

Assessing The Impact of Cryptocurrency on Nigeria's Digital Economic Advancement

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Abstract

Cryptocurrency is a type of virtual money whereby transactions are conducted and validated using a decentralized system that employs cryptography. This paper discusses the concept of cryptocurrency by highlighting some of the key features in which are decentralization and the use of cryptography. It further discusses the concept of digital economy which is the economy that focused on digital technologies. Benefits and some drawbacks of the economy are briefly highlighted. Next, using an analysis of the National Digital Economy Policy and Strategy (2020–2030), the article discusses Nigeria's digital economy. Eight pillars were defined under the policy to hasten the growth of the Nigerian digital economy. The consequences of cryptocurrencies on Nigeria's move toward a digital economy were finally examined in the study.

Keywords: Cryptocurrency, Digital economy, Digital currency, Blockchain

INTRODUCTION

Our everyday activities, including those related to social interactions, education, and finance, have been greatly eased by the development of the Internet and other technology. The methods by which we conduct our social, educational, and financial interactions vary significantly throughout time. Nowadays, a lot of people trust internet systems for things like online commerce, online payments, and online schooling. The purchasing and selling of goods and services was and is still done using paper money. Paper money appears to be reverting to its more traditional use in exchange these days, whilst electronic money has become a far

more alluring option (Deepika and Kaur, 2017). When it comes to trading products and services, money is one of the most valuable commodities. As technology and innovation advance, new forms of money, such as digital money or currency, are created.

According to Mukhopadhyay et al. (2016), cryptocurrency is a peer-to-peer digital exchange system that generates and distributes currency units using encryption. Distributed transaction verification devoid of a central authority is necessary for the procedure. To prevent currency units from being spent twice, transaction verification verifies transaction amounts and if the payer actually holds the money they are attempting to spend. One of the characteristics that make cryptocurrencies appealing to so many users is this feature.

Two key characteristics set cryptocurrencies apart from the traditional currencies we are familiar with and utilize on a daily basis. Cryptography and decentralization are these characteristics. A currency is said to be decentralized if it is not governed by a single entity. As an example, Bitcoins are issued as a byproduct following the verification of several batches of transactions. Certain network users' processing power is used for these verifications. Because of these and other characteristics, Bitcoin fosters a sense of community among its users, which is one of its many ardent supporters (Miller, 2016).

Cryptography is incorporated into the design of cryptocurrencies, which is another significant element. This shows up for Bitcoin as asymmetric encryption, often known as public-key cryptography. Using a private and public key, asymmetric encryption enables the generation of a digital "signature" that is used to approve or authorize transactions. Asymmetric key cryptography generates and verifies signatures using a pair of private and public keys, respectively. Because of the computational difficulty of the algorithm used to produce these keys, determining a private key from knowledge of the public key is almost impossible (Miller, 2016). To put it simply, a cryptocurrency is a digital currency that is becoming more and more accepted worldwide. It is a digital currency with many applications.

Digital economy on the other is seen as the economy that is more concerned with digital and computing technologies. The economy covers almost all aspects of our lives ranging from social, education, financial etc.

Section II of the paper presents an overview of cryptocurrency while section III introduced the idea of digital economy. In section IV, Nigeria's digital economy is presented while section V highlights cryptocurrency and the Nigeria's digital economy drive. Finally, section VI concluded the paper.

OVERVIEW OF CRYPTOCURRENCY

Cryptocurrency is a type of virtual money that is generated and transaction verified through the use of encryption, or cryptography. New currencies are produced through a process known as mining, and transactions are published to a public record known as a Transaction Block Chain. A cryptocurrency transaction must be verified, and mining is the process that adds transaction records to the public ledger (the Blockchain). New cryptocurrency units are also added to the system (Mukhopadhyay et al., 2016). Figure 1 illustrates the basic concepts of cryptocurrencies.

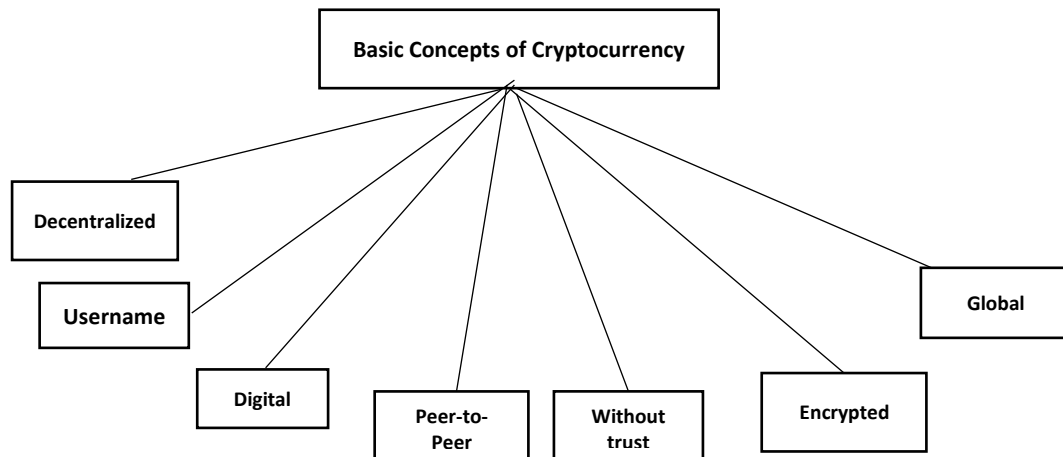


Figure 1: Basic concept of cryptocurrency. (Amsyar et.al, 2020)

Since these are the common terms used to convey the notion of cryptocurrency, the reader must understand the principles in figure 1. In this context, "digital" refers to the fact that bitcoin only exists on computers; it is not represented by coins, bills, or other physical objects. In this sense, the term "decentralized" refers to cryptocurrencies without a mainframe or central server. It is routed through a network of thousands of computers, or media. Peer-to-peer refers to the way that cryptocurrency is connected by one person and shared online with other people. Users communicate directly with one another without the involvement of third parties like banks or other payment systems because this system does not have any. In contrast to typical banking transactions, which call for a customer's personal information, cryptocurrency transactions only require the user's username rather than their personal information. Cryptocurrency users demand autonomy over their finances and personal information. Another key idea in this context is encryption, or cryptography, in which each user is assigned a unique code that can safeguard their personal information and virtually prevent it from being hacked. Since nearly every nation has its own currency, sending money to another nation or the entire world is a little bit different. Since cryptocurrency is a digital currency that can be delivered at any moment to any country, it can be used to remedy the issue (Amsyar et al., 2020).

It is possible to trace the origins of the first decentralized digital cryptocurrency back to "bit gold" (not to be confused with Bitgold), an idea that Nick Szabo worked on but never put into practice between 1998 and 2005. Bitcoin pioneer David Chaum's DigiCash, a company founded in 1989 that attempted to innovate digital currency, Wei Dai's b-money, a conceptual system published in 1998 that Satoshi cites in the Bitcoin white paper, and "e-gold," a centralized digital currency that began in 1996, are all noteworthy early mentions, even though bit gold is widely considered the first precursor to bitcoin. Having said that, the history of modern digital money began in 2008 with the publication of a paper by an unknown individual or group known only as Satoshi Nakamoto, which described the future Bitcoin (Beretsen and Schar, 2018). When Bitcoin was developed in 2008, it became the first decentralized digital currency. Then, in 2009, it became public.

Though it is the most divisive and well-known cryptocurrency available, Bitcoin is regarded as the first decentralized digital currency. Its many benefits are causing it to grow quickly in many locations. People in the USA's North and South utilize and accept Bitcoin on a large scale. Bitcoin was adopted by several companies (Deepika and Kaur, 2017). Most people who utilize it are merchants or those in the technological industry. Bitcoin's many benefits have led to its acceptance as a common means of payment for goods and services. However, some sellers don't

take Bitcoin payments straight; instead, they employ an intermediary channel to take Bitcoin payments before converting them into fiat money. Many companies such as WordPress, subway, Microsoft, Dell, Stream and The Internet archive accept Bitcoin as a mode of payment (Deepika and Kaur, 2017).

DIGITAL ECONOMY

According to Carlsson (2002), the digital economy is also one that is built on digital and computing technology, with a focus on digital technologies. It is also known as the "new economy" or the "Internet Economy." It basically encompasses all actions related to business, economics, society, culture, etc. that are made possible by the internet and other digital communication technologies. According to Bukht and Heek (2017), the main elements of the digital economy are as follows:

- i. e-business infrastructure
- ii. e-business and
- iii. e-commerce

We have witnessed the remarkable development and advancement of digital platforms over the past fifteen years or so, as well as their impact on our daily lives. Consumers are now impacted by content they view on many social media sites, including Instagram, Twitter, and Facebook. Thus, one method to take advantage of this opportunity is through the digital economy. Thus, we can conclude that the digital economy has permeated practically every element of our lives, including banking, healthcare, education, and entertainment.

We can conclude that practically every nation stands to gain from the digital economy given the wide spectrum of acceptability and adoption of digital technology. According to a 2016 Oxford Economics analysis, the digital economy is estimated to be worth \$11.5 trillion, or around 16% of the world economy. In ten years, it is also predicted that the global digital economy would make up 25% of the GDP. The World Economic Forum projects that by 2022, more than 60% of the world's GDP will be digital.

Benefits of Digital Economy

The digital economy has spawned a plethora of novel trends and business concepts. Nearly every major global corporation, including Google, Apple, Microsoft, and Amazon, has its roots in the digital realm (Statista. (2024). The following are some advantages of the economy based on (Yang & Tan, 2023):

1. **Encourages Internet Use:** When you stop to think about it, you can conduct much of your everyday work online these days. The internet, which started in the USA and has grown significantly since then, is now a global network. As a result, investments in everything pertaining to digital communication, hardware, software, services, and technological research have increased dramatically. Thus, the current state of the economy has guaranteed that web-based enterprises and the internet will endure.
2. **Growth in Online Sales:** In the past ten years, companies that embraced online commerce and adapted to the internet have prospered. The e-commerce industry has experienced rapid growth due to the digital economy. The digital economy has not only made direct selling easier, but also buying, distribution, marketing, creating, and selling.
3. **Electronic Products and Services:** The days of music CDs and LPs, and movie DVDs, are long gone. We can now purchase these products digitally. Tangible products are no longer necessary. The same holds true for other services like insurance and banking. If you can complete all of your transactions online, there's no reason to go to your bank. In light of this, several products and services in the digital economy have undergone full digitization.

4. **Openness:** In the digital economy, the majority of transactions and payments take place online. Cash transactions are dwindling in frequency. This promotes greater economic transparency and a decrease in black money and market corruption. In order to support the digital economy, the government actually encouraged online transactions during the demonetization.

Drawbacks of the Digital Economy

The following are a few disadvantages of the digital economy:

1. **Employment Loss:** We rely less on human resources the more reliant we are on technology. The development of the digital economy can result in many job losses. Less human resources are needed when processes become increasingly automated. Consider internet banking as an example. (Zhao et.al 2021)
2. **Insufficient Expertise:** Complex technology and processes are needed in the digital economy. Professionals with expertise and training are needed to construct the platforms and maintain them. These are hard to come by, particularly in semi-rural and rural locations. (World Economic Forum, 2022)
3. **Excessive Outlay:** A robust infrastructure, a well-functioning Internet, robust mobile networks, and effective telecommunication are necessary for the digital economy. This entire process takes a lot of time and money. The process of building infrastructure and networks is incredibly slow, laborious, and expensive in a developing nation like ours.

Let's now examine the idea of the digital economy in the context of Nigeria, that is, how the nation views it and what plans it has for the future. The National Digital Economy Policy and Strategy (2020-2030), created and introduced by the Federal Ministry of Communications and Digital Economy in 2019, will be the focus of the following portion of the paper's analysis of Nigeria's digital economy.

NIGERIA'S DIGITAL ECONOMY

The National Digital Economy Policy and Strategy (2019) will be the focus of this section. Any component of the economy that is built upon or propelled by digital technologies is referred to as the "Digital Economy" in the policy statement. The document also outlines eight pillars that are intended to hasten Nigeria's digital economy's growth. These Foundations are:

- i. **Developmental Regulation:** Enacting laws and regulations that are appropriate for the ICT and digital sectors in order to promote and enhance development.
- ii. **Digital Literacy and Skills:** This would establish policies that will allow the Federal Government to train a large number of Nigerians in digital literacy and skills.
- iii. **Solid Infrastructure:** This will concentrate on the installation of both mobile and fixed infrastructure, which will raise the nation's broadband penetration rate.
- iv. **Service Infrastructure:** This refers to how the government's digital services are supported and how to offer strong digital platforms that propel the digital economy.
- v. **Soft Infrastructure:** Increasing public trust in digital technology use and enabling participation in the digital economy
- vi. **Development and promotion of Digital Services:** Creating a digital environment that is supportive of Innovative Driven Enterprises (IDE) and Micro, Small, and Medium-Sized Enterprises (MSMEs) in order to foster innovation.
- vii. **Digital Society and Emerging Technologies:** This includes guiding entrepreneurs in emerging technologies and ensuring that their solutions are implemented, as well as the growth of the digital economy to influence the lives of all citizens.

- viii. Indigenous Content Development and Adoption: Creating a policy that, in accordance with President Obama's Executive Orders 003 and 005, gives precedence to Nigerians with digital skills for government-funded projects.

It is evident that the Federal Government is working to put those pillars into practice through the appropriate Ministries and Agencies. For example, the National Information Technology Development Agency (NITDA) established an online academy during the COVID-19 lockdown to provide civil servants, students, and even the general public with free training on a variety of digital skills. This aligns with the Digital Economy Policy's second pillar. Similar to this, the Federal Ministry of Communications and Digital Economy started the Digital Nigeria program to provide Nigerians with free online training in digital literacy. The program was established in partnership with Microsoft and other international organizations.

In addition to increasing the productivity and efficiency of already-existing businesses, the digital economy will give rise to new technical platforms and enterprises. One of the areas of Nigeria's GDP that is expected to expand the fastest is ICT contribution. In the second quarter of 2019, ICT made up 13.85% of Nigeria's GDP, more than oil and gas, which made up 8.82%. Over the following five years, the implementation of the digital economy strategy will treble ICT's GDP contribution.

CRYPTOCURRENCY AND NIGERIA'S DIGITAL ECONOMY

In this part of the paper, we will examine the role cryptocurrency plays Nigeria digital economy drive. Finextra (2019) stated that cryptocurrencies have the potential of boosting both the social and economic growth of any country being it a developed or developing country. This is achieved by giving easier access to capital as well as other financial services.

Users in Nigeria are starting to accept cryptocurrencies, particularly those working in the information technology sector. Nonetheless, the Nigerian government has temporarily banned cryptocurrencies and issued a warning to commercial banks not to deal with them through the Central Bank of Nigeria (CBN) and the Security and Exchange Commissions. Agbo and Nwadior (2020) gave some of the economic benefits of cryptocurrencies which include:

1. Beneficial rise in economic activities
2. Great opportunities for poorly banked areas
3. Low transaction cost
4. Increased transparency of transactions
5. More power to entrepreneurs etc.

We deduced that the digital economy is an economy that centers around digital technologies based on our definition of the term. It's important to keep in mind that cryptocurrencies are forms of digital money. We can now observe how digital currency can affect the digital economy as a result of this.

A significant influence of virtual money on the digital economy is the rise in the limitations for online transactions. The amount that a person can spend on a daily, weekly, or monthly basis is unlimited here. Users tend to prefer utilizing cryptocurrencies to pay for goods and services from businesses that accept it as payment because it allows them to spend as much as they like once they have enough balance in their account.

Here's another thing to consider: cryptocurrencies contribute to a rise in digital literacy. This is so that there is no need to visit a bank branch or an agent because all transactions are

completed online. Consumers become accustomed to doing transactions through digital devices and online resources like the internet. They make payments, transfer and receive money, sign up for online courses, buy products or items online, and so on.

Because no banking information or ATM card data are needed to complete a transaction, users of cryptocurrencies feel secure about their transactions. This is among the key explanations for why cryptocurrency is deemed highly appropriate by IT specialists for the majority of online transactions. They will be able to pay for subscriptions to various internet services, pay for licenses, and so on.

Blockchain technology is used in the development of cryptocurrency. Blockchain technology holds great promise for resolving important issues in agriculture. Farmers can increase their farming capacity by having more access to agricultural financing through the use of blockchain technology. We can declare that the issue of food shortage has been overcome and that food security has increased if farming capacity is increased (Peter and Akadiri, 2020).

However, cryptocurrency is still facing a lot of challenges Nigeria and a lot of countries in the world. Some of the challenges faced in Nigeria are:

1. Low level of acceptability due to Government policy. As stated earlier, Nigerian Government have currently banned cryptocurrency operations.
2. Low level of awareness or understanding of what and how cryptocurrency operates etc.

CONCLUSION

This paper discussed digital currency also known as the cryptocurrency and then give an overview of digital economy. It also examined the Nigeria's digital economy policy where 8 pillars of the policy were briefly discussed. The paper then sees how cryptocurrency impacts the Nigeria's digital economy such as increased in online transactions, increase digital literacy, user's feels safe making their transactions using cryptocurrency. It also highlights how cryptocurrency is used in the agricultural sector as a helper to accessing agricultural finances to improve food production and reduce food scarcity. On a general note, if cryptocurrency can be legalized by the Nigerian Government and the controlled efficiently by relevant financial institutions, it is going to bring a drastic improvement in the digital economy of the country.

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