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Legal Analysis of *Central Bank Digital Currency* (CBDC) Regulation in the Indonesian Payment System: A Comparative Study with the Implementation of E-CNY in China and Sand Dollar in the Bahamas

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Abstract

This study examines the legal framework governing payment instruments in Indonesia and the development of Central Bank Digital Currency (CBDC) as part of the digital transformation of the financial system. This study focuses on two main issues: legal regulations related to legal tender in Indonesia and the role of CBDC in strengthening the national payment system. Using a normative juridical method through a literature study, this research analyzes legislation, Bank Indonesia policies, journal articles, and related literature. The results show that the Rupiah is the only legal tender in Indonesia, available in three forms: paper, metal, and digital. Bank Indonesia has full authority to issue and manage digital Rupiah, which is still in the development stage. The findings also confirm that the development of CBDC is not merely a technological innovation, but an important strategy to expand financial access, accelerate transactions, improve efficiency, and support digital economic growth. The study's conclusion emphasizes the importance of comprehensive preparation for CBDC implementation, including clear legal regulations, strengthening technological infrastructure, and educating the public about the use of digital payment instruments. Thus, this study provides an in-depth picture of the future of the

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	payment system in Indonesia, where digital currency will play an increasingly vital role.
	

INTRODUCTION

Humankind has entered a new era, where humans are making major, creative changes and transforming the way they think. This shift is driven by technological developments that harmonize the real world we experience every day, the virtual space created by technology, such as the internet, applications, and other devices, as well as aspects related to human life[1] . This new era is being felt throughout the world, including in Indonesia. The current new era is changing various sectors, one of which is the financial sector. This is evident in the emergence of *financial technology*[2] . One of the developments in financial technology is the emergence *of e-wallets* and digital/virtual currencies (*virtual currency)* or *cryptocurrencies*[3] .

The emergence of financial technology has made it easier for people to carry out transactions, starting from the use of debit or credit cards to the use of *e-wallets* such as Go-Pay, OVO, Dana, and ShopeePay, which are alternative methods for making transactions without having to carry a lot of cash. This is especially true with the *Covid-19* pandemic, which has forced people to reduce interaction. Bank Indonesia recorded that the value of electronic money transactions reached IDR 20.7 trillion in January 2021. This amount increased by 30.7% compared to the same period in the previous year, which was IDR 15.9 trillion.

Digitalization has changed the way humans conduct economic activities, marked by the emergence of cryptocurrencies that are currently popular among modern society. The growth of crypto assets has accelerated during a period of declining economic growth. Additionally, loose monetary and fiscal policies have been implemented worldwide, including in Indonesia. As such, crypto assets have the potential to enhance financial system inclusion and efficiency, but on the other hand, they also pose new risks that could impact financial, economic, and monetary stability.[4]
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Given that *virtual currency* systems are relatively unsafe due to their impact on monetary stability, governments in various countries have been inspired to create a

[1] Anwar, Muhkamat. (2022). Green Economy as a Strategy for Addressing Economic and Multilateral Issues. Journal of Taxation and State Finance (PKN), 4(1S), 343–356. https://doi.org/10.31092/jpkn.v4i1s.1905
[2] Nurullia, Syafira. (2021). Initiating the Regulation and Implementation of Central Bank Digital Currency in Indonesia: Ius Constituendum Framework. Journal of Judicial Review, 23(2), 275. https://doi.org/10.37253/jjr.v23i2.5014
[3] Emanuella, Claudia Saymindo. (2021). Central Bank Digital Currency (CBDC) as a Payment Instrument in Indonesia. Jurist-Diction, 4(6), 2243. https://doi.org/10.20473/jd.v4i6.31845
[4] Simran, Simran, & Adam, Richard. (2023). Legal Analysis of CBDC's Role as a Digital Payment Instrument Regulatory System in Indonesia. Asian Journal of Management, Entrepreneurship and Social Science, 3(03), 270–286. https://doi.org/10.98765/AJMESC.V3I03.297

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more secure digital currency with clear accountability, namely *Central Bank Digital Currency* (CBDC). Unlike *virtual currencies*, which are decentralized systems, CBDCs are issued and regulated by central banks in the same way as cash and electronic money[5] . The development of crypto assets has prompted central banks to design and attempt to issue CBDC or digital currencies issued by Bank Indonesia. Bank Indonesia's plan to issue CBDC aims to respond to developments in information technology regarding the security and efficiency of payment systems, monetary operations, and financial system stability policies, as well as to evaluate the role of virtual currency development. The urgency of establishing CBDC is to avoid mining activities involved in producing virtual currencies such as *bitcoin.* Therefore, CBDC is a means of digital storage of monetary value and at the same time a method of exchange created by the central bank[6] .

From a technological perspective, CBDC utilizes *private blockchain* technology, while cryptocurrencies, such as Bitcoin, use *public blockchain* technology. CBDC utilizes *private blockchain* technology because it is considered to have better security as it can track the money issued, which also plays a role in preventing and handling money laundering crimes that often occur. In addition, the central bank, in this case Bank Indonesia, has the ability to intervene if an undesirable situation occurs[7] . The use of cryptocurrency as a means of payment carries economic risks due to significant price fluctuations. These price fluctuations have a direct impact on purchasing power and have the potential to disrupt overall economic stability. This situation is exacerbated by the fact that cryptocurrencies do not have official status like the rupiah, which has been established as legal tender by law.

On the other hand, the use of central bank digital currency is considered safer because the money issued is the official rupiah currency regulated by law, only in digital form. In addition, Bank Indonesia still plays a role in the issuance of digital rupiah currency[8] . The role of Bank Indonesia is considered important in the issuance of digital rupiah because in its issuance, Bank Indonesia can estimate the impact on monetary stability, inflation, exchange rates, and matters related to macro or microeconomics, unlike cryptocurrency, whose circulation and price are left to market mechanisms, which are certainly very vulnerable if used as a means of payment[9] .

Bank Indonesia defines CBDC as a digital currency under the control and issuance of the central bank. CBDC functions as an official payment instrument that can replace the use of cash. As a digital version of the national currency, CBDC has all the essential

[5] Jati, Ridho Bawana, Yuspin, Wardah, & Budiono, Arief. (2024). Reconstruction of Law Central Bank Digital Currency (CBDC) in Indonesia. Pena Justisia: Media Komunikasi Dan Kajian Hukum, 23(3), 1664–1684. https://doi.org/10.31941/PJ.V23I3.4893

[6] Baiquni, Muhammad Iqbal, Adiyatma, Septhian Eka, Rastini, & Waspiah. (2023). The Existence of Cryptocurrency in the Formation of Central Bank Digital Currency in Indonesia: A Perspective of Ius Constituendum. Media Iuris, 6(3), 435–456. https://doi.org/10.20473/mi.v6i3.38352

[7] Husein, Yunus, & Zikry, Ichsan. (2022). Legal and Institutional Aspects of the Financial Sector in Handling the COVID-19 Pandemic. Journal of Central Banking Law and Institutions, 1(2). https://doi.org/10.21098/jcli.v1i2.15

[8] Baiquni, Muhammad Iqbal, Adiyatma, Septhian Eka, Rastini, & Waspiah. (2023). The Existence of Cryptocurrency in the Formation of Central Bank Digital Currency in Indonesia: A Perspective of Ius Constituendum. Media Iuris, 6(3), 435–456. https://doi.org/10.20473/mi.v6i3.38352

[9] Bibi, Samuele, & Canelli, Rosa. (2023). The interpretation of CBDC within an endogenous money framework. Research in International Business and Finance, 65(May 2022), 101970. https://doi.org/10.1016/j.ribaf.2023.101970

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characteristics of money. CBDC can store wealth, be used in payment transactions, and serve as a standard for measuring the value of goods and services, the three fundamental functions that are required for a medium of exchange to be categorized as money. Indonesia's transaction and economic systems will undergo a transformation with the arrival of the digital Rupiah. Bank Indonesia has been pursuing this initiative since early 2021 through a series of research and development of the necessary technological infrastructure. The implementation of the digital Rupiah is a strategic step in supporting the digitalization of Indonesia's integrated economy[10] .

China has become a pioneer in CBDC development by issuing the digital yuan. Since April 2020, China has been conducting trials of their CBDC, called *Digital Currency/Electronic Payment* (DC/EP). The use of cash in China has been decreasing year by year, with only 40% of all transactions being conducted with cash in 2016. This has prompted the Chinese government to create an alternative payment method to replace cash, namely by issuing DC/EP. In Europe, Sweden remains at the forefront of adopting digital payments. The country has launched its own version of CBDC called the E-krona. The Riksbank (Swedish Central Bank) e-krona project is more advanced than similar projects from most other central banks in developed countries. Sweden has also experienced a decline in the use of cash and predicts that it will become a cashless country by 2023. Several other countries have also conducted or are conducting trials on the use of CBDC, such as France, the Philippines, Japan, Turkey, and Switzerland[11] .

According to a *white paper* issued by Bank Indonesia, the issuance of the Digital Rupiah needs to be based on a solid legal framework. In this regard, Law Number 23 of 1999 concerning Bank Indonesia, as last amended by Law Number 6 of 2009, is considered adequate as a basis for Bank Indonesia to issue the Digital Rupiah. Law Number 4 of 2023 concerning the Development and Strengthening of the Financial Sector Article 10 explains that the rupiah consists of paper rupiah, metal rupiah, and digital rupiah. With these factors in mind, it is important to conduct a study on the legality of implementing CBDC as a legal means of payment in Indonesia. Based on the above description, this study will focus on two main issues, namely how regulations regarding payment instruments in Indonesia and how the implementation of CBDC as a payment instrument in Indonesia?

METHOD

This study uses a normative approach, which places law as a system of norms derived from legislation, court decisions, treaties, and doctrines. The type of research used is descriptive with an emphasis on the analysis of existing sources and data, which are then interpreted based on relevant theories and concepts. The type of data used is

[10] Simran, Simran, & Adam, Richard. (2023). Legal Analysis of CBDC's Role as a Digital Payment Instrument Regulatory System in Indonesia. Asian Journal of Management, Entrepreneurship and Social Science, 3(03), 270–286. https://doi.org/10.98765/AJMESC.V3I03.297

[11] Chu, Yeonouk, Lee, Jaeho, Kim, Sungjoong, Kim, Hyunjoong, Yoon, Yongtae, & Chung, Hyeyoung. (2022). Review of Offline Payment Function of CBDC Considering Security Requirements. Applied Sciences (Switzerland), 12(9). https://doi.org/10.3390/app12094488

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secondary data, which consists of primary legal materials in the form of Law Law Number 7 of 2011 concerning Currency and Law Number 4 of 2023 concerning Development and Strengthening of the Financial Sector, secondary legal materials, namely explanations of primary legal materials, such as bills, textbooks, research results in journals and expert opinions, tertiary legal materials, namely instructions and explanations of primary and secondary legal materials, such as the Big Indonesian Dictionary. The data collection method used was a literature study, which involved collecting data and information from various sources such as books, articles, notes, journals, and previous studies. The data analysis method used was deductive, which involved analyzing data from the materials that had been collected.

RESULTS AND DISCUSSION

Regulations Regarding Payment Instruments in Indonesia

Technological innovations in payment methods have changed transaction patterns from the use of cash to a more practical and economical digital payment system. Non-cash transactions are generally carried out through fund transfer methods, both between different banks and within the same bank network.

Referring to Article 1 Number (1) of Bank Indonesia Regulation Number 22/23/PBI/2020 concerning Payment Systems, the definition of a payment system can be understood as a system consisting of regulations, institutions, and mechanisms used to transfer funds to settle various obligations arising from economic activities. Article 1 Number 6 of Law Number 23 of 1999 concerning Bank Indonesia defines a payment system as a system that includes a set of rules, institutions, and mechanisms used to transfer funds to fulfill obligations arising from economic activities. Based on the definition in this article, a payment system has three main elements, namely: a. a set of rules, institutions, and mechanisms; b. fund transfers; and c. obligations from economic activities. From the three main elements mentioned above, it can be understood that the concept of payment is basically synonymous with the process of fund transfer. Thus, the fundamental aspect of a payment system is to ensure the smooth and secure process of fund transfers, which is a form of fulfilling obligations arising from economic activities[12] .

Payment systems have undergone significant evolution. Currently, payment systems are not only limited to institutional regulations and procedures. Their scope has expanded to include various additional elements such as infrastructure, payment instruments, distribution channels, step-by-step transaction processes, payment service providers, funding sources for transactions, ease of access to funds, and international transaction aspects.

Advances in modern technology have given rise to various innovations in digital payment systems, one of which is electronic money (*e-money*), which is available on various *platforms* such as DANA, OVO, Gopay, and Shopeepay. In addition,

[12] Atmaja, Yustisiana Susila, & Paulus, Darminto Hartono. (2022). Bank Indonesia's Participation in Regulating the Digitalization of Indonesia's Payment System. Legal Issues, 51(3), 271–286. https://doi.org/10.14710/mmh.51.3.2022.271-286

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technological developments have also given rise to a new form of currency known as virtual currency or *cryptocurrency*, which is entirely digital-based[13] .
In Indonesia, it is not permitted to use virtual currencies (such as *bitcoin* and other types *of cryptocurrency*) as a means of payment[14] . From an Indonesian legal perspective, the use of virtual currencies has the potential to lead to various crimes that can cause losses in three main aspects, namely in the economic, legal, and national security fields. According to Law Number 7 of 2011, amended by Law Number 4 of 2023, money is a legal means of payment. Furthermore, Article 1 of Law Number 7 of 2011 concerning Currency defines currency as money issued by the Unitary State of the Republic of Indonesia, hereinafter referred to as the Rupiah.
Indonesia established the rupiah through Law Number 19 of 1946 concerning the Issuance of Indonesian Currency, the Bank Indonesia Law, and the Currency Law, with the consequence that the rupiah must be used throughout Indonesia without exception. This obligation is in line with Indonesia's status as a fully sovereign state with its own currency.
The obligation to use the Rupiah in Indonesia is regulated in Article 21 paragraph (1) of Currency Law Number 7 of 2011, whereby the Rupiah must be used in: 1. Every transaction that has a payment purpose; 2. The settlement of other obligations that must be fulfilled with money; and/or 3. Other financial transactions conducted within the territory of the Republic of Indonesia. Regarding *virtual currency*, as stated in Bank Indonesia Regulation, every party is required to use the Rupiah in transactions conducted within the territory of the Republic of Indonesia.
As a form of adaptation to the current situation, central banks in various countries have begun to explore the possibility of issuing CBDC or central bank digital currency , which is considered to be a solution to face future challenges[15] . Article 8 letter b of Law Number 23 of 1999 concerning Bank Indonesia and as one of the three main pillars, Bank Indonesia has the task of regulating and maintaining the smooth running of the payment system. In carrying out these duties, as stated in Article 15 paragraph (1) of Law Number 23 of 1999, Bank Indonesia has the authority to: a. implement and grant approval and permission for the operation of payment system services; b. require payment system service providers to submit reports on their activities; and c. determine the use of payment instruments. Based on this article, Bank Indonesia has announced its plan to immediately launch the Digital Rupiah as a CBDC.
The basis for the establishment of the Digital Rupiah is Law No. 23 of 1999 concerning Bank Indonesia and Law No. 4 of 2023 concerning the Development and Strengthening of the Financial Sector. Article 10 of Law No. 4 of 2023 concerning the Development and Strengthening of the Financial Sector states that the rupiah consists of paper rupiah, metal rupiah, and digital rupiah. According to the white paper issued by Bank Indonesia, the issuance of the Digital Rupiah needs to be based on a solid

[13] Prodan, Silvana, Konhäusner, Peter, Dabija, Dan Cristian, Lazaroiu, George, & Marincean, Leonardo. (2024). The rise in popularity of central bank digital currencies. A systematic review. Heliyon, 10(9). https://doi.org/10.1016/j.heliyon.2024.e30561
[14] Meizrama Riyadh Kivan, Flora Pricillia Kalolo, & Alsam Polontalo. (2021). Implications of Using Bitcoin as a Payment Method in Commercial Transactions According to Law Number 7 of 2011 Concerning Currency. Lex Privatum, 9(13), 202–212.
[15] Maulana, Muhammad Farrel Maulana Muhammad Farrel. (2024). Optimization of the Added Value of the Digital Rupiah Cash Ledger Use Case on the Implications of the Central Bank Digital Currency Financial System. Das Sollen: Journal of Contemporary Legal and Social Studies, 2(02). https://doi.org/10.11111/dassollen.xxxxxxx

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legal framework. In this regard, Law Number 23 of 1999 concerning Bank Indonesia, as last amended by Law Number 6 of 2009, is considered adequate as a basis for Bank Indonesia to issue the Digital Rupiah.

The Implementation of CBDC as a Means of Payment in Indonesia

CBDC is a digital representation of money that symbolizes a country's sovereignty or *sovereign currency*. CBDC is issued by the central bank and is part of its monetary obligations. According to The Economist, CBDC can be considered a digital version of cash (paper and metal) issued by the central bank. CBDC is similar to a digital wallet run by the *financial technology* industry, but money in the form of CBDC has a value equivalent to deposits or savings in the central bank. CBDC is a form of shift in daily transactions, with the public increasingly relying on private digital wallets instead of central banks. Through CBDC, central banks can further strengthen their position in payment instruments, including digital versions. CBDC fulfills the three basic functions of money, namely as a *store of value*, *a medium of exchange*/payment, and *a unit of* account[16]

In the context of Indonesia, the development of CBDC is highly relevant given its unique geographical and demographic characteristics. As an archipelagic country with a large population and a level of financial inclusion that still needs to be improved, CBDC can be a strategic instrument in expanding access to financial services and improving the efficiency of the national payment system[17] . Bank Indonesia plans to strengthen the digital payment infrastructure in Indonesia. One of the ways is through the development of Digital Rupiah as the only legal digital payment instrument[18] .

The initial step in BI's development of the digital rupiah through the Garuda Project is to publish a White Paper as a form of communication to the public regarding the digital rupiah development plan. Additionally, this White Paper aims to gather input from various relevant parties. The digital rupiah will be issued in two types, namely: 1) *wholesale* digital rupiah (w-digital rupiah) with limited access and distributed only for the settlement of *wholesale* transactions such as Monetary Operations (OM), foreign exchange market transactions, and money market transactions; and 2) Retail digital rupiah (r-digital rupiah) with open access for the public and distributed for various retail transactions in the form of payments and transfers, by individuals or businesses (merchants and corporations)[19] .

The digital Rupiah distribution scheme is a combination of *one-tier* and *two-tier* architectures. The w-Digital Rupiah distribution scheme will be one-tier, where wholesalers obtain w-Digital Rupiah directly from Bank Indonesia. Meanwhile, the r-Digital Rupiah distribution scheme will be two-tier through intermediaries. Wholesalers distribute digital Rupiah to end users through two channels. First, a direct

[16] Ministry of Finance of the Republic of Indonesia. (2022). Getting to Know Central Bank Digital Currency (CBDC) Better. Ministry of Finance of the Republic of Indonesia.

[17] Zuchroh, Imama, Septi Wanti Bere, Regina, Gemma Galgani, Kristina, Imanuela Lay Rihi, Grace, Cahyono, Budi, Malangkucecwara School of Economics, Campus Address, Indonesia, Terusan Candi Kalasan, Jl, & Timur, Java. (2025). Monetary Digital Transformation: A Comprehensive Analysis of the Implementation of Central Bank Digital Currency (CBDC) and Its Implications for Financial System Stability. Monetary: Journal of Economics and Finance, 3(1), 14–31. https://doi.org/10.61132/MONETER.V3I1.1055

[18] Setiawan, Verda Nano. (2023, December). Digital Rupiah to be Issued in 2024, Here's the Explanation from the Head of BI.

[19] Bank Indonesia. (2024). Proof of Concept (PoC) Report on the Wholesale Digital Rupiah Cash Ledger.

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distribution channel from wholesalers to end users; and second, an indirect distribution channel through retailers as intermediaries[20] .

Digital Rupiah can be accessed through two methods: accounts and/or tokens. W-Digital Rupiah can be accessed through token-based verification. Token-based is considered suitable due to its assumed ability to facilitate complex transactions between users in the financial market. Furthermore, token-based will complement the existing Bank Indonesia *Real Time Gross Settlement* (BI-RTGS) account-based arrangement. R-digital rupiah can be accessed through accounts and token-based, regulated based on user segmentation (*tiering)* and transaction value limits. Token-based digital rupiah facilitates small value transactions up to a certain threshold. Account-based R-Digital Rupiah facilitates transactions higher than their respective thresholds. Token-based digital rupiah replicates the flexibility of paper money and coins. Bank Indonesia can obtain granular data from token-based digital rupiah transactions through information stored in wallet addresses. To meet AML/CFT compliance, account-based digital rupiah is considered most suitable for higher-value transactions. The presence of digital Rupiah is considered to have the potential to reduce transaction costs in the banking sector. The exploration of CBDC issuance is based on six objectives, namely , providing a *risk-free* digital payment tool using *central bank money,* mitigating the risks of *non-sovereign digital currencies,* expanding the efficiency and stability of the payment system*,* including *cross-border payments,* expanding and accelerating financial inclusion, providing new monetary policy instruments, and facilitating the distribution of *fiscal subsidies* (Akademik Sibermu, 2023) . The advantage of implementing CBDC is the ease of distributing money from the central bank to various banks in different regions, because CBDC distribution does not require cash transfers, but only digital transfers. In addition, the implementation of CBDC can also reduce the potential for financial crimes such as money laundering, counterfeiting, and illegal transactions on *the black market*[21] .

Similar to Indonesia, China and the Bahamas are modernizing their payment systems. China is the first major economy to test CBDC, having started trials in April 2020. The government launched the currency in only four cities: Shenzhen, Suzhou, Xiongan, and Chengdu. Later, the vice president of the PBOC announced that the digital yuan trial program would be expanded, bringing the total number of trial areas to fifteen provinces and twenty-three cities. The addition of Chongqing and Guangzhou, two major cities, means that China's five largest cities now offer the digital yuan as a payment option to a combined population of 98 million people. Looking back on the year 2024 that just ended, the innovation of the application and practical exploration of the digital renminbi has flourished everywhere. Recently, a number of digital renminbi pilot areas, including Guangzhou and Xiamen, have successively announced their latest development plans and progress related to the innovative application of the digital renminbi. Recently, the Guangzhou Municipal Party Committee Finance Office officially issued the "Action Plan to Further Promote the Work of Digital RMB in Guangzhou." According to Mu Changchun, director general of the Digital Currency

[20] Arifah, Ika Diyah Candra, Prasanna, Futari Maysya, & Aziz, Muhammad Abdul. (2022). Analysis of the Monetary Impact, Technological Readiness, and Security Threats of Central Bank Digital Currency (CBDC). Journal of Digital Business and Innovation Management, 1(2), 79–100. https://doi.org/10.26740/jdbim.v1i2.50488

[21] CTRL UGM. (2021, April). Indonesia's Readiness in Implementing Central Bank Digital Currency – CTRL UGM.

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Institute of the People's Bank of China (PBoC), the e-CNY project has three main objectives: to improve the efficiency of the central bank payment system, provide a backup for the retail payment system, and "enhance financial inclusion."[22] .

It is hoped that the implementation of e-CNY will increase the effectiveness of monetary policy while reducing the influence of private companies in China's digital economy sector. The Chinese government's push to accelerate the use of e-CNY is based on three main reasons. First, e-CNY is expected to change the dynamics of money demand, accelerate currency circulation, improve central bank reserve management, and create more effective monetary policy. Second, e-CNY can increase currency volatility and strengthen the monetary multiplier effect. Third, e-CNY has the potential to improve the monetary policy transmission process, both through traditional channels and through structural policy instruments such as *the Medium Term Lending Facility* and *Priority Sector Lending,* thereby enabling more targeted policy implementation. In addition, the Chinese government also sees e-CNY as a tool to strengthen oversight of the national payment system[23] .

Apart from China, which is a global economic power, it is also important to look at how CBDCs are implemented in countries with different economic and geographical scales. The Bahamas, as an island nation in the Caribbean, provides an interesting example in this context. CBDC. The Bahamas is a financial center, but its natural environment makes it difficult for many of its residents to access financial services. Geographically, the Bahamas is an archipelago consisting of 700 islands scattered across a vast ocean, with a mobile device penetration rate of 93%. Approximately 96% of people surveyed in Exuma (a region in the Bahamas) own a mobile device[24] .

The Bahamian Digital Dollar, known as *the Sand Dollar*, has been in circulation since October 20, 2020. The reason for issuing a digital currency in the Bahamas is financial inclusion. *The Sand Dollar* is designed to be a safe and inexpensive alternative to existing forms of money. The main objectives of the *Sand Dollar* launch include improving the efficiency of the Bahamian payment system through safer transactions and faster settlements, providing non-discriminatory access to the payment system regardless of age, immigration status, or place of residence, achieving greater financial inclusion, cost effectiveness, and providing greater access to financial services throughout the Bahamas, strengthening national defenses against money laundering, counterfeiting, and other illicit purposes by reducing the impact of cash usage[25] . Although launched in 2020, the use of *Sand Dollar* is still low due to its lack of integration with commercial banks and minimal adoption by the public. The main challenges include a lack of awareness and understanding of CBDC among the public, as well as the need for better integration with traditional banking systems[26] .

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[22] Orcutt, Mike. (2023). What's next for China's digital currency? | MIT Technology Review.

[23] Lian, Yohanis Pemandi, Lonak, Putri Debora, Bere, Sarlina Agustin Motu, & Suban, Maria Petrosia Peni. (2025). Interest in the Use of Central Bank Digital Currency (CBCD) among Generation Z: A Case Study of Students at the Faculty of Economics and Business, Widya Mandira Catholic University, Kupang. SCIENTIFIC JOURNAL OF REFLECTION: Economic, Accounting, Management and Business, 8(1), 47–61. https://doi.org/10.37481/SJR.V8I1.1006

[24] Doumpos, Michalis, Zopounidis, Constantin, Gounopoulos, Dimitrios, Platanakis, Emmanouil, & Zhang, Wenke. (2023). Operational research and artificial intelligence methods in banking. European Journal of Operational Research, 306(1), 1–16. https://doi.org/10.1016/j.ejor.2022.04.027

[25] Nieborak, Tomasz. (2024). Central Bank Digital Currency as a New Form of Money. Bialostockie Studia Prawnicze, 29(1), 189–203. https://doi.org/10.15290/BSP.2024.29.01.12

[26] Sand Dollar: Bahamian CBDC Becomes More Integrated. (2024, July).

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Based on various sources that the author has researched and studied, there are several interesting differences in terms of CBDC implementation in China with its e-CNY, the Bahamas with its Sand Dollar, and Indonesia, which is still in the development stage of the digital rupiah. The following table compares these aspects:

Comparison Aspects	Indonesia (Digital Rupiah)	China (e-CNY)	Bahamas (Sand Dollar)
Development Status	Still in the exploration and study phase, with pilot projects underway. Bank Indonesia has published *a white paper* and conducted limited trials. Focus is on digitizing the Rupiah and improving payment system efficiency.	Has conducted large-scale trials in several cities and regions. Focuses on retail transactions and integration with existing digital payment platforms. Designed to be similar to the cash currently in circulation.	It was officially launched in October 2020. The focus is on financial inclusion, especially for people who do not have bank accounts and live on remote islands.
Main Objectives	To enhance payment system efficiency, promote financial inclusion, and strengthen monetary stability.	Modernizing the payment system, improving efficiency, and strengthening government control over the financial system.	Enhancing financial inclusion, reducing cash usage, and facilitating transactions in island regions.
Technology Used	Still in the research stage, possibly using *distributed ledger technology* (DLT) or other appropriate technologies.	Using a combination of centralized and distributed technologies.	Using DLT technology.
Distribution Model	Possibly through existing banks and financial institutions.	Through commercial banks and digital payment platforms.	Through financial institutions and digital wallets.
Privacy and Security	A primary concern, Bank Indonesia emphasizes the importance of personal data protection and system security.	The government has greater access to transaction data.	Offers a higher level of privacy compared to other digital payment systems.

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Impact on the Financial System	Still in the analysis stage, the potential impact on conventional banking and financial system stability needs to be anticipated.	Potential competition with private digital payment platforms and changes in the role of commercial banks.	Helps reduce dependence on cash and facilitates transactions in areas that are difficult to reach by conventional banking services.
al Challenges	The need for clear regulations, adequate infrastructure, and public education.	's acceptance by the public and interoperability with other payment systems.	doption by the public and the availability of supporting infrastructure in remote islands.

This comparison shows that the objectives, implementation models, and challenges faced vary from country to country, depending on their respective economic, geographical, and demographic contexts. Indonesia can learn from China's experience in managing large-scale implementation and from the Bahamas in improving financial inclusion in island regions. The implications for Indonesia show the great potential of CBDC in modernizing the payment system and promoting financial inclusion, but also highlight the importance of careful preparation in terms of infrastructure, regulation, and public education.

CONCLUSION

Referring to the analysis described above, it can be concluded that, according to Law Number 7 of 2011, amended by Law Number 4 of 2023, money is a legal tender. Then Article 1 of Law Number 7 of 2011 concerning Currency defines currency as money issued by the Unitary State of the Republic of Indonesia, hereinafter referred to as the Rupiah, and clarified in Article 2 paragraph (2), which states that the types of rupiah consist of paper rupiah and metal rupiah. However, this article was amended by Article 10(1) of Law Number 4 of 2023 concerning the Development and Strengthening of the Financial Sector, which states that the types of rupiah consist of paper rupiah, metal rupiah, and digital rupiah. Article 10(3) of Law No. 4 of 2023 on the Development and Strengthening of the Financial Sector explicitly states that only Bank Indonesia has the authority to issue and/or publish digital rupiah. The implementation of digital rupiah as a means of payment in Indonesia is still in the development stage and has not been widely implemented. Bank Indonesia is conducting various studies and trials to prepare for the issuance and use of CBDC in Indonesia.

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