Central Bank Digital Currency (CBDC): An Innovation in E-Payment for Socio-Entrepreneurship

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ABSTRACT
The quantity of electronic currency in circulation within the community experienced a substantial increase between 2017 and 2022. However, the quantity of electronic currency in circulation in 2021 has declined compared to 2020 and 2022. Furthermore, the emergence of central bank digital currency (CBDC) as a digital currency has problems that cannot be avoided; these problems arise from policies or regulations and understanding of the public and business people and are related to the security of digital currency users. The Bank of Indonesia deems it imperative to address this by implementing suitable policies. The policy encompasses digital payments and financial services, including Central Bank Digital Currency (CBDC). Central banks worldwide are encouraged to develop Central Bank Digital Currency (CBDC) to enhance monetary policy effectiveness. The objective is to guarantee financial stability and enhance the effectiveness and resilience of the payment system. This study aims to examine the concept of Central Bank Digital Currency (CBDC) as a novel electronic payment tool for social entrepreneurs. The research approach employed in this study was descriptive qualitative with data forecasting. The findings of this study indicate that Central Bank Digital Currency (CBDC) has the potential to be utilized as a payment instrument by social entrepreneurs.

KEYWORDS: Central Bank Digital Currency, Innovation, E-payment, Socio-Entrepreneurship

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1. INTRODUCTION

Central Bank Digital Currency (CBDC) (Taskinsoy, 2021) provides a digital payment option that eliminates the potential risks associated with using central bank money (Ozturkcan et al., 2022), minimizes the risks associated with privately issued currencies, enhances the reach and effectiveness of the payment system (Hoffman et al., 2020), particularly in cross-border transactions, promote financial inclusion by expanding access to financial services, provide a new tool for monetary policy implementation (Alonso et al., 2021a), and facilitate the distribution of fiscal subsidies (Bossu et al., 2020).

Due to the fact that it is the central bank that is responsible for both the issuance and regulation of the currency, the Bank of Indonesia, in its capacity as the central bank, takes full responsibility for any risks involved with the issuance of Central Bank Digital Currency (CBDC) (Maryaningsih et al., 2022). Hence, The Bank of Indonesia must perform a risk management analysis before issuing policies and ensure transparency in implementing all actions (Bindseil, 2019). The central bank is responsible for establishing a framework for cyber resilience and ensuring effective cybersecurity management (Pfister, 2019). Indonesia is undertaking a significant initiative to enhance its cybersecurity measures by developing the Cyber Security and Resilience Bill (Mohammad & Davoodalhosseini, 2018). Given the fact that it is an autonomous governmental agency, the Bank of Indonesia manages its internal cyber security and resilience. This responsibility is outlined in The Bank of Indonesia Law, which includes provisions for organizing cyber security and resilience based on the KSS Bill (Kshetri, 2021). To enhance the effectiveness of The Bank of Indonesia as a monetary supervisor, it is necessary to establish more comprehensive arrangements in the future (Kumhof & Noone, 2018). If The Bank of Indonesia assumes the role of an organizer, a third party must serve as a supervisor (Wang & Hausken, 2022). The coordination function of the Bank Supervision and Surveillance Network (BSSN) is significant in demonstrating effective governance among cybersecurity oversight agencies in the financial system (Malloy et al., 2022).

Given the relatively insecure virtual currency system that affects monetary stability (Mohammad & Davoodalhosseini, 2018), governments in various countries are inspired to create a more secure digital currency with clear accountability, namely Central Bank Digital Currency (CBDC) (Chiu et al., 2019). CBDCs, in contrast to decentralized virtual currencies, are issued and regulated by central banks, similar to traditional banknotes and electronic money (Chiu & Davoodalhosseini, 2021). The Deputy Governor of The Bank of Indonesia, Doni Primanto Joewono, highlighted several challenges that may arise with implementing Central Bank Digital Currency (CBDC) during the G20 Event meeting. These challenges encompass concerns related to money laundering, consumer security, the emergence of shadow currency, and potential impacts on financial stability (Calle & Eidan, 2020). Other benefits expected with the Central Bank Digital Currency (CBDC) (Jiang et al., 2021) issued by The Bank of Indonesia may affect the entrepreneurship sector, as it presents an opportunity for utilizing CBDC as an innovative payment method in social entrepreneurship activities (Calle & Eidan, 2020).

Social entrepreneurship is a novel and innovative approach that utilizes entrepreneurial methods to address societal socio-economic issues (Iancu et al., 2021). Social entrepreneurs run non-profit organizations to create social impact (Newth & Woods, 2014; Littlewood & Holt, 2018). Abdullah (2014) and Oladimeji Abioye Mustafa et al. (2013) claimed that distinctions exist between social entrepreneurs and business entrepreneurs (Chandna, 2022). Business entrepreneurs and actors still want to gain profit or personal wealth by carrying out entrepreneurial activities (Biggeri et al., 2018). However, social entrepreneurs allocate a more significant portion of their entrepreneurial earnings towards assisting or empowering individuals who are in need (Cardella et al., 2021).

Within the context of providing a structure, Fred Davis established the Technology Acceptance Model (TAM) in 1989 to comprehend user behavior when it comes to accepting and utilizing an information system (Jegerson et al., 2023). This theory consists of two elements: the first is a sense of usefulness, which refers to an individual's belief in the potential of technology to enhance their efficiency (Krishna et al., 2022), and the second is a sense of use, which pertains to a person's confidence in the ability of technology to simplify tasks (Surendran, 2012). The Technology Acceptance Theory (TAM) is a theoretical framework that aims to comprehend and elucidate the factors influencing individuals' acceptance or rejection of novel technologies (Chiu & Davoodalhosseini, 2021). This theory is closely associated with the utilization of technology in different contexts, such as assuming the CBDC (Bhowmik, 2022). Concerning CBDC, TAM theory can help explain the factors that influence the public's acceptance and adoption of CBDC (Negari & Eryando, 2021a). The Technology Acceptance Model (TAM) assesses technology acceptance by considering various dimensions. These dimensions include the intention to use technology, influenced by perceived usefulness, perceived convenience, and additional dimensions referred to as extensions (Negari & Eryando, 2021b).

The cryptocurrency market has experienced significant growth within the past decade since the introduction of Bitcoin (Huynh et al., 2020). Blockchain, the technology that underlies cryptocurrencies, is widely regarded as a transformative technology for the industry (Cristofaro et al., 2023). This paper explores the novelty of crypto assets and their technology, as well as their potential impact on the fundamental operations of central banks (Ozili & Ozili, 2021). In their groundbreaking study, (Oh & Zhang, 2022). delve into the captivating realm of crypto assets, shining a light on the pressing research and policy inquiries that have captured the attention of central bankers. With a particular emphasis on the enigmatic world of cryptocurrencies, they identify the three paramount areas that demand immediate attention. First, let us explore the inherent uniqueness of the technological foundation that serves as the bedrock for cryptocurrencies and their crypto brethren. Furthermore, in what ways do crypto-currencies impact the pivotal functions of central banks within the economy? In light of the intricate dance between the blossoming realm of cryptocurrency and the waning popularity of physical cash, a thought-provoking question arises: Should the responsibility of digital payments be entrusted solely to the private sector, or should the esteemed central banks take the reins and introduce their very own digital currencies? In our quest for knowledge, we embark on a captivating journey through the intricate realm of policy issues. With great enthusiasm, we delve into the depths of these three captivating subjects, unraveling their intricacies and shedding light on the aspects that hold the utmost significance for the esteemed central bankers (Schilling et al., 2020). Finally, we submit several new research topics to assist scholars in better understanding cryptocurrencies and their underlying technology (Chapman & Wilkins, 2018).

Syamsu Alam Muh, as well as Jamil and Andi Syamsir, conducted research on this matter. Digitalization is an unavoidable requirement affecting all aspects of human life (Ashrafi & Easmin, 2023). In the economy, money is like blood. All areas of human life will be disturbed if the currency is disrupted (Dong & Xiao, 2019). The emergence of clandestine digital currencies has stirred up quite a commotion within the worldwide financial framework, predominantly overseen by Central Banks (Susanto et al., 2022). Central Bank Digital Currency (CBDC) refers to a currency issued by a Central Bank. Singh employed original data and cited relevant

literature on digital currency (Singh et al., 2018). There are certain challenges and potential benefits associated with the adoption of digital currencies that need to be considered. These include enhancing the overall effectiveness, efficiency, and accessibility of financial services for individuals. A reliable and trustworthy digital currency model can potentially enhance transaction efficiency for individuals and the economy. Digital infrastructure, security systems, integration, new service innovation, disintermediation, transparency, and efficiency pose considerable challenges. The ability to navigate these challenges can prove advantageous for the banking industry (Alam et al., 2022).

Claudia Saymindo Emanuella researched the purchasing tools known as CBDC in Indonesia (Alonso et al., 2020). The study utilizes a research approach known as doctrinal normative legal research. It is statutory, which involves analyzing, examining, and reviewing laws and regulations pertaining to the problem being addressed. A comparative approach is employed, which entails comparing the laws of different countries or periods (Taskinsoy, 2021). Central banks worldwide have chosen CBDC, which can be considered a substitute. Many countries have researched the implementation of CBDC, focusing on its design and associated risks in the financial, operational, and legal domains. The Bank of Indonesia has expressed its plans to create a CBDC in Indonesia. The initiative aligns with the country's efforts to digitalize its national economy and finance (Ozturkcan et al., 2022). Indonesia currently lacks a robust legal framework to support the implementation of CBDC, particularly in terms of cybersecurity, due to the increasing prevalence of advanced cybersecurity threats. The central bank in Indonesia holds a vital position as it possesses the sole power to ascertain, distribute, and govern lawful payment instruments, thereby playing a significant role in the country's financial system (Emanuella, 2021).

As-Salafiyah et al. (2023) conducted a study related to this matter. The Bank of Indonesia intends to introduce a digital version of the Rupiah as part of its initiative, the Central Bank Digital Currency (CBDC) Development Project (Hoffman et al., 2020). This study aims to analyze how existing literature on CBDC is perceived from a legal standpoint (Bossu et al., 2020). This study utilizes a qualitative methodology and incorporates a framework for sentiment analysis. The study examined 50 articles sourced from Scopus-indexed journals, which are widely acknowledged as a prominent repository of scholarly literature as of December 12, 2022. The data underwent processing with Senti Strength software (Alonso et al., 2021a). According to the research results, it can be observed that the dominant sentiment is neutral, with positive and negative sentiments also present. This sentiment analysis offers a comprehensive overview that can serve as a basis for further exploration by regulators, practitioners, and academics. It provides valuable insights that enhance understanding of the perception of CBDC studies. These observations can be considered when making decisions. This research is the initial attempt to perform a sentiment analysis of the scholarly articles regarding CBDC (Ramalingam, 2022). A study on the national security perspective of CBDC was conducted by (Maryaningsih et al., 2022). Technology advancements have led to the transformation of money into more efficient forms and functions. This is evident in the growing utilization of electronic money (Bindseil, 2019). Technological advancements in the digital era are expected to significantly impact the financial industry, particularly with the introduction of blockchain technology, which serves as the foundation for developing digital currencies (Pfister, 2019). The existence of privately issued digital currencies poses a challenge to state sovereignty as it diminishes the state's authority over monetary policy and private dominance in digital payment platforms.

Consequently, central banks in various nations have contemplated introducing Central Bank Digital Currency (CBDC) (Mohammad & Davoodalhosseini, 2018). This study employs a descriptive qualitative methodology for data collection, which involves conducting interviews and reviewing relevant literature (Kshetri, 2021). CBDC generally exhibits the fundamental attributes of a currency, functioning as a means of transaction, standard of measurement, and repository of worth (Kumhof & Noone, 2018). CBDC holds relevance in line with The Bank of Indonesia's aspiration to emerge as a prominent digital central bank, making substantial contributions to domestic economics (Wang & Hausken, 2022). The Bank of Indonesia's (BI) strategy involves enacting regulations prohibiting payment transactions using currencies other than the Indonesian Rupiah. Additionally, BI has released the 2025 National Payment System blueprint and conducts visibility studies (Fairi et al., 2021).

The rapid advancement of digitization in modern society is propelled by technological trends (Ozili, 2023). Integrating numerous Internet of Things (IoT) tools has become prevalent in various aspects of life, including healthcare, manufacturing, and supply chains (Malloy et al., 2022). However, it is crucial to mention that the financial sector continues to rely primarily on outdated infrastructure. This means merchants often receive payments from consumers well after providing them with digital or physical goods (Chiu et al., 2019). Furthermore, the rise of Decentralized Finance through blockchain technology and the dispersal of data across isolated repositories have shown the potential to affect the authority of nations and the channels through which monetary policies are implemented (Jegerson et al., 2023). In light of this situation, numerous central banks have recently initiated research and

experimentation on introducing digital representations of national currencies, commonly called Central Bank Digital Currency. Its objective is to redefine the nature and purpose of physical cash (Krishna et al., 2022). CBDC encompasses diverse designs, leading to many techno-legal and standardization policy inquiries (Chiu & Davoodalhosseini, 2021). In this chapter, we will explore the current status of the retail aspect of the Central Bank Digital Currency (CBDC), with a particular emphasis (Calle & Eidan, 2020). In this regard, it offers a comprehensive analysis of potential architectures, takes into consideration the legal implications and regulatory compliance concerns, showcases a range of real-life examples, and briefly discusses the difficulties associated with cross-border Central Bank Digital Currency (CBDC) implementation (Pocher & Zichichi, 2022).

The potential impact of digital currencies, such as individual cryptocurrencies and CBDC, on central banking has been a topic of discussion (Dam et al., 2020). We examine instances of déjà vu in monetary history to enhance our comprehension of these currencies' present and potential consequences (Jiang et al., 2021). After careful examination, it becomes evident that the existing constraints on personal cryptocurrencies and their underlying principles present a compelling case against their substitution with traditional currency (Bhowmik, 2022). Two significant issues may arise from the widespread availability of general-purpose CBDC. These concerns include the birth of digital runs and the potential for excessive involvement of central banks in funding the real economy (Huynh et al., 2020). In addition, it is important to note that alternative reserve-backed accounts or tokens, also referred to as Tobin alternatives, may also face similar challenges. However, they may not be as readily apparent (Cristofaro et al., 2023). Anticipated benefits of CBDC in eliminating limitations imposed by the effective lower bound on monetary policy appear to be exaggerated, even in a society that operates without physical cash. We contend that central banks should adopt an inclusive approach to addressing the impact of digitization trends. This approach should address the public's need for secure payment methods, protect private sector innovation, and maintain financial stability (Ozili & Ozili, 2021). Our analysis shows that in developed nations, no discernible type of CBDC would be deemed the optimal central bank solution (Oh & Zhang, 2022). However, this response may only be temporary, particularly in developing nations with limited financial inclusion (Demertzis & Lipsky, 2023).

CBDCs, also known as digital currencies backed by central banks (Patil et al., 2018), provide an overview of their present state and discuss the contemplation of their adoption in certain countries and currency regions. These developments are influenced by the successful implementation of CBDCs in the Bahamas and the completion of two trials in China and Uruguay (Böser & Gersbach, 2020). At first, a range of countries were considered for the establishment of Central Bank Digital Currency (CBDC). Afterward, the researchers gather reasons for the adoption of a Central Bank Digital Currency (CBDC) and allocate variables to these reasons (Ashrafi & Easmin, 2023). Upon finishing the preceding two stages, we utilized bivariate correlation statistical techniques, namely Pearson, Spearman, and Kendall correlations. This enabled us to acquire a selection of nations that exhibit strong correlations with Uruguay, Bahamas, and China (Dong & Xiao, 2019). It has been suggested that the Baltic Sea region, including Lithuania, Estonia, and Finland, maybe the most favorable location in Europe for implementing Central Bank Digital Currency (CBDC) (Susanto et al., 2022). As previously noted in the comparison, Uruguay and Brazil showcase remarkably positive results in South America. In Asia, Malaysia strongly correlates with three leading nations, which encompasses China. In the context of the African continent, South Africa stands out as the most appropriate area for implementing CBDC (Alonso et al., 2021b). Previous research presents significant differences in the variables, objects, and years of research and research results. The research design can be seen in **Figure 1.**

2. METHODOLOGY

This study employs an analytical observational design, specifically a case-control design (Briley et al., 2019). This study employs a qualitative approach (Alonso et al., 2020). A qualitative approach is employed when data is gathered and presented as words or sentences (Taskinsoy, 2021). Qualitative research places a high emphasis on the quality of data, which leads to the exclusion of statistical analysis (Singarimbun et al. 2008

Figure 1: *Research Design*

In Masakazu et al., 2023).

Based on the discussion method, this study can be classified as descriptive. A descriptive study aims to provide a comprehensive account and analysis of a particular situation, object, or event, presenting the facts without any interpretation or bias (Ozturkcan et al., 2022). The objective of this descriptive study is to generate a methodical, objective, and precise portrayal or illustration of the information, qualities, and connections among the phenomena being examined (Moh. Nazir. 1988 In Rangga et al., 2022). Based on the study's location, this study can be categorized as a case study (Kamaludin et al., 2021). Field study involves gathering data and information by utilizing various materials discovered in the field (Hoffman et al., 2020). The study is classified as a causal study because it seeks solutions to existing problems, aligning with the nature of this investigation (Uma Sekaran. 2015 In Masakazu et al., 2023). Qualitative data analysis is performed where the empirical data comprises qualitative information expressed through words rather than numerical values and cannot be easily categorized or classified into structured frameworks (Vázquez-Parra et al., 2022). Data can be collected through various methods, such as observations, interviews, document analysis, and tape recordings. Before using data, it is commonly subjected to pre-processing procedures such as documenting, writing, modifying, or transcription. Nevertheless, qualitative analysis predominantly depends on textual data structured into extensive passages without utilizing mathematical computations or statistical methods as a means of analysis (Cardella et al., 2021). As per Miles and Huberman, analysis encompasses three concurrent tasks: data reduction, data presentation, and conclusion (Bossu et al., 2020). Simultaneous occurrence refers to the interconnected and recurrent nature of data reduction, data presentation, and conclusion drawing/verification. This process involves continuous interaction prior to, throughout, and following data collection, forming multiple stages that contribute to the development of overarching insights known as analysis (Rangga et al., 2022). Qualitative studies employ various methods to analyze data, such as interpreting interview outcomes, reducing and analyzing data, interpreting findings, and employing triangulation (Alonso et al., 2021a). Conclusions can be derived from the examination of data. Researchers employ various data analysis methods when conducting their studies:

2.1 Data Reduction

The process of data reduction cannot be considered separate from the analysis. Data reduction involves the careful selection, diminution, conceptualization, and alterations of raw data obtained from notes (Maryaningsih et al., 2022). Data reduction efforts occur constantly, particularly during qualitatively oriented studies or data gathering (Bindseil, 2019). Various techniques are employed to analyze and condense the information in the data collection process. These techniques involve summarization, code, topic identification, group creation, data division, and memo writing (Fung & Siu-Cheong, 2017). Data reduction is a process that enhances, categorizes, guides, eliminates unnecessary data, and arranges data to generate and validate conclusions (Pfister, 2019). Following the completion of field research, the data reduction or transformation process persists until the final report is fully accomplished. Due to its versatility, qualitative research can be streamlined and transformed through different methods, such as meticulous selection, concise summarization, classification within a broader framework, and similar approaches (Biggeri et al., 2018).

2.2 Triangulation

Researchers utilize the triangulation approach to evaluate the credibility of the data (Mohammad & Davoodalhosseini, 2018). In its most fundamental form, triangulation is a technique for validating data that involves comparing the results of interviews with the object (Kadek Indri Wira Pratiwi et al., 2023). Triangulation can be achieved through different methods, such as conducting interviews, making observations, and referring to relevant documentation (Nasution, 2003 In Arfianti & Reswanda, 2020). Triangulation serves the purpose of validating the information's precision and enhancing the data (Kshetri, 2021). Moreover, as per Nasution, triangulation can prove to be advantageous in assessing the validity. Therefore, the concept of triangulation exhibits an introspective nature (Kumhof & Noone, 2018). Moloeng, (2004) In (Kadek Indri Wira Pratiwi et al., 2023) distinguishes four types of triangulations: sources, methodologies, investigators, and theories. Researchers only employed examination procedures by utilizing sources in this work out of the four types of triangulations (Wang & Hausken, 2022). Source triangulation involves juxtaposing and verifying information obtained from various sources at different points in time and using different methods or tools (Erlita et al., 2018). The following steps were performed to achieve such reliability:

a. Contrasting data obtained from observations with data obtained from interviews.
b. Examining the disparity between individuals' public and private statements.
c. Analyzing the evolution of opinions regarding the research situation over a period of time.
d. Analyzing an individual's situation and viewpoints in relation to diverse opinions and perspectives held by individuals from different social strata.
e. Analyzing the findings of an interview in relation to the information presented in a corresponding document.

Meanwhile, Tedi Cahyono claimed that, in qualitative research, triangulation is a procedure that, in addition

to other processes, must be passed by a researcher and that this process determines the validity elements of the material gathered to be compiled in a study (Ozili, 2023). A technique for verifying data validity involves utilizing an alternative method to assess or contrast the data rather than relying solely on the data itself. Checking through different sources is the most common triangulation technique (Chandna, 2022). The triangulation model is intended to eliminate the contradiction between qualitative and quantitative techniques, allowing for the true discovery of the correct theory (Malloy et al., 2022). Triangulation aims to improve the theoretical, methodological, and interpretive strength of research (Iancu et al., 2021). Thus, triangulation is vital in bridging the gap between qualitative and quantitative research, and (Yin & Campbell, 2003.) states that triangulation data gathering incorporates observation, interviews, and documentation (Staicu, 2021). Data presentation is qualitative research's second most significant action (Guerrero et al., 2021). Data presentation is a collection of facts organized such that it is possible to draw conclusions and take action (Ulber Silalahi, 2009 In Rangga et al., 2022). In the past, narrative material in tens, hundreds, or even thousands of pages were commonly employed for qualitative data presentation (Chiu et al., 2019). On the other hand, large amounts of narrative material exceed the load of human ability to assimilate information (Krishna et al., 2022). Humans have limitations when it comes to processing large amounts of information. Instead, they tend to condense intricate data into simpler and more selective forms that are easier to comprehend (Chiu & Davoodalhosseini, 2021). Qualitative data can be presented in various matrices, graphs, networks, and charts. All of them aim to merge structured data in a logical and easily comprehensible manner. As a result, data presentation is a component of the analysis (Calle & Eidan, 2020).

3. RESULTS AND DISCUSSION

3.1 The Significance of CBDC as a Digital Transaction Method

Almost all community respondents (99.60%) have bank accounts, whereas 87.50% of entrepreneur respondents have bank accounts. Entrepreneurs, particularly MSMEs, who do not have bank accounts remain at 12.5%, necessitating cash and electronic money. The rationale for not having an account for the community is that they do not require or intend to have one. The reasons for not having an account for entrepreneurs are nearly identical: they do not need it (22%), they are still developing (11%), they are still an individual business (11%), they are still incorporated with a personal account (22%), and the firm is not yet formed (33%). In the offline survey, 40 respondents were in-depth interviewed about why they did not have an account. Low income is the most common reason (39.76%) given by respondents who do not have an account. With limited earnings, it is just enough to meet daily needs; therefore, there is little room for savings. This explanation also leads to the second most common argument: respondents believe they do not require a bank account (33.73%), either for saving or payment activities. The third explanation is that they require a bank account to send or receive money. The demand is addressed by enlisting the assistance of other family members and/or neighbors (13.25%). Other reasons include a lack of complete documents (3.61%), a bank's location being too far away (2.41%), high transaction and storage fees (1.20%), a lack of trust in banking institutions (1.20%), and other factors (such as a lack of time, a hassle to deal with, etc.) totalling 4.82%. There is no trend in the association between bank account ownership and electronic money usage, according to **Table 1** and **Table 2.** E-money use is always much greater among bank account holders (94.76%) than non-account holders (100%). E-money use is likewise consistently higher among business respondents who have an account (80%) and entrepreneur respondents who do not (70%).

Table 1: *The Number of Community Respondents by Bank Account Ownership and Electronic Money Usage*

Do you have a bank account?	Do you use electronic money?		Total
	Yes	No	
Yes	235 (94.76%)	13 (5.24%)	48 (99.6%)
No	1 (100%)	0 (0%)	1 (0.4%)
Total	236 (94.78%)	13 (5.22%)	249 (100%)

Table 2: *The Number of Entrepreneurs Respondents (%) by Bank Account Ownership and Electronic Money Usage*

Do you have a bank account?	Do you use electronic money?		Total
	Yes	No	
Yes	56 (80%)	14 (20%)	70 (87.5%)
No	7 (70%)	3 (30%)	10 (12.6%)
Total	63 (78.75%)	17 (21.25%)	80 (100%)

According to the findings in **Table 1** and **Table 2**, a significant number of people (5%) and entrepreneurs (21%) have not adopted electronic money, implying that a choice between utilizing current banknotes and electronic money is required. Furthermore, in 2022, the average percentage of Indonesians with cellular phones is only 62.84%. The most common problems encountered by the public when using electronic money are network problems/loss of signal (53%), not being read by the card reader (23%), being lost (10%), damaged (8%), having the balance debited twice (8%), and others (3%), such as failing to top-up with a large nominal because there is a maximum top-up limit, some merchants do not support electronic money transactions, and so on. However, many individuals (33%) have never experienced difficulty utilizing electronic money. Detailed data is displayed in **Table 3**. The most common problems experienced by entrepreneur respondents when using electronic money are network problems (51%), never having a problem (25%), not being read by the card reader (16%), damage (14%), balances debited twice (5%), and others (3%), such as the speed of each bank's application is different, and the balance is not sufficient. Only 25% of business owners have never encountered a problem using electronic money. A more detailed description is depicted in **Table 4**.

3.2 CBDC Can Be Utilized as a Transaction Method Innovation for Socio-Entrepreneurship

Central Bank Digital Currency (CBDC) issuance via a ledger system using centralized and decentralized techniques gives guidelines for recording CBDC issuance. The CBDC ledger serves by recording central bank obligations, with no further functions, such as the ability to coordinate payments. These extra functionalities can assist in accelerating Central Bank Digital Currency (CBDC) adoption but also increase costs. Access criteria, such as establishing which parties are authorized to view and write the ledger, will impact the system's safety and efficiency. There must be a balance between encouraging diversity and competition in the system and ensuring proper regulatory standards from the private sector. The last thing to consider when designing a ledger is its regulation. A collection of regulations governing the duties and obligations of operators, participants, service providers, and other interested parties will be required for a CBDC method. Other arrangements, such as limiting the central bank's capability to modify the system and data sharing and privacy, must be considered in addition to rules defining roles and responsibilities. It requires money to issue CBDC and operational fees, just like cash creation.

Table 3: *Number of Community Respondents (%) Based on Problems Experienced when Using Electronic Money*

Problems	Yes	No
a. Unreadable by card readers	56 (23.24%)	185 (76.76%)
b. Lost	25 (10.37%)	216 (89.63%)
c. Damaged	20 (8.30%)	221 (91.70%)
d. The balance is debited twice	20 (8.30%)	221 (91.70%)
e. Network problems/signal loss	127 (52.70%)	114 (47.30%)
f. Never had any problems	79 (32.78%)	162 (67.22%)
g. Others (failing to top-up with a large nominal because there is a maximum top-up limit, some merchants do not support electronic money transactions, and so on)	8 (3.32%)	233 (96.68%)

Note: Numbers in parentheses are row percentages

Table 4: *Number of Entrepreneur Respondents (%) Based on Problems Experienced when Using Electronic Money*

	Problems	Yes	No
a.	Unreadable by card readers	13 (16.25%)	67 (83.75%)
b.	Lost	0	80 (100%)
c.	Damaged	11 (13.75%)	69 (86.25%)
d.	The balance is debited twice	4 (5%)	76 (95%)
e.	Network problems/ signal loss	41 (51.25%)	39 (48.75%)
f.	Never had any problems	20 (25%)	60 (75%)
g.	Others (The speed of each bank's application is different, and the balance is not sufficient)	2 (2.5%)	78 (97.5%)

Note: numbers in parentheses are row percentages

The decision on who should play a role in financing will affect system efficiency, competition, innovation, and inclusivity. Directly charging consumers is one of the more transparent options, but it may deter people from utilizing CBDC. Seigniorage can be utilized by the central bank (the bank's profit from the difference between the face value of money and its production cost) to reduce or even cover the cost requirements, whereas charging the service providers requires the service providers to have a viable business model to cover the expenses. **Figure 2** depicts an outline of the flow chart for the CBDC as an innovative mode of payment in Socio-Entrepreneurship. **Figure 2** illustrates the utilization of CBDC as a creative payment solution. The Bank of Indonesia plans to introduce CBDC in the form of e-money, which will be associated with the account of CBDC holders. This initiative will have a noteworthy influence on asset ownership and payment techniques.

3.3 Central Bank Digital Currency (CBDC) in Industry Business Perspective

Hence, it is likely assumed that CBDCs are a novel development by central banks, with their implementation varying across different nations. In our research, we selected Lithuania, Estonia, and Finland in Europe as the most suitable nations in terms of the factors and reasons studied, closely followed by Uruguay, China, and Brazil in South America; when considering Asia, Malaysia emerges as a prime country, particularly alongside China. Similarly, in the context of Africa, South Africa distinguishes itself. Adopting these virtual currencies supported by the central bank represents a crucial advancement in the ongoing digitalization of communities (Vázquez et al., 2019). Alongside additional suggested strategies (Alonso, 2020; Alonso et al., 2020), these actions aim to facilitate the digital shift outlined by (Alonso et al., 2021c), who found that the CBDC would be widely embraced. Nevertheless, considering the ever-evolving nature of innovation and buyer habits, further investigation is required to ascertain the benefits the CBDC can offer individuals in different nations. It is crucial to assess if this endeavor proves fruitful, provided the existence of alternative electronic transaction options. Additionally, addressing concerns regarding security vulnerabilities, such as potential hacking incidents, and safeguarding the confidentiality of CBDC consumers is imperative (Garratt et al., 2021).

Without any uncertainty, the potential implementation of CBDC in a jurisdiction could potentially present a risk to current payment methods. This could result in discontinuing certain electronic and creative payment methods, although a reverse outcome is also possible. There is a possibility that Digital currency payment commerce will respond swiftly due to its highly fluid and imaginative nature. This could lead to consumers perceiving no benefits in utilizing the CBDC and ultimately experiencing failure. Initial trials conducted with the Chinese CBDC indicated that certain consumers expressed that the CBDC was similar to other payment options like WeChat Pay or Alipay (Alibaba group)(Vázquez et al., 2019). Nevertheless, an alternative approach might exist, which involves fostering cooperation among electronic payment firms and central banks.

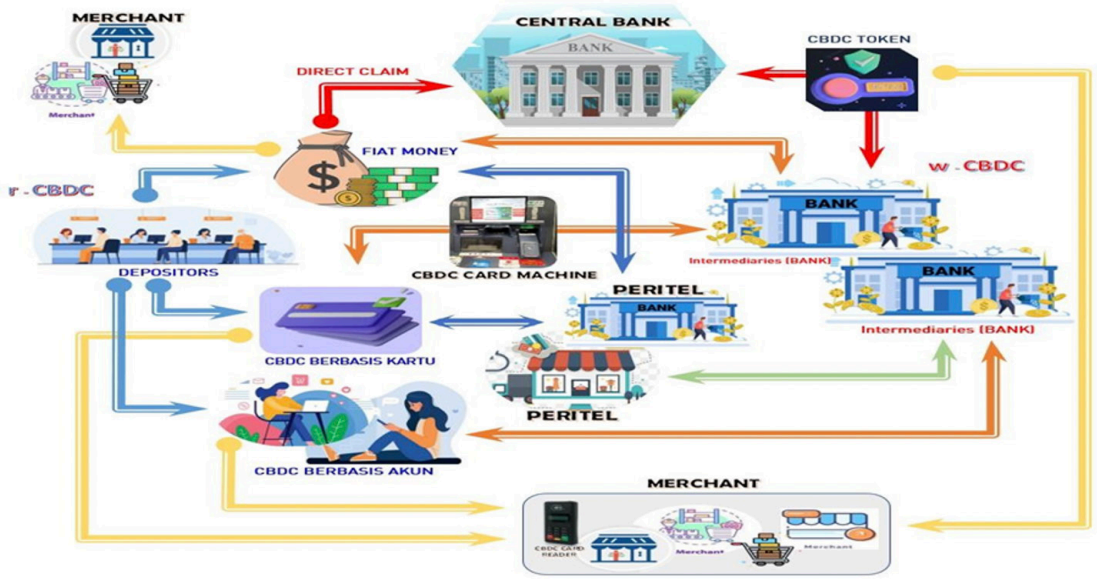

Figure 2: *Central Bank Flow Acts as Payment Innovation Method (Source: Bambang Juanda, 2022)*

This strategy may offer a promising solution, considering it mixes the reliability and confidentiality offered by a central financial institution with the agility and creativity typically associated with this particular e-commerce firm. The aforementioned event took place in the Bahamas, where multiple electronic payment enterprises participated in the establishment and execution of the CBDC (Wenker, 2022). The users would undeniably emerge as the indisputable victor in this partnership (Luis Náñez Alonso et al., 2020.; Polyviou et al., 2019). One potential drawback of the present investigation is the small number of factors that were gathered and investigated. However, it is worth noting that future studies could aim to expand upon this aspect. Furthermore, we would like to highlight the potential for abrupt and swift alterations in central bank determinations as another constraint. The factor, as mentioned earlier, has the potential to alter the outcomes of our investigation in subsequent instances

4. CONCLUSION

The Bank of Indonesia, being the central bank, assumes full responsibility for managing the risks associated with the issuance and regulation of CBDC. It is a currency exclusively provided and overseen by the central bank. Therefore, The Bank of Indonesia needs to conduct a risk management analysis before issuance and implement transparency on all policies and actions implemented. The bank is also appointed to establish a cyber resilience framework and ensure that cybersecurity is managed effectively. The planned development of the Cybersecurity and Resilience Bill is one of Indonesia's efforts to improve cybersecurity. In relation to The Bank of Indonesia's position as an autonomous state entity as per the BI Law, the internal measures taken by The Bank of Indonesia to ensure cyber security and resilience encompass the regulations outlined in the KSS Bill. In the future, more thorough preparations regarding The Bank of Indonesia as a regulator will be required to effectively fulfill the central bank's job as a monetary supervisor. If The Bank of Indonesia controls itself as an organizer, a third party must be a supervisor. As a manifestation of the good governance function between cybersecurity supervision agencies in the financial system, the BSSN's coordinative function becomes significant.

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