data analysis technique so that the research can come to a conclusion. Since this study is descriptive type of research, the collected data were analyzed by using frequency and percentage. To show and rank the respondent's responses, tables and graphs are used.

3.2. Research Approach

The research data is analyzed quantitatively using numerical value and qualitatively using a narrative way so as the two methods can complement each other and allow for a more complete analysis. According to (Creswell, 2011) mixed method is the use of quantitative and qualitative approaches, in combination, provides a better understanding of research problems than either approach alone. This study employed a case study research approach which is used to "provide quantitative and qualitative data analysis by using numerical and narrative description of trends, attitude, or opinions of a population by studying a sample of that population. Kothari (2004) said that a case study is a powerful analysis that involves a careful and complete observation of social unit which may be a person, a thing, an institution, a cultural group or even an entire community.

3.3. Sampling Techniques

Blockchain Technology is a new phenomenon to Ethiopia and the whole Africa. Users of this technology are limited, and users are not benefiting fully from this technology. This can be due to fear of change, government regulations and lack of IT infrastructure. Due to the above and other related reasons the researcher used judgmental or purposive sampling technique; hence participants will be selected based on their knowledge and experience of the technology.

According to (Crossman, 2018) a purposive or judgmental sampling is a non-probability sample that is selected based on the characteristics of a population and the objective of the study.

3.4. Source of Data

In this research, both primary and secondary data were used. According to Kothari, (2004) the primary data are those data which are collected for the first time whereas the secondary data have already been collected for some other purpose than the one at hand.

The sources of data and information for this study are:

- ✓ **Primary source:** Include the actual information received from individuals directly concerning Blockchain technology.
- ✓ **Secondary sources of information:** These include all types of published and unpublished, public or private documents and other types of information. Documents and the Internet were reviewed and assessed as an additional source of data and for the understanding about Cryptocurrency and Blockchain technology in general. Achivers klub (ACK) training manual and presentation manual were also referred and the researcher's previous research on Blockchain was also taken as a source. The researcher also reviewed different articles and researches on Cryptocurrency and Blockchain technology.

3.5. Target Population

Participants of this research are BitClub Network miners and investors who are working in Ethiopia and South Africa, IOHK workers, Blue Moon workers and workers in MoST. Participants were selected based on their knowledge and experience of Blockchain, Cryptocurrency and IT related technologies. The primary objective of asking members and users of the technology is to gather and asses the thoughts and expectations of the participants on the technology and its expected use for Ethiopia. We can also learn how this technology impacted their life and how it might change others specially people who are living in developing countries like Ethiopia. Accordingly, the estimated target population in Ethiopia and in South Africa is 4,000 (four thousand).

3.6. Sample Size

By using Figure 4.1.sample size calculation, with a target population of 4000, 85% confidence level and 7% margin of error there will be 104 (one hundred four) sample size. One hundred four participants were selected and used for this research.

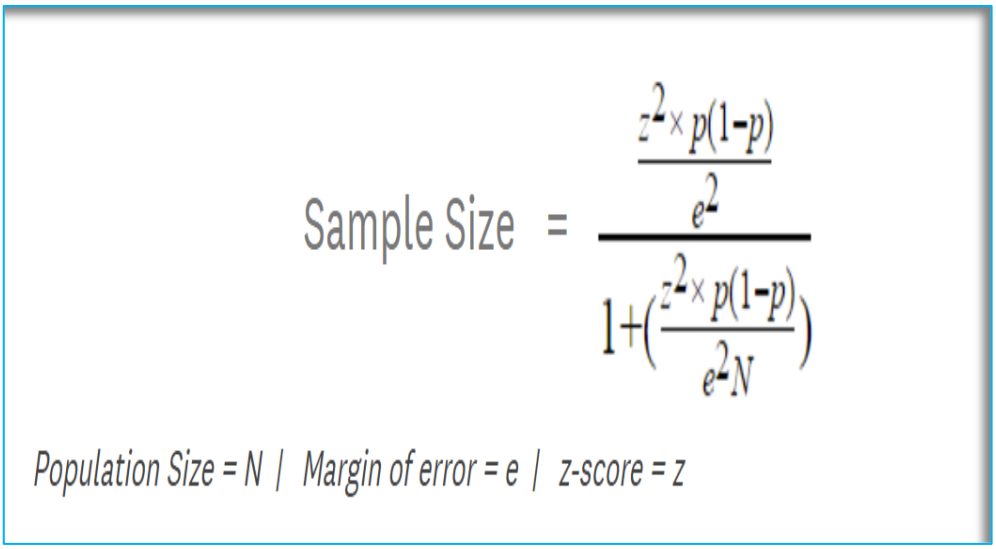


FIGURE 4.1. Sample size calculation (Surveymonkey, 2018)

3.7. Data Collection Technique

According to Crossman, (2018) Cross-sectional data is a type of data collected by observing many objects such as individuals at the same point of time, or without regard to differences in time. Cross-sectional data is gathered through a total of 22 (twenty-two) questions, 16 (close-ended) and 6 (open-ended) questions. Hard copy of the open and close ended questionnaires was distributed to all Ethiopia's participants and similar e-mail questionnaires were sent to South Africa's participants. On an open-ended question, the respondents were asked to provide their own opinion to the question, while on closed-ended questions, the respondents were asked to select their answer from a list provided by the researcher. The main reason of using questionnaires only is some of the technology users are living in South Africa as a result questionnaire is believed to address the intended participants fully.

3.8. Ethical Considerations

Purpose of the study has been explained to the respondents so that they will be contented to reply. All participants are asked to voluntarily participate in the data collection by collaborating in filling the questionnaire and responding to the interview. By doing so, the respondents are free of any harm and more importantly their views will be very confidential and anonymous, and the information will be used for academic purpose only. This research has taken all research ethics and legal issues in to consideration.

CHAPTER FOUR: DATA PRESENTATION AND INTERPRETATION

4.1. Introduction

In this chapter, the data gathered using questionnaires were organized and analyzed. The analysis was made by categorizing the data in to two parts where the first part deals with the characteristics of the respondents which includes gender, age, area of specialization and their employment status. The second part deals with the analysis of the data gathered, questions that have direct or indirect relation to the research questions are identified, categorized and analyzed based on their relation to that specific research question.

4.2 Response Rate

According to Cambridge dictionary (1995), response rate means "the number of people who answers questions in a survey." For this research 110 (one hundred ten) questionnaires were distributed and 100 (one hundred) of them are partial to fully filled, collected and used for the analysis of this research. Based on a response rate calculation with a number of 100 (one hundred) responses to the survey and with 110 (one hundred) sent survey, it will be 91% response rate. According to Mugenda (2003) stipulation that a response rate of 70% and above is excellent.

4.3. Characteristics of Respondents

In the characteristics of the respondents, their Gender, Educational background, area of specialization and employment status were analyzed to get a deeper understanding of the demography of the respondents.

4.3.1. Gender

In this study the term gender is used to refer to male or female. Respondents were asked by the researcher to give their gender as part of the moderating variable of the study. Figure 4.2 tells us that most respondents which holds 81% are male and 19% of the respondents are Female users. It can be said that the technology is much more practiced with in male society.

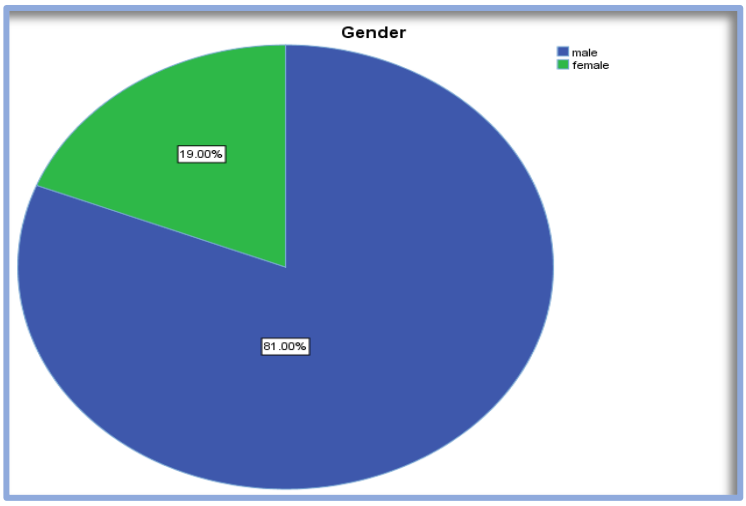


FIGURE 4.2. Gender of the Respondents (Own Research, SPSS output)

In a similar worldwide research that was conducted by Coin Dance Bitcoin statistics in 2018, 91.22% of the technology is widely practiced among male users and female users of the technology are only 8.78%.

4.3.2. Age

The researcher required the respondents to identify their age bracket for analysis and the result of the survey is summarized on the table 4.1. Below.

TABLE 4.1. Age of the Respondents

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	below 25	22	22.0	22.0	22.0
	26-36	57	57.0	57.0	79.0
	37-47	13	13.0	13.0	92.0
	above 48	8	8.0	8.0	100.0
	Total	100	100.0	100.0	

Source: Own Research, SPSS output

Table 4.1. shows that majority of the respondent are aged between 26 to 36 years representing 57% of the respondents followed by below 25 years which is 22%. This implies that the technology is well practiced with in Millennial's, only 8% of the respondents are post-Millennials.

Similarly, to know how other parts of the world are engaged in the technology the researcher referred Coin Dance Bitcoin Statistics 2018 data. The data shows that 48.43% of the technology users are between 25-34 years of age and 24.96% of users are between 35-44 years of age. This worldwide statistic tells us that the majority of the technology users are also Millennials.

4.3.3. Area of Specialization

Information regarding area of specialization of the respondents was also analyzed. This information would enable the researcher to determine whether the technology is friendly to all sort of work sectors.

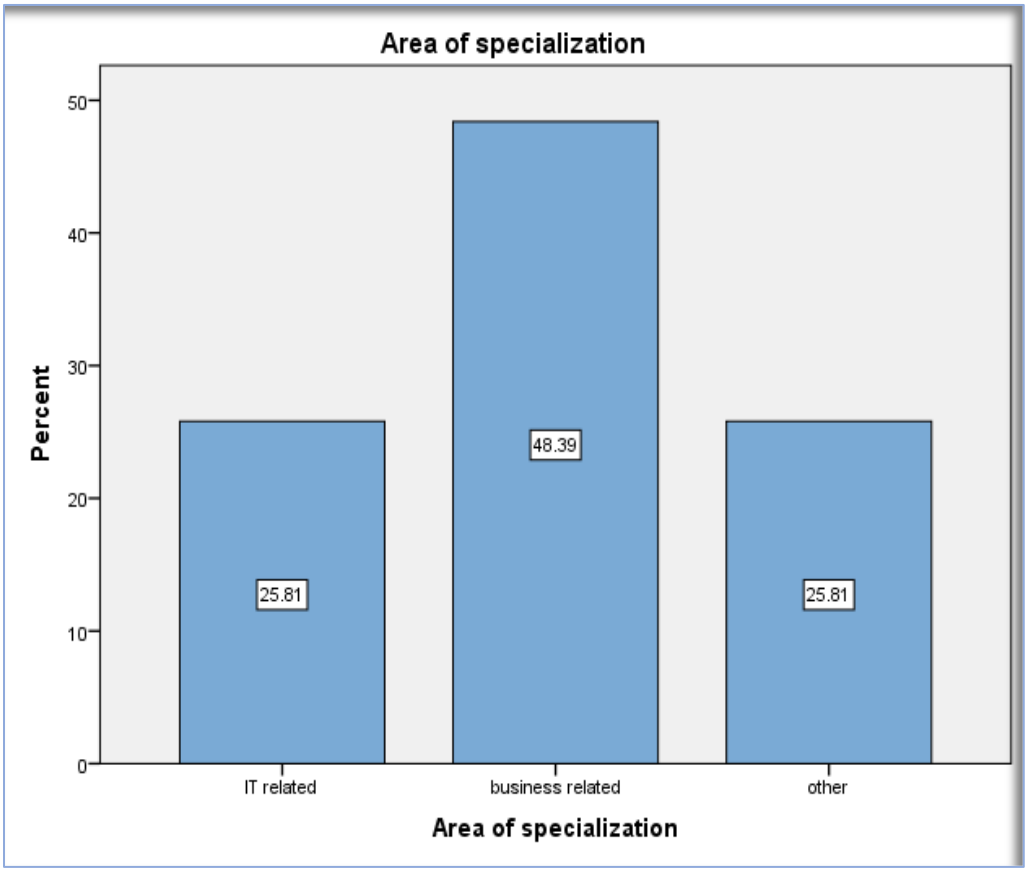


FIGURE 4.3.: Respondents area of specialization (Own Research, SPSS output)

Figure 4.3 represents the findings on the respondents' area of specialization. The study found out that 48% of the respondents are working on business related fields. IT related fields and unspecified sectors hold 26%. It can be observed that Cryptocurrency is being practiced in a various sector, however, the business people or the business sector is daring to try the technology first hand.

Coin Dance Bitcoin Statistics, (2018) also tells us that the technology is much more welcomed and practices with in investors that hold 7.29% and Technophobes holds 6.98% of the world community affinities.

4.3.4. Employment Status

The respondents' employment status was also analyzed to know whether the technology is creating a job opportunity and encouraging entrepreneurs in this area.

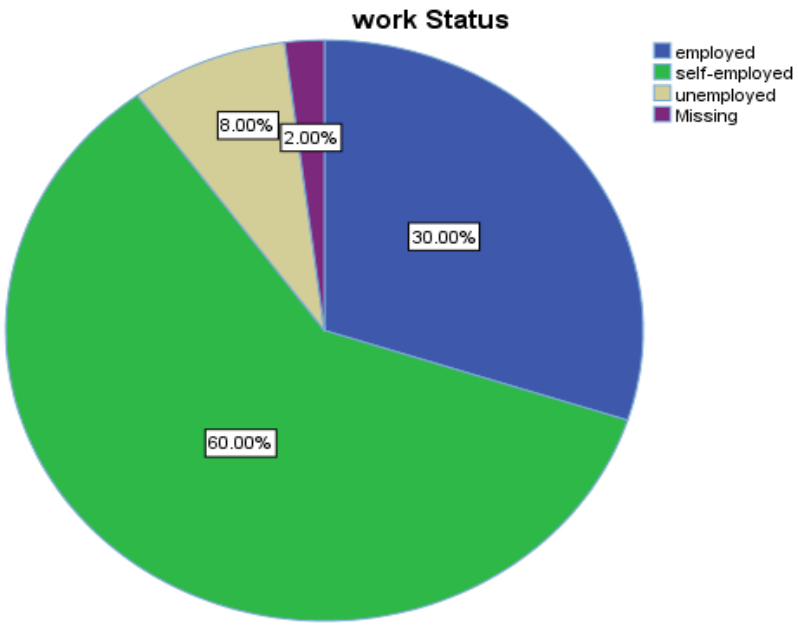


FIGURE .4.4. Employment Status (Own Research, SPSS output)

Figure 4.4., shows that 60% of the technology users are self-employed, and 30% of the respondents are practicing Cryptocurrency as an additional income source. Based on the collected data it can be said that, Cryptocurrency can be worked as a part time job and can help as an alternative and additional income generating means.

4.4. Results and Findings

The research has three research questions these are:

1. What makes Cryptocurrency special from other currencies?
2. Can Cryptocurrencies Project be Successful in Ethiopia?
3. Can Cryptocurrency Project solve the current Ethiopia foreign Exchange problems?

Through the distributed questionnaire, all the above three questions were asked directly or indirectly by using either close-ended or open-ended questions. For analysis purpose questions and answers that are directly or indirectly related to the respected research questions are identified, summarized or tabulated.

On the research questionnaire there is one open ended question that directly answers the primary research question, which is **"What special characteristics of Cryptocurrency attracted you the most?"** 80% of the respondents have replied to this question, and their responses are summarized in a way that will represent the majority of respondents.

"What makes Cryptocurrency special from other currencies?"

1. Efficiency of the technology: It can allow fast and effective foreign exchange service. It is a system that can help transfer a money within a minute it can help to earn money without working hard (revenue earned by decentralized experience/mining)
2. Simplicity: Could be used easily, it saves a lot of time and energy
3. Security and Privacy: Control over personal data and transaction Privacy
4. All users with in a network can see all changes to the ledger. The ledger is constantly updated, and each participant have their own copy of it.
5. It has a global nature: The platform to connect and to create global landscape for business.
6. The fact that it is safe, trustworthy and credible: owned by no one but everyone.
7. Blockchain itself: Blockchain is highly transparent because, anyone can access to a Blockchain and view the entire chain.
8. The Blockchain algorithm and the system is not easy for hackers
9. Corruption does not have a place in this technology.
10. No third party is needed: Unnecessary third parties that used to charge a huge amount for a transfer are now removed.

To get a deeper understand of the characteristic of Cryptocurrency, the respondents were also asked to reflect their views on the advantages and disadvantages of Cryptocurrency and their replies were summarized.

TABLE:.4.2. Advantages and Disadvantages of Cryptocurrency

Var.	Advantages of Cryptocurrency	Disadvantages of Cryptocurrency
Res.1	It takes control from the hands of very few people. It will make the world fair and economic freedom to all individuals:	The fact that one cannot claim or ask for a return or a refund once the transaction takes place. One the identity or the password is lost it cannot be retrieve, if password gets lost all the money will be lost
Res. 2	It is liberating and an alternative for human beings regarding their financial & economic freedom. Limitless account that can be accessed anywhere, it has a Global payment system	It is not used widely and it will create machine dependency, it may replace many of the tasks carried out by human being
Res.3	Transformed and changes the attitude the way we see things, saves time and energy by providing a decentralized service. It will illuminate manual activities and works	It makes authority and regulation weaker which could have a negative impact on how state functions. It can be controlled by few institutions and take the form of traditional system and at the end it will be vulnerable to hackers
Res.4	Being able to make own money and also not being able to pay any kind of money for money transfer: getting wealth by owning Bitcoin.	It is difficult to convince people or bring change to the traditional system, its challenging to create understanding with the public

Source: Own research **Meaning: Res - Response & Var- Variables**

From Table 4.2. We can learn that most of the advantages that are mentioned are related to its ability to create freedom for users in terms of ledger management and control. The system has given the users a power to control own account instead of by trusted third party like banks. The

advantage of being able to control own staff may dramatically transform the business sector and investment by distributing wealth by avoids middle men or brokers. The other major advantage of Cryptocurrency that was mentioned is its nature of simplicity in terms of usage and transaction.

The main disadvantages of Cryptocurrency that were mentioned are:

- Its nature to avoid the usage of middle men like the government that have been working and serving for a long time. Avoidance can lead to illegal ways of currency movement and lack of regulations in the system creates a feeling of unlimited and unprotected activity, as a result, it created fear and insecurity with some of the respondents, it is obvious that people transact when they fill secure and safe.
- The other point is the system's nature of intangibility and Cyber - centeredness: this created frustration over most of the respondents **"what if…it stopped working or hacked?"** is a question that is kept at back of the respondents' head. It is a fact that it is something intangible and something that cannot be seen, and it's hard to fully trust the technology and make others trust it.
- Accountability: The system rules itself, there is no one to be accountable for if something went wrong,
- The other characteristic that seems unfair with in the eyes of all respondents is its nature of not giving a second chance to correct mistakes **"Wrong fund is unrecoverable".**
- Another major point that was stated as a disadvantage of the technology is; it can be used by wrong people for a negative purpose, it is easy for illegal work and it is difficult to identify and trace illegal users and finally, these individuals can be super rich and may disrupt the life of the poor and innocent people.

In addition to the above summarized characteristics of Cryptocurrency the researcher has found some useful resource from Cryptocurrency facts (2018), regarding its characteristics, similarity and differences with the traditional currency:

Fiat money (fiat currency) (traditional Currency) is currency that a government has declared to be legal tender. Cryptocurrency is not legal tender and not backed by a government. Fiat roughly

means, “let it be done.” Cryptocurrency implies, “a decentralized and digital medium of exchange governed by cryptography.” Both are currencies, but there are some notable differences:

- **Fiat currency is “legal tender” backed by a “central government.”** It can take the form of physical dollars (for example paper Federal Reserve notes), or it can be represented electronically, such as with bank credit. The government controls the supply and you can pay your taxes with it.
- **Cryptocurrency is not “legal tender” and it is not backed by a central government or bank (it is decentralized and global)**. Its form is more like bank credit sans the bank (in that it is represented digitally, but not backed by a bank or government). An algorithm controls the supply.

Both fiat currency and Cryptocurrency can be called money or currency, both are mediums of exchange that are used to store and transfer value, both can be used to purchases goods and services, both have their value governed by supply, demand, work, scarcity, and other economic factors, both have their value affected by the quality of the system surrounding it, both can be traded on exchanges, etc. Cryptocurrency, gold, a bundle of wool, and a dollar are all stores of value and all have exchange value. Some value stores like the wool and gold have use value, some like fiat currency and Cryptocurrency are meant to be a store of value and medium of exchange only.

The second research question “Can Cryptocurrency Project be Successful in Ethiopia?” is answered from the research’s 3 (three) open-ended questions. The questions are related to the safety, easiness and acceptance of the technology in the country. The findings are tabulated in the following Table 4.3.

TABLE 4.3. Cryptocurrency Technology Analysis

No	Variables	Responses				
		A	B	C	D	E

1	Do you think Cryptocurrencies are safe to use?	Yes **68%**	No **4%**	May be **20%**	I don't know **7%**	
2	Does Cryptocurrency is easy to understand and use?	Very easy **7%**	Easy **23%**	Moderate **54%**	Difficult **12%**	Very Difficult **4%**
3	Do you think Cryptocurrency could be accepted and practiced easily in Ethiopia?	Yes **35%**	No **24%**	May Be **38%**	I don't Know **3%**	

Source: Own Research

From Table 4.3., we can learn that 68% of the respondents believe that Cryptocurrency is safe to use, 20% of them said, the technology might be safe to use and the remaining 4% said it is completely unsafe to use. In terms of the system easiness to understand and use 54% replied that the technology is moderate to use and understand, 23% of them said it is easy to use, 12% of the respondent said it is difficult to use. From the technology acceptance level in Ethiopia, 35% of the respondents said it may be accepted and practiced in Ethiopia, 24% said NO, it will not get acceptance, and 38% of the respondents said the technology might get acceptance in Ethiopia.

In addition, three kinds of open-ended questions were also asked to get a deeper understanding of the scenario. First, the Cryptocurrency application areas were identified, second, the Ethiopian Government willingness to accept the technology and third, the people's willingness to learn and master the technology were asked and analyzed in the following table 4.4.

TABLE 4.4. Cryptocurrency application area and acceptance in Ethiopia

Variables	In what areas do you think Cryptocurrency could be applicable in Ethiopia	Dose the Ethiopian Government will be receptive to Cryptocurrncy	Do you think the people of Ethiopia will be willing to learn and master Cryptocurrency
Res.1	Document authentication and certification office to verify the right of ownership, Supply chain management, Election and voting system	It's difficult for government to control and the Ethiopian government do want control	Wide adoption of Crypto requires educated population and it will happen in a course of time as the people becomes more educated
Res.2	It can be applicable in the agricultural sector, to uplift the life style and income of Farmers We have a lot of stock market and we can use it for coffee and others	May be our current PM is Blockchain Literate, he may be willing to apply the technology.	We have a conservative society which is skeptical to new ideas and technology. But if we work within youth there is huge potential.
Res.3	Can be used for currency exchange and money transfer in a more fast and effective manner	Yes, to Blockchain no to Cryptocurrency	Most of the younger generation will use and accept the technology

Source: Own research Meaning: Res-Responses

From Blockchain Ethiopia forum, that was conducted on May/3/2018, we can learn that,

Blockchain is already showing receptiveness in Ethiopia, in sectors like AGtech, the respondents are hopeful in their answers that this technology transformation will move to Cryptocurrency as well. However, the government needs to work on ICT provision and open its banking sector otherwise, the usage of such a mode of currency will be impossible. The respondents' said that, if the technology is used wisely it is a great way to tackle corruption.

When we summarize respondents' view on the acceptance level of the society, it can be generalized that the people of Ethiopia can learn and master the technology, if it is legally and widely introduced in a level that suits the understanding and knowledge level of the society, it's all about presenting the idea to their level of understanding, hence, it will get higher acceptance with in the younger generation.

In order to answer research question three, 1(*one) closed-ended question was asked* "Can Cryptocurrency Project solve the current Ethiopia foreign Exchange problems?"

TABLE: 4.5. Cryptocurrency, foreign currency problem-solution in Ethiopia

No	Variable	Responses			
		A	B	C	D
1	Do you think Cryptocurrency will solve the current Ethiopia's foreign exchange problems	Yes **60%**	No **14%**	May be **26%**	I don't know

Source: Own Research SPSS output

Table 4.5. Illustrates that 60% of the respondents agree that using Cryptocurrency will solve the current Ethiopia's foreign exchange problems. 14% of them said NO it will not solve the current foreign exchange problems and 26% said it may solve the problem. From the collected aggregate data, we can say that Cryptocurrency can be used to solve the current Ethiopia's foreign exchange, foreign transfer and local money exchange and local transactions problems.

4.5. Results and Discussion

The research finding shows that the technology is huge and can make major changes in technological, social-economic and social-political areas, however, some structural changes need to be made on the technology itself to fit with in Ethiopia context.

- The respondents were impressed by the technology ability of Peer to peer connection; the possibility of avoiding middle men in the supply chain gives power to the people and saves wasted money. Its Universality character was another feature that attracted the respondents, anyone in any country can use it, and the idea of creating international account is liberating the respondents from TTP dependency.
- Ethiopia Science and Technology is implementing Blockchain technology in AGTech sector and it's a good sign of the government's willingness to welcome and introduce new and useful technologies and the Blockchain forum in Ethiopia indicates that the government is being receptive.
- 48% of the respondents are working in business sector and if Cryptocurrency usage dominates the business sector and the country's currency movement might be significantly affected and this area needs a study, in its positive side the technology might be liberating and useful and on the other side it might draw some side effects with it that might significantly affect the country.
- Based on the collected data, it can be said that the use of Cryptocurrencies can solve the current foreign exchange problems and considering the current sever foreign currency problems it will be wise to see and consider all the available options including Cryptocurrencies.

CHAPTER FIVE: CONCLUSION AND RECOMMENDATION

5.1. Summary

Unlike traditional currencies, Cryptocurrencies are entirely virtual. There are no physical coins or even digital coins for a person to see. The coins are implied in transactions that transfer value from sender to recipient. Users of Cryptocurrency own keys that allow them to prove ownership of transactions in the Cryptocurrency network, unlocking the value to spend it and transfer it to a new recipient. Those keys are often stored in a digital wallet on each user's computer. Possession of the key that unlocks a transaction is the only prerequisite to spending a Cryptocurrency, putting the control entirely in the hands of each user. It can be said that the money that is accumulated in the system is like a digital asset, it is an asset whose ownership is recorded digitally, and which is directly controlled by its owner. Bitcoins are an example of digital assets, as their ownership is recorded in the Blockchain and their owners directly control them, through the private key.

The technology's applicability and practicability in Ethiopia was analyzed from three dimensions, first, the area of application and the benefits that Ethiopia could get out of it were identified. Second, the Ethiopian Government receptiveness was asked, third the Ethiopian people willingness to learn and master the technology was also assessed through a well-organized questionnaire. The data were gathered from people who know and practice the technology in their day to day life.

- Currently, Ethiopian government has 100% endorsed Blockchain through Ministry of Science and Technology but, not Cryptocurrency however; the technology can facilitate money exchange, money transfer and transactions in an open and fast platform for the entire community.

According to UNECA 2017, report African countries such as Kenya, Uganda, and Tanzania are moving ahead of Ethiopia in terms of welcoming and applying new technologies. From the collected data, some respondents believe that the technology infusion might be difficult and challenging in Ethiopia however; most of the respondents are optimist saying that:

- If there is a well-organized presentation to the level of the society there can be acceptance of the technology.

Generally, the findings on the importance and characteristic of Cryptocurrency are very positive and it worth trying Cryptocurrency earn those benefits.

5.2. Conclusion

Cryptocurencies are completely new, unprecedented, and complex technology, It can be said that the technology, despite these remarkable achievements, there are also many challenges and issues left to resolve. These challenges, which most Cryptographic currencies are facing today, are not solely of a technical nature and the TTP place in the Blockchain, While issues related to sociological, political, legal, and regulatory challenges are also significantly important for the understanding and further development of Cryptographic currency and their ecosystems.

The Technology has a huge potential to transform the nation, as a result, it can be a huge opportunity for Achiversklub school of Cryptocurrency to open its school project in Ethiopia. The society can learn and benefit from this huge opportunity, in return the government could be able to solve the current tightness on foreign currency. However, Cryptocurrency and Blockchains are hardly the answer to the current foreign currency problem, the fusion of its underlying technologies and methods has opened new path ways and outlined new possibilities in diff erent areas of research. Never was it this easy to create a currency that can be used worldwide without the absolute need for a trusted third party or the requirement to distribute physical coins and notes.

Finally, based on the research findings it can be said that, this change of paradigm should force Ethiopia to re think the policies and concepts of money that could enable us to envision a future in which a multitude of alternative currencies, that holds their individual techniques and a set of rules that are accepted within the community. If there are methods to easily use diff erent currencies, exchange and transactions, it is not necessary to rely on just one hard currency Birr for everything. If Ethiopia uses multiple currencies, currency exchanges and transfers will not be complicated and time taking as it is happening right now.

5.3. Recommendation

According to Nakamoto, (2009) “What is needed is an electronic payment system based on Cryptographic proof instead of trust. I’ve been working on a new electronic cash system that’s fully peer-to-peer, with no trusted third party,”

In order to apply the technology freely and widely, the researcher recommends the following major points based on the data analysis and findings:

- The media has to play a huge role in educating the society, in terms of how the technology is transforming other African countries by using similar technologies like MPESA and also how this technology could save a lot of time, energy and money especially to the society who are living in the rural areas, who are traveling day and night to get a small amount of money from a bank. Nowadays, majority of the Ethiopian people use mobile phone which is a huge platform; we can take this mobile phone usage to the next level by using mobile money transaction and transfer using Cryptography.

- Ethiopia might not use the current Cryptocurrencies like Bitcoin, we can encrypt our own Cryptocurrencies and apply it in all areas of life. This will create the society to trust how digital currencies have value and we can also change the status-qua through time. "The cost of launching an alt-coin is very low: just forking the Bitcoin Core source code and changing the logo is enough to create an alt-coin. For this reason, the number of alt-coins launched is very large. Many of the first alt-coins introduced few changes to Bitcoin's implementation (Vigna & Casey, 2003).

- Another important issue that worth mentioning is the Ethiopian government should highly improve and work on its ICT infrastructures and Internet provision. In the current globalization, information technology (IT) together with fast and reliable Internet, plays a major role in shaping the world of business and making it sustainable. Without IT and Internet, important business processes might not be able to be realized and thus fail to help businesses raise the profit in the changing environment. ICT provision is viewed as a way of making a business more efficient and effective in delivering value to enhance customer and user satisfaction and in general increasing a country's profit.

Reference

Aljosha, J., Nicholas, S., Katharina, K.,& Edgar, W., (2017). Blocks and Chains Introduction to Bitcoin, Cryptocurrencies, and their Consensus Mechanisms.

Andreas, M. A,. (2014). Mastering Bitcoin: O'Reilly Media.

Antony, I.T. & Peter. D. (2001). Scalable, decentralized object location, and routing for large-scale peer-to-peer systems.

Blockchain Forum Ethiopia, (2018). Conference proceedings held at the Ministry of Science and Technology together with IOHK, From, 3 – 5 May 2018.

Cambridge, (2008). Cambridge Advanced Learner's Dictionary: Cambridge.

Chainpoint white paper, https;//tierion.com/chainp

Creswell, J.W., (2009). "Research design: Qualitative, quantitative, and mixed methods approaches", (3rd ed.), SAGE Publications, Inc.

Crossman, A., (2010), Understanding Purposive Sampling; ThoughtsCo.

Filecoin, (2014). A cryptocurrency operated file Network. Tech report, . http;//filecoin.io/filecoin,pdf

Kothari, C.R., (2004). "Research Methodology", Methods and Techniques: (2nd ed.), New Age International, Ltd.

Lily, N., (2016). What we know about Friday's massive east coast internet outage.

Michael, C., Nachiappan, M., Pradan, P., Sanjeev, V., & Vignesh, K., (2016). BlockChain Technology: Beyond Bitcoin.

Mugenda, O. M., & Mugenda, A. G. (2003). Research methods: Qualitative and qualitative approaches. African Centre for Technology Studies, Nairobi, Kenya.

Namecoin,http;//namecoin.info.

Nicole, P., (2016). Yahoo says hackers stole data on 500 million users in 2014,

Vigna, P., Casey, J, Michael, (2016), The age of Cryptocurrency:

Pedro, F., (2015). Understanding Bitcoin, This edition first published by Wiley.

Satoshi, N., (2009). Bitcoin: A peer-to-peer electronic cash system. Tech report.

South Africa Achiversklub School of Cryptocurrency, (2018). Achiversklub Training Manual, Johansburg.

Saunders, M., Lewis, P. and Thornhill, A., (2009). "Research methods for business students", (5th ed.), Pearson Education Limited.

Sesaria, K., (2017). Digital Identity Management on Blockchain for Open Model Energy System.

Tsega, A., (2018). Benefits of Blockchain Technology for Ethiopia. Unpublished master's thesis, International Leadership Institute, Addis Ababa, Ethiopia.

UNECA, (2017). Blockchain Technology in Africa, November.

World Bank, (2014), The World Bank estimates that the global remittance business: "Migration and Development

APPENDIX A: Survey Questionnaire

SURVEY QUESTIONNAIRE QUESTIONNAIRES TO BE FILLED BY BLOCKCHAIN TECHNOLOGY and CRYPTOCURRENCY USERS

ADDIS ABABA UNIVERSITY SCHOOL OF COMMERCE PROJECT MANAGEMENT POSTGRADUATE PROGRAM

Dear respondent,

First, I would like to express my gratitude in advance for your willingness to spend your valuable time to respond to this research questionnaire. This research is undertaking as part of partial fulfillment for the degree of Masters' of Business Administration major in International Business. The title of this research is "**What are the benefits of Blockchain Technology for Ethiopia? A case study on Bitclub Network".** Your genuine reply to each research question is very important and highly appreciated.

To ensure the confidentiality of the information please DO **NOT WRITE YOUR NAME OR YOUR ID OR MOBILE PHONE on this questionnaire.**

All provided information shall be kept strictly confidential and used for academic purpose alone. Moreover, any information shall not be used for any other purpose without your prior consent. The information shall be used or analyzed in aggregate without revealing individual responses explicitly.

The final result of this research and the final recommendation and finding shall be forwarded to the concerned office or company for their corrective measure and further understanding.

Finally, I would appreciate your responsiveness and taking the time to complete the following questionnaire. For any further clarification and comment, you can contact the researcher by the following address.

My address: - **(Email- Tseginat@gmail.com)**

ONCE AGAIN THANK YOU SO MUCH!!!

Part 1: Please put a tick "√ " mark for your choices.

1. Gender

   A) Male ☐ B) Female ☐

2. Your Age in years:

   A) Below 25 ☐ B) 26-36 ☐ C) 37-47 ☐ D) Above 48 ☐

3. Area of specialization

   A) IT related ☐ B) Business Related ☐ C) Other, Please specify_____

4. Work status

   A) Employed ☐ B) self - Employed ☐ C) Un-employed ☐

5. Are you working Cryptocurrency as a full time or part time?

   A) Full Time ☐ B) Part Time ☐

6. Do you want to pursue Cryptocurrency as a full time job?

   A) Yes ☐ B) No ☐ C) I do not know ☐

7. Do you use Blockchain Technology for your day-to-day life other than Bitcoin?

   A) Yes ☐ B) No ☐ C) I do not want to use other that Bitcoin ☐

8. Do you think Cryptocurrency are safe to use?

   A) Yes ☐ B) No ☐ C) May Be ☐ D) I don't know ☐

9. Do you think the technology could be vulnerable to hackers or illegal activities?

   A) Yes ☐ B) No ☐ C) May Be ☐ D) I don't know ☐

10. Do you think the use of Cryptocurrency could promote terrorists and illegal activities like money laundering?

    A) Yes ☐ B) No ☐ C) May Be ☐ D) I don't know ☐

11. Do you think Cryptocurrency could be difficult for government control and monitoring?

    A) Yes ☐ B) No ☐ C) May Be ☐ D) I don't know ☐

12. How easy is Cryptocurrency to understand, perceive and use?

    A) Very Easy ☐ B) Easy ☐ C) Moderate ☐

    D) Difficult ☐ E) very Difficult ☐

13. What are the responses of People, when you tell them about Cryptocurrency?

    A) Positive ☐ B) Negative ☐ C) Difficult to Understand ☐

    D) Not interested ☐

14. Do you think it will be easy to use Blockchain technology in other area of life such as banking, governmental and non-governmental activities in Ethiopia?

A) Yes ☐ B) No ☐ C) May Be ☐ D) I don't know ☐

15. Do you think Cryptocurrency could be accepted and practiced easily in Ethiopia?

A) Yes ☐ B) No ☐ C) May be ☐ D) I do not know ☐

16. Do you think using Cryptocurrency will solve the current Ethiopia's foreign exchange problem

A) Yes ☐ B) No ☐ C) May be ☐ D) I do not know

Part 2: Please specify your responses

17. What positive side do you get or learn from Cryptocurrency?

_____

_____

18. What disadvantages or negative side do you see from Cryptocurrency?

_____

_____

19. In what areas do you think Cryptocurrency Could Be applicable in Ethiopia?

_____

_____

20. Do you think the Ethiopian Government will be receptive to Cryptocurrency?

_____

21. Do you think the people of Ethiopia will be willing to learn and master Cryptocurrency?

_____

22. What special characteristics of Cryptocurrency attracted you the most?

_____