

## **Digital Currency in Indonesia (Prospects and Challenges in Inclusive Financial Reviews)**

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### **ABSTRACT**

Who controls global finance? Digitalization is a necessity that will disrupt every area of human life. Money is like 'blood' in the economy. If the currency is disrupted then all areas of human life are also disrupted. Private versions of cryptocurrencies have disrupted the global financial system controlled by Central Banks. Central Bank Digital Currency (CBDC) is the currency version of the Central Bank. Using primary data and reference studies on Digital Currency. Several empirical challenges and opportunities in adopting digital currencies such as increasing the effectiveness, efficiency, and accessibility of individuals to financial service facilities. The right, reliable and trusted Digital Currency model can increase the utility of transactions for individuals and the economy as a whole. Some of the main challenges of digital infrastructure, security systems, Integration, Innovation of new services, disintermediation, transparency and efficiency. The ability to overcome these challenges can increase financial sector.

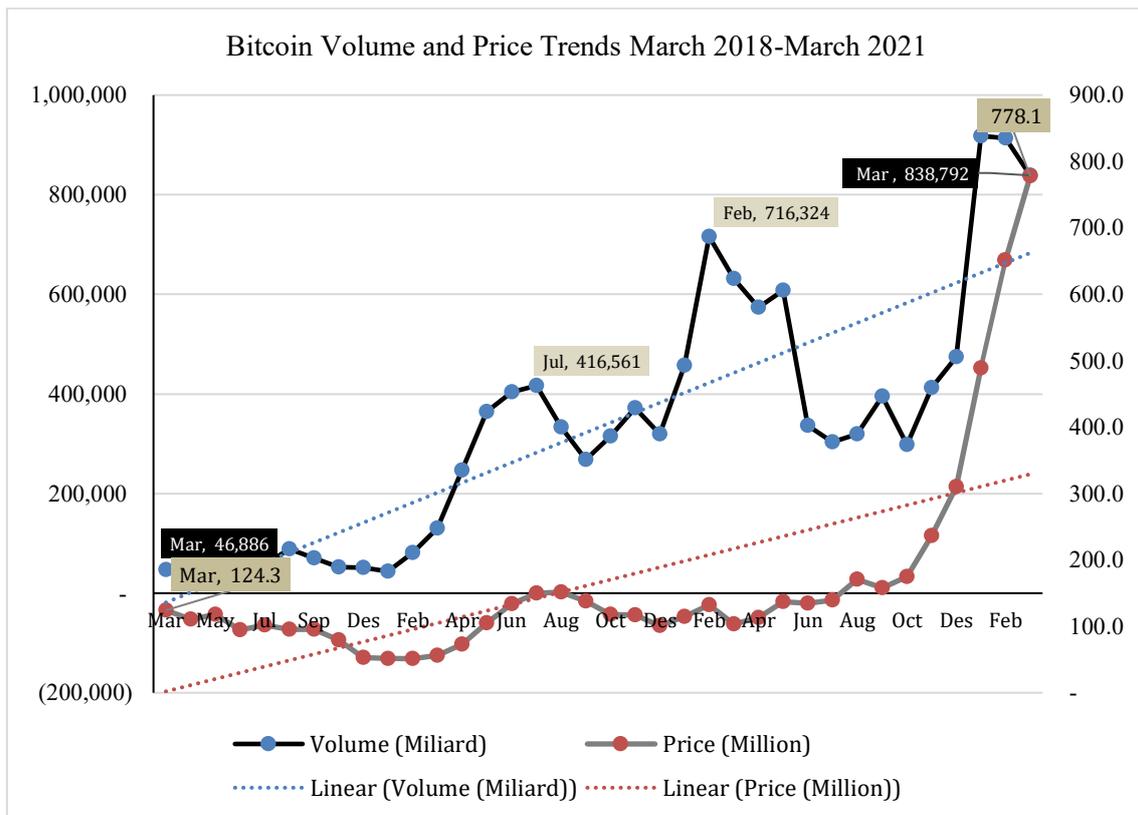
**Keywords:** Digital Currency; Cryptocurrency; Inclusive; CBDC

### **INTRODUCTION**

Who controls the world's finances: government or private through markets? The existence of Bitcoin as a currency / digital asset disrupts the financial system that has been controlled by financial authorities, such as the Central Bank. Currency is the latest trend in financial technology. In the future, it is estimated that there will be a Currency War among super power countries. The development of digital technology and the financial industry around the world is integrating new and innovative digital technologies and products that take full advantage of digital transformation. In the financial sector, one of the latest developments in digital currency is known as Central Bank Digital Currencies (CBDC) which offers more diverse money formats of central bank. CBDC are set to have far-reaching economic and financial implications, both locally and globally.

The Central Bank will issue a CDDBC in response to the presence of Bitcoin as a private version of a digital currency pioneer based on Blockchain technology. This new technology allows no centralized control. In the financial sector, the Central Bank has full power to control the circulation of money in a country. It is threatened by the presence of Blockchain technology, which allows transactions among parties to occur without any authority or intermediary party that has been the core business of the Central Bank.

Bitcoin (BTC) digital currency created by an individual/community calling themselves 'Satoshi Nakamoto' in 2009. A year after the 2008 global financial crisis. Based on a paper entitled "Bitcoin A Peer-to-Peer Electronic Cash System" written by Satoshi Nakamoto, it is a peer-to-peer version of electronic money that allows online payments to be made directly from one party to another without going through the intermediation of financial institutions. This is a threat as well as an opportunity for the Central Bank.



Source: Coingecko.com, 2021 (3)

**Figure 1: Bitcoin Volume and Price Trends March 2018 – March 2021**

Aggressive increase in Bitcoin volume and price. An increase in Bitcoin volume by 1689% during the period March 2018 to March 2021 or an increase of equivalent to 791.9 trillion rupiah. Bitcoin price increased by 526% or the equivalent of 653.8 million per coin. Bitcoin's biggest volume change was 112% in July 2018, while Bitcoin price increased by a high of 58% in January 2021, lowest in December 2018.

The increasing in demand for the digital currency 'Bitcoin' as more and more companies use the currency to transact. In the period of February 2021 about 162 companies use bitcoin for trading transactions, of which there are 19 large companies (paybis.com). Among the biggest

companies that use Bitcoin are Microsoft, AT&T, BMW, NordPVN, Rakuten, etc. Consists of various companies, technology, travel, etc.

In 2014, Bank Indonesia (BI) issued a notice regarding Bitcoin. BI prohibits the use of Bitcoin as a means of payment (legal tender) throughout Indonesia. In 2018, it has raided a number of outlets in Bali that offer product purchases using Bitcoin. Based on Law no. 7 of 2011 concerning Currency and Law no. 23 of 1999 which was later amended several times, most recently by Law no. 6 of 2009, Bank Indonesia stated that Bitcoin and other virtual currencies are not legal currencies or payment instruments in Indonesia.

BI emphasized that virtual currency has the potential to become a bubble in the payment system. BI as the payment system authority prohibits all payment system service providers, be it principals, switching providers, clearing providers, final settlement providers, issuers, acquirers, payment gateways, electronic wallets, as well as fund transfers to process payments with virtual currencies (<https://www.ppatk.go.id>).

The same prohibition also applies to financial technology providers in Indonesia, both banks and non-bank institutions. This has been previously regulated through Bank Indonesia Regulation 18/40/PBI/2016 concerning the Implementation of Payment Transaction Processing and in PBI 19/12/PBI/2017 concerning the Implementation of Financial Technology.

In 2020, Commodity Futures Trading Supervisory Agency (BAPPEBTI) issued regulation Number 3 of 2020 concerning the 3<sup>th</sup> Amendment to the Regulation of the Commodity Futures Trading Supervisory Agency Number 5 of 2019 concerning Technical Provisions for the Implementation of the Physical Market for Crypto Assets on the Futures Exchange, it is necessary to stipulate Regulation of the Commodity Futures Trading Supervisory Agency concerning the List of Crypto Assets that can be traded in the Crypto Asset Physical Market. The regulation certifies that 229 crypto assets can be traded on the crypto market.

At the beginning of 2021, it was crowded in the media that BI would launch a CBDC. BI Governor Perry Warjiyo stated that this step is in line with the trend of central banks in various countries which will also issue CBDCs. Even Agustín Carstens (General Manager of BIS) said BTC would end up collapsing. He also criticized BTC as an “it has no value backing” currency (BIS, 2021). Based on Bapepti data, the number of active investors in cryptocurrency in the first quarter of 2021 reached 4.2 million people and the recorded transaction value reached 126 trillion rupiah.

Bitcoin “has no value support” as a paradox. Because not all money used as a transaction tool has a physical cash back-up. For example, the Central Bank of the US Federal Reserve reports the global supply of dollars is at \$20 trillion, only about \$2 trillion in physical money. The remainder is only recorded in electronic records as digital dollars Fractional Reserve Banking (FRB) system which means banks only need to keep a small part of the money deposited and can use most of it.

It appears that the digital currency phenomenon is like a field that brings together two large entities between those who are pro currency centralization and those that are pro currency decentralization. Jason Leibowitz (Wall Street Professional) suggests that Bitcoin is a response to concerns that banks are “too big to fail.” Banks that fail, could be the cause of systemic economic collapse. Bitcoin was born as an answer to the question: “where can one keep the treasure if the financial system fails?” Meanwhile, from the perspective of sustainability, sustainability and access to finance are fundamental to realizing a more inclusive global economic order.

Therefore, it is important to review more clearly and further how the conflict between Digital Currency produced by the community and Digital Currency (Central Bank Digital

Currency / CDBC) under the control of the Central Bank authorities. What are the challenges and opportunities for Digital Currency in the future, and how from an inclusive financial perspective views this phenomenon.

### **Community based cryptocurrency**

Crypto technology is a technological innovation to secure communication among transacting parties and third parties cannot interfere with the confidentiality and integrity of the transaction data sent. Crypto technology is enhanced by Blockchain Technology which connects users in a decentralized manner with a peer to peer system to form a ledger of transactions using crypto technology as a way of verifying transactions (Bigmore, 2018). Once a transaction is recorded, the ledger cannot be changed without the consent of the majority of users in the blockchain network. Blockchain consists of Public Blockchain and Private Blockchain, as well as Internet and Intranet on a computer network (Smith, 2015).

Since 1971, the global financial system has used a fiat money system which is controlled by the Central Bank (Duncan, 2012). However, the existence of Bitcoin as the antithesis of fiat money, is not the first time that Central Bank's currencies have faced challenges. Liberal economists, especially the Austrian school, have long criticized the Central Bank's competence and reliability to control the circulation of money (Hayek, 1990). Since 2009, after the 2008 financial crisis, Bitcoin and other Cryptocurrencies have grown rapidly.

Based on data from Statista (2021) the number of cryptocurrencies has increased significantly. On the average, it increases by thousands of percent every year. From 2013 to 2021(8) the number of cryptocurrencies increased by 8445 percent, or the equivalent of 5574 cryptocurrencies. The highest increase was in July 2021, increasing by 5978 cryptocurrencies or equivalent to 9058 percent. The decline in August 2021, usually occurs because some cryptocurrencies are no longer listed on the crypto market or exchange, or commonly referred to as delisting.

Since Satoshi Nakamoto as an anonymous entity, published a paper entitled "Bitcoin: A Peer-to-Peer Electronic Cash System" (Nakamoto, 2008). Bitcoin as a digital currency is different from fiat currency. Digital currencies that do not require third parties in transactions and whose existence is not controlled by the state through the Central Bank, are developing very quickly. In contrast to the Statista data above, Coingecko as of October 11, 2021 recorded 9643 coins, 504 exchanges, with a market capitalization of \$2,433 billion.

Cryptocurrencies are considered as digital assets that run on a decentralized blockchain system and without intermediation. Crypto assets can be used for internet-based virtual transactions. Cryptocurrency uses cryptography and blockchain technology to secure and verify every transaction so that nobody can double-spend (spending the same asset twice in the digital world). Cryptocurrency is the realization of the ideology of anarchism in the field of digital currency. Anarchism which means 'anti-government', 'anti-government intervention'. Through a peer-to-peer (P2P) networking system, it is a network architecture system that is distributed to every user who has the same rights. This system distinguishes it from a client-server system, which is centralized and controlled, where each user's data is controlled by a server computer.

There are 4 types of tokens according to the definition of the Swiss financial regulator FINMA (Swiss Financial Market Supervisory Authority) namely: Firstly, Utility Token, This

token is used to get access to certain parts of a project, such as to access certain products or services. Secondly, Payment Token, This token has almost the same function as coins, but is more specific as the only payment use for services or goods. Third, Security Token, This token is a token issued by initial token sale (ITS) or ICO, which people use to invest their money. Fourthly, Equity Token, This token is a token that represents equity or shares in the company.

Here are the changes in price, market cap and volume of the six major coins.

Table 1. Changes in price, Market capitalization, and Total Volume of six coins with the top 6 market caps, period 2018 (1) to 2021 (10)

<b>Cryptocurrency</b>	<b>Price (%)</b>	<b>Market capitalization (%)</b>	<b>Total Volume (%)</b>
Bitcoin (BTC)	352	407	802
Ethereum (ETH)	259	336	699
Binance (BNB)	2.997	5.006	1.178
USD Trust (USDT)	6	4.455	2.404
Cardano (ADA)	196	266	929
Ripple (XRP)	-39	-26	42

Based on the table above, overall, changes in cryptocurrency prices, market capitalization, and cryptocurrency volumes show a positive and progressive upward trend. Only XRP has decreased, but total volume continues to increase by 42 percent. Meanwhile, Binance experienced the most accelerating increase of up to thousands of percent. USDT as a stablecoin, it appears that its price changes over the last 4 years only experienced a 6 percent increase, while Binance's 2,997 percent. USDT price changes are only single digits, but the increase in market capitalization and total volume increases by thousands of percent. this is due to some exchanges using USDT as a deposit before buying other coins on exchanges (trading intermediaries) in the Crypto market. Another reason, because the USDT price is relatively stable so that the risk of volatility is not too threatening to investors or traders.

Overall, the coins with clear technological fundamentals, supported by reliable developers, the cryptocurrency roadmap is carried out consistently according to the schedule on the roadmap, and supported by a solid community, the cryptocurrency is very worthy of being an investment instrument. Furthermore, cryptocurrencies can reduce transaction costs and increase consumer welfare and overall economic efficiency (Kee-Youn and Lee, 2019). Although cryptocurrency has positive benefits for society, it also carries risks and challenges for financial system regulators (Yang, 2016).

### **Central Bank version of Digital Currency**

Central bank digital currency (CBDC) is a digital version of fiat money controlled by the Central Bank authority. Like China's Digital Currency Electronic Payment (DCEP or DC/EP), or like Sand Dollar Bahamas which was launched in 2020. A number of countries have conducted trials, some have even issued digital currencies, Indonesia itself is still in the research and study stage. what is the ideal model of digital rupiah?

CBDC will be issued by Central Bank authorities in various countries in the world to respond to the increasingly massive influence of Cryptocurrencies. Felicity Duncan (2021) suggests CBDC can be confusing because most fiat money has so far produced money (in digital form) with only a few percent backup of physical money. For example, the US Fed reports that

globally the number of dollars in circulation reaches \$20 trillion, and only about \$2 trillion is in physical form.

Conversely, in the case of CBDC, if the Central Bank will issue digital tokens directly. Then what will commercial banks do, if every customer keeps their CBDC in a Central Bank account, directly, due to the abolition of intermediary institutions, as a depository of customer funds and replaced by a digital currency platform. In practice the system in the CBDC above is very unlikely because it will greatly disrupt the stability of the banking system. So that CBDC can be considered as a digital substitute for paper money – digital rupiah. However, if you adopt the system used in Cryptocurrencies, which eliminates intermediary institutions such as commercial banks, it will actually radically disrupt the banking system and architecture.

- Decentralized cryptocurrency, centralized CBDC;
- Cryptocurrencies offer anonymity, CBDC will allow central banks to know exactly who holds what;
- Cryptocurrencies are generally created using blockchain, CBDC will likely run on different technology platforms (although it is possible to use blockchain).

CBDC is not a stablecoin, which is a form of cryptocurrency that is pegged to another asset – an example is Tether (USDT), which is pegged to the US dollar one-on-one and backed by dollar reserves. If the CBDC is not going to be pegged to a fiat currency and neither is it a cryptocurrency then it can be called just another form of fiat currency, or the dollar version of the CBDC will be the same as the dollar bill.

Bank Indonesia is currently still reviewing and conducting assessments to see the potential of Central Bank Digital Currency (CBDC) with the Indonesian economy, which can have implications for different designs and architectures to be chosen and mitigate risks properly. At the same time avoiding high volatility such as Cryptocurrencies. Although Cryptocurrencies are treated as digital assets such as gold, it is possible that there are individuals or institutions that use them as transaction tools.

Whereas based on Law Number 7 of 2011 that the legal tender in the Unitary State of the Republic of Indonesia (NKRI) is Rupiah, so that Cryptocurrencies such as Bitcoin, Ethereum, Ripple, ADA, and others are not legal tender in Indonesia.

According to Aleksy Grym, et.al (2017). CDBC refers to several criteria:

- Central bank issues fiat money in digital form;
- Anyone has the right to hold the digital money;
- CDBC is an interest-free conversion of banknotes and digital money with a one-to-one ratio;
- It can be used as a means of payment in retail payment transactions;
- Transactions between two parties with CDBC do not require third party verification.

Therefore, CBDC is a digital currency issued by the central bank to be used as an alternative legal tender (legal tender) like cash.

From the monetary side, Bank Indonesia sees that there will be no difference with current conditions in society, such as the use of currency (paper money and coins), money stored in accounts, to the convenience of using Digital Banking, Electronic Money (Electronic Money), and Wallets. Electronics (Electronic Wallet). With the CDBC, which will be adopted by the

Central Bank, it will provide convenience in digital transformation for the community, while from the Central Bank's side its management will be easier because it is decentralized.

Although BI has not yet explained how the decentralization model will be applied in adopting the CBDC, the architectural, model, and institutional synchronization challenges will be formidable challenges. Perry Warjiyo (BI Governor, 2020) stated that there are three challenges in issuing Digital Rupiah. Firstly, designing digital currency so that it can be issued, circulated, and can be controlled by state authorities. At the same time ensuring that CBDC can be used as a means of payment such as paper money. Secondly, integrating payment system infrastructure with financial markets. Payment integration and financial markets that must exist to support CBDC digital currency issuance. Third, the case of choosing a digital platform where digital money will be issued. He said there are several options that BI is considering, namely blockchain, distributed ledger technology (DLT) or stablecoin (Stabelcoin).

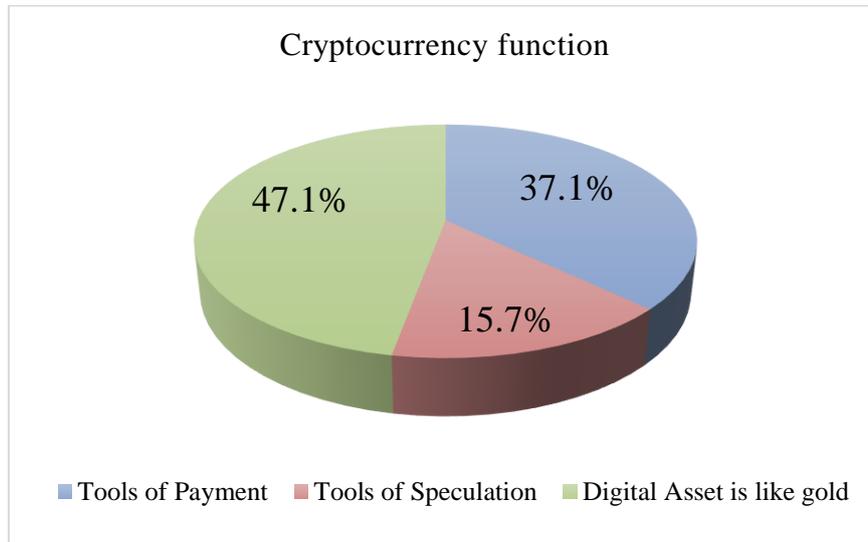
BIS (2018) stated that there are 3 CBDC models currently being studied by the Central Bank, namely Indirect CBDC, Direct CBDC, and Hybrid CBDC.

The first model, indirect CBDC where claims are made to intermediaries (commercial banks), while the central bank only makes payments to commercial banks. Second, direct CBDC where bills are made directly to the central bank. And third, hybrid CBDC where the bill is made to the central bank, but the commercial bank makes the payments.

CBDC can be confusing because most fiat currencies, such as dollars, pounds, euros, yen, rupiah, and so on – already exist in electronic form. While the US Federal Reserve reports the global dollar supply stands at \$20 trillion, only about \$2 trillion is in cash. The rest is only recorded in electronic records as digital dollars.

## **COMMUNITY RESPONSE TO DIGITAL CURRENCY**

Based on the results of empirical research on public perceptions of Cryptocurrency in Indonesia, it is obtained a description of the public's perception of the use of Cryptocurrency. What if the opportunity to digitize the rupiah (CBDC) is used as an opportunity to implement a redenomination policy. Redenomination is a process of simplifying the mention of the rupiah currency, without changing its real value. Based on the literature review, there are a number of challenges in adopting a digital currency.

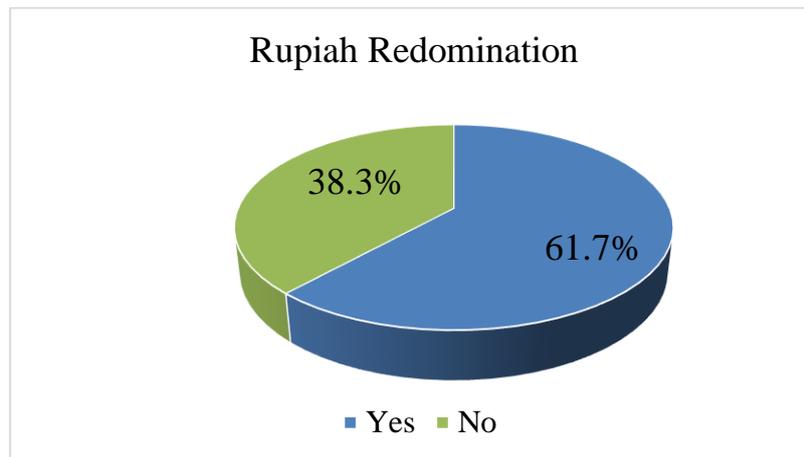


**Figure 2. Cryptocurrency function**

Based on the picture above shows the response of respondents to the use of Cryptocurrency. Of the 940 respondents, about 46.8 percent or equivalent to 443 respondents chose Cryptocurrency to be used as a digital asset, as well as the function of gold. A total of 349 respondents thought it could be used as a means of payment or a means of transaction. The remaining 148 or, 15.7 percent chose, cryptocurrencies as a means of speculation.

Based on Article 23 B of the 1945 Constitution jo. Article 1 number 1 and number 2, Article 2 paragraph (1) as well as Article 21 paragraph (1) of the Currency Law, Rupiah is the only legal tender in the Unitary State of the Republic of Indonesia (NKRI) and every transaction that has a specific purpose of payment carried out in the territory of the Republic of Indonesia must use Rupiah.

The policy on the use of Rupiah for transactions within the territory of the Republic of Indonesia is regulated in a number of legal provisions, namely Law Number 7 of 2011 concerning Currencies. This regulation was revealed to be Bank Indonesia Regulation Number 17/3/PBI/2015 Year 2015 concerning Mandatory Use of Rupiah in the Territory of the Unitary State of the Republic of Indonesia and Circular Letter Number 17/11/DKSP concerning Mandatory Use of Rupiah in the Territory of the Unitary State of the Republic of Indonesia. Regulation regarding money is very important. Money is legal tender. Money is also often seen as wealth owned that can be used to pay a certain amount of debt with certainty and without delay (Wibowo, 2004).



**Figure 3. Rupiah Redomination**

As many as 61.7 percent of respondents agreed if the rupiah currency was reduced to zero. The redenomination of the rupiah has been stated in PMK No. 77/PMK.01/2020 related to the strategic plan of the Ministry of Finance 2020-2024. This plan has been discussed since Darmin Nasution served as Governor of Bank Indonesia from 2009 to 2013. Redenomination is a process of simplifying the mention of the rupiah currency. In a study by Bank Indonesia and the Ministry of Finance, redenomination will eliminate 3 zeros in the current nominal currency, but will not reduce its value. For example, the nominal amount of IDR 1000 to IDR 1.

### **The Challenge of Adopting a Digital Currency**

According to Accenture (2019) and Smith (2015), there are 6 challenges as well as opportunities in adopting CBDC.

a. **Infrastructure**

Information technology infrastructure (IT) is a framework that supports the operation of a system with various components of hardware, software, database, network, security and IT management. The function of the Information Technology Infrastructure (IT) here is to facilitate the operation of all kinds of data storage, processing and analysis flows, which ultimately become material for making fast and accurate business decisions. Infrastructure relates to the operation, maintenance and integrity of the network that operates the CBDC platform. Infrastructure between the central bank and commercial banks, similar to the maintenance of the cash cycle of physical money.

Banks need to connect to large value payment systems to exchange CBDC reserves and maintain electronic files to store CBDC transaction data. However, IT "Infrastructure" is often narrowed down to technological facilities that are physically tangible (cable networks, hardware, and buildings), infrastructure also contains various "non-physical"

things, including socio-cultural structures, ways of doing, and the aspirations of the community where the infrastructure is located (Christine L. Borgman, 2000).

Therefore, the readiness of hard infrastructure and soft infrastructure, such as habits, legal systems, cultural systems, and people's mindsets are the determinants of success in adopting CBDC in Indonesia.

b. security system

Through CBDC, banks will remain intermediaries between central banks, non-banks and consumers. Consumers will need e-wallets to store and transact at CBDCs, while banks will be responsible for issuing e-wallets based on existing Know Your Customer (KYC) and other prudential provisions. With this model, it means that the CBDC model is not much different from the central bank model with commercial banks that have been.

CBDC systems with security guarantees that can prevent illicit transactions, including money laundering and terrorism financing, need to be overseen by banks through existing oversight and precautionary principles that are integrated into e-wallet functions.

c. Integration

CBDC as a new form of money and a new payment system. The CBDC function needs to be integrated with banking applications and other online payment providers. The CBDC system must ensure that consumers can make transactions in real time, and that all transaction data is properly recorded on all networks, which will prevent system errors and duplicate transactions from occurring. CBDC as a medium that will integrate hard infrastructure and soft infrastructure in every consumer transaction.

d. New Service Innovation

If the CBDC system runs well, and consumers can transact online and other digital transactions in the CBDC system. This system provides an opportunity for banks to increase margins and offer new services amidst increasing digital activity. Transactions in CBDC can reduce the risk of faster transaction settlement and lower transaction costs, as well as better risk management because each transaction is more transparent.

In international transactions, CBDCs can be used to settle large-value transactions and facilitate security settlements with non-resident institutions. This will assist in expanding business opportunities on behalf of clients by enabling financial market deepening and expansion of more transparent banking-related services.

e. Disintermediation

Disintermediation is the process of removing intermediaries from the transaction process. In finance, disintermediation is the withdrawal of funds from intermediary financial institutions, such as banks, non-bank financial institutions and savings and loan associations, for direct investment. Consumers in CBDC with the disintermediation system can reduce transaction costs and increase efficiency.

In various financial transactions, the larger the transaction, the longer the transaction supply chain. With CBDC it should be able to reduce various institutions that act as intermediary institutions between financial service providers (in this case the Central Bank) and consumers. Long transaction bureaucracy can also lead to potential fraud in transactions.

The issue of disintermediation will change the institutional system or national banking architecture. Especially if the CBDC model taken is a direct or hybrid model, which will reduce some of the roles of Commercial Banks.

However, the process of issuing a CBDC followed by receipt of deposits at the central bank has the potential to create a conflict of interest for the central bank as regulator and supervisor. In addition, the problem of shifting public deposits from commercial banks to the central bank must be anticipated so that drastic changes do not occur that could threaten financial system stability. For example, in terms of funding, banks will undoubtedly lose some retail funding sources. In other words, the banking intermediation function in the financial system is disrupted and reduces the bank's income stream because the source of funds becomes more difficult.

f. Transparency and efficiency.

CBDC is a digital currency issued by the central bank to be used as an alternative means of legal payment (legal tender) like cash. The benefit of implementing CBDC is the ease of distributing money from the central bank to various banks in various regions, because CBDC distribution does not require cash transfers, only digital transfers are sufficient. If CBDC uses a direct or hybrid model with a decentralized system, this system can reduce or detect illegal transactions. The application of CBDC can also reduce the potential for financial crimes to occur, such as money laundering, money counterfeiting, and illegal transaction operations on the black market.

### **Inclusion Opportunity of Digital Currency**

The Bank for International Settlements (BIS, 2018) focuses on analyzing the potential implications of issuing CBDCs for payment systems and their implementation related to monetary policy transmission and financial system stability. There are several important things conveyed by the BIS, among others, as follows:

**First**, Digital Currency can improve transaction settlement efficiency. Several Central Banks analyze that digital currency can function as an alternative payment instrument that is safe, strong, and convenient. CBDC as an alternative to cash, therefore the central bank must ensure compliance with anti-money laundering, illegal transactions and financing of terrorist acts.

**Second**, the issuance of a CBDC may not change the basic mechanism of monetary policy implementation, including the use of monetary policy instruments such as open market operations by the Central Bank. Even though there are digital currencies, the demand for cash must still be accommodated. Because digital currency is issued by the Central Bank, of course, it must have more advantages compared to private digital currency. This superiority or attractiveness is needed in order to differentiate it from other digital currencies. Especially the advantage in stability.

**Third**, the issuance of a CBDC must be considered carefully and thoroughly. Further impacts that may occur on interest rates, intermediation structure, financial stability and financial supervision. Currently, the general assessment of Cryptocurrency is unstable, lack of investor and consumer protection, high volatility is considered not safe as a means of payment.

**Fourth**, CBDC can help streamline the direct relationship between the Central Bank and its citizens. When the use of cash is getting smaller, and people are dominantly using non-banking

services including digital money, the public's understanding of the functions and roles of the Central Bank is decreasing and they may even think they don't need it anymore.

**Fifth**, Redenomination Opportunity. Redenomination can be defined as simplification of the rupiah currency value without changing the exchange rate. Redenomination is different from cutting (value) money. In 2017, the Ministry of Finance together with BI proposed the Currency Redenomination Bill for the first time. Redenomination is targeted to be realized on January 1, 2020. However, the legal basis has not yet been released.

**Lastly**, digital currency enables the realization and achievement of the SDGs indicators, namely inclusive finance. Financial inclusion became a trend after the 2008 crisis, mainly based on the impact of the crisis on this group, the bottom of the pyramid (low and irregular income, living in remote areas, disabled people, workers without legal identity documents, and marginalized communities). which is generally unbanked which is recorded very high outside developed countries.

According to Bank Indonesia, there are various reasons for the community to become unbanked, both from a supply (service provider) and demand (community) side, namely price barriers (expensive), information barriers (don't know), product design barriers (suitable products) and channel barrier (appropriate means). Inclusive finance is able to answer this reason by providing many benefits that can be enjoyed by the community, regulators, government and private parties (Jan, 2018). Some of the benefits include increasing economic efficiency, supporting financial system stability, deepening financial markets, making a positive contribution to sustainable local and national economic growth, reducing inequality and the rigidity of the low income trap, so that it can improve people's welfare which ultimately leads to a decrease in income poverty levels.

According to Hidajat (2015) financial inclusion is an effort to eliminate all forms of price and non-price barriers to public access in utilizing financial services. Meanwhile, based on the Financial Services Authority (2017) financial inclusion is the availability of access to various financial institutions, products and services according to the needs and capabilities of the community in order to improve people's welfare. Financial Technology (Fintech) provides a number of conveniences to access Bank and Non-Bank financial institutions.

Furthermore, Rubini (2019) states that Fintech are companies that introduce innovation in their financial service activities through modern technology. Fintech also expands financial services with several variations, namely cryptocurrencies, machine learning, robo advice and the internet of things. With various variants of financial technology, it is easier for people to access financial services. A more comprehensive and integrated study between financial institutions, community readiness, regulators, in particular the government's willingness to adopt a more transparent, reliable, and trusted digital currency system with blockchain technology that allows transactions to be more pro to the benefit of the public sector better.

## CONCLUSION

Cryptocurrency is the antithesis of fiat money controlled by the Central Bank, as well as a manifestation of currency decentralization. CDBC as an adaptation model for disruption caused by Cryptocurrency. The research identified several empirical challenges and opportunities. The adoption of digital currency can increase the effectiveness, efficiency and accessibility of consumers to financial service facilities. The right, reliable and trusted Digital Currency model

can increase the utility of transactions for individuals and the economy as a whole. Some of the main challenges of digital infrastructure, security systems, integration, new service innovation, disintermediation, transparency and efficiency. The limitation of this research is access to the design of the Indonesian CDDB or 'Digital Rupiah' which will be launched by Bank Indonesia. Limited direct information from financial system regulators in Indonesia and Blockchain developers in Indonesia.

Issuance of CBDC or 'Digital Rupiah' is highly dependent on the model adopted by the authorities. If BI adopts the direct model, the banking architecture will change very significantly, the role of intermediary institutions may not be needed, it will have a major impact on conventional banks. If you adopt a hybrid model, the temporary model with the proliferation of fintech services will not have much impact on changes in the banking system. Therefore, a thorough study of the impact of adopting a CDDB and facing the challenges of digital currency in Indonesia requires the attention of all parties and institutions. The biggest disruption is the disruption of old players or old-fashioned mindsets that are not ready to adapt to blockchain technology which provides the potential for transparency for all which will have a good impact on the public interest and can ultimately increase the inclusiveness of financial institutions.

## REFERENCES

- Aleksi Grym, et.al (2017). Central Bank Digital Currency, BoF Economic Review, Bank of Finland, 2017. h2.
- Bigmore, R. (2018, May 25). A Decade Of Cryptocurrency: From Bitcoin To Mining Chips. Retrieved from The Telegraph: <https://www.telegraph.co.uk/technology/digital-money/the-history-of-cryptocurrency/>
- Bryan Michael Galvan & Kelly Le, China's New DCEP Could Fast-Forward the Nation into a Cashless Society(2020), available at <https://forkast.news/china-dcep-accelerate-nation-cashless-society-privacy-digital-currency/>.
- Damian, Bitcoin: Cara kerja dan Perbandingan dengan Mata Uang Konvensional. Makalah Kriptografi- SEM.IT 2012.
- Duncan, R. (2012). The new depression the breakdown of the paper money economy [EBook edition]. Hoboken: John Wiley & Sons, Retrieved from: [www.amazon.co.uk](http://www.amazon.co.uk).
- Hayek, F. (1990). Denationalisation of money : the argument refined : an analysis of the theory and practice of concurrent currencies. London: Institute of Economic Affairs.
- Hidajat, T. (2015). Literasi Keuangan. Semarang:STIE Bank BPD Jateng.
- Jan-Philipp Arps. 2018. Understanding Cryptocurrencies from a Sustainable Perspective. Jonkoping University, Business School.
- Kee-Youn Kang† Seungduck Lee‡. 2019. Money, Cryptocurrency, and Monetary Policy.
- Nera, J. (2018, Desember 21). Menyoal Bitcoin Sebagai Komoditi di Indonesia.
- Otoritas Jasa Keuangan. Peraturan tentang Perlindungan Konsumen Sektor Jasa Keuangan.Nomor 1/POJK.07/2013.

- Peraturan Menteri Perdagangan Nomor 99 Tahun 2018 Tentang Kebijakan Umum Penyelenggaraan Perdagangan Berjangka Aset Kripto (Crypto Asset)
- Rubini, A. (2019). *Financial Technology Made Easy* (3rd edition). Berlin:Walter de Gruyter Inc.
- Retrieved from blockchainmedia.id: <https://blockchainmedia.id/menyoalbitcoin-sebagai-komoditi-di-indonesia/>
- Otoritas Jasa Keuangan. Peraturan tentang Perlindungan Konsumen Sektor Jasa Keuangan.Nomor 1/POJK.07/2013
- Smith, J. (2015). *An Analysis of Bitcoin Exchange Rates*. 1-10.
- Undang-Undang No. 10 Tahun 2011 Tentang Perubahan Atas UU No. 32 Tahun 1997 Tentang Perdagangan Berjangka Komoditi.
- Wibowo, Eddi. 2004, *Hukum dan Kebijakan Publik*, Yayasan Pembaruan Administrasi Publik Indonesia, Yogyakarta, hal. 123
- Yang, M. (2016). *Cryptocurrency in China: Light-Touch Regulation in Demand*. SSRN Electronic Journal, . <https://doi.org/10.2139/ssrn.2792477>
- <https://tunismailalichair.my/2017/11/08/central-bank-digital-currency-a-monetary-policy-perspective/>
- <https://ekonomi.bisnis.com/read/20200707/9/1262564/mengenal-redenominasi-mata-uang-rp1.000-jadi-rp1>. Di akses pada september 2021
- <https://www.pajak.go.id/id/artikel/cryptocurrency-sebagai-aset-investasi-dan-perlakuan-perpajakannya>.
- <https://bicara131.bi.go.id/knowledgebase/article/KA-01038/en-us>.
- <https://www.intuition.com/cryptocurrency-vs-central-bank-money-does-the-future-of-digital-currency-lie-with-central-banks/> (Diakses 12 Septemebr 2021).
- <https://www.bi.go.id/id/> diakses 20 september 2021)
- <https://www.coingecko.com/en>, diakses 11 Oktober 2021).
- <https://money.kompas.com/read/2020/07/10/080200626/yang-perlu-diketahui-tentang-redenominasi-rp-1000-jadi-rp-1?page=all>, diakses 17 september 2021.