

CBDC and customer data privacy: A legal assessment of the balance of financial innovation and digital rights

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Abstract

Digital transformation in Indonesia's financial system is increasingly driving the need for modern and secure payment instruments. Central Bank Digital Currency (CBDC), or Digital Rupiah, is an innovative solution developed by Bank Indonesia to face this challenge. However, the use of CBDC, which is based on an electronic system, has consequences for the protection of customers' personal data. This research aims to analyze the relationship between financial innovation through CBDC and the protection of digital human rights, especially the right to customer privacy. The method used is a normative juridical approach by examining national regulations, including Law No. 27 of 2022 on Personal Data Protection and other related regulations. Comparative analysis is also conducted with international standards on data privacy, such as the European Union's General Data Protection Regulation (GDPR). The results show that there is a dilemma between the need to monitor transactions to maintain monetary stability and prevent financial crime with the state's obligation to protect citizens' privacy rights. Therefore, a balanced regulatory framework is needed that guarantees transparency, cybersecurity, and the principle of data minimization in the implementation of CBDC, so that legal guarantees for the protection of personal data as part of digital human rights are guaranteed.

Keywords

CBDC, Personal Data Protection, Privacy, Financial Innovation, Digital Human Rights

Introduction

The development of the digital economy globally has accelerated the transformation of financial systems in various countries, including Indonesia. One form of innovation that has emerged from this transformation is Central Bank Digital Currency (CBDC), which is a digital currency issued by central banks and has the status of legal tender. Unlike cryptocurrencies such as Bitcoin, CBDCs are centralized and under the control of Bank Indonesia [1].

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Bank Indonesia has launched Project Garuda as a Digital Rupiah development initiative to address the challenges of modernizing the payment system and expanding financial inclusion. This is in response to the post-pandemic surge in digital transactions, which is characterized by an increase in the volume of electronic money transactions from IDR145.2 trillion (2019) to IDR305.4 trillion in 2021 [2]. CBDC is expected to be a solution for an efficient, secure, and inclusive payment system.

However, behind its benefits, CBDC holds the risk of privacy rights violations, especially since the system records all transactions digitally and in real-time. Every CBDC transaction can record data on user identity, location, and consumption patterns, raising concerns about potential mass surveillance by the state or misuse by third parties. This problem becomes even more serious when looking at the high rate of personal data leakage in Indonesia, with more than 230 million personal data leaked during 2021-2022 due to cyber-attacks [3]. The largest attack on personal data in Indonesia occurred due to the LockBit 3.0 ransomware on Thursday (20/6/2024), disrupting a number of public services for the past 12 days. At least 239 central and regional government agencies were affected by the Lock Bit 3.0 ransomware attack on the National Data Center.

Legal recognition of the right to personal data as part of human rights in Indonesia has only been firmly established through Law Number 27 of 2022 on Personal Data Protection (PDP Law). This law regulates the basic principles of data protection, the responsibilities of data controllers, and sanctions for violations. However, in the context of CBDC, there is still no specific technical regulation governing the limits of use, processing, and supervision of customer data using Digital Rupiah. Based on the description above, the problem can be formulated, namely, how is the protection of personal data of customers who transact with CBDC?

Method

This research uses normative legal methods, with conceptual and statutory approaches. The data used is secondary data consisting of primary legal materials such as Law No. 27 of 2022 concerning Personal Data Protection and Law No. 4 of 2023 concerning Strengthening and Development of the Financial Sector, as well as secondary legal materials in the form of journals, literature, and official documents from Bank Indonesia. Data collection techniques were conducted through literature study, and data analysis was conducted qualitatively-descriptively to interpret legal provisions and their implications for data protection in the CBDC system.

Results and Discussion

CBDC or Digital Rupiah developed by Bank Indonesia in the Garuda Project requires a strong digital identity infrastructure. In Bank Indonesia's official documents, it is stated that the CBDC system will involve Know Your Customer (KYC) and user identification

processes to prevent financial crimes such as money laundering or terrorism financing [4].

The types of personal data collected in the CBDC system include:

1. Identity data (NIK, name, address)
2. Financial data (transaction history, balance)
3. Location data
4. Biometric data (fingerprint or face).

All types of data fall under the category of personal data as stipulated in Article 4 of Law No. 27 of 2022 on Personal Data Protection (PDP Law). Data such as personal identity is included in general personal data. Then data such as personal financial data, and biometric data are included in specific personal data, which according to the PDP Law, may only be processed in a limited manner and must be strictly kept confidential [5].

However, there is no technical regulation that explicitly regulates how the mechanism for processing, storing, and deleting data in the CBDC system is carried out. This creates a legal loophole that has the potential to jeopardize users' privacy rights.

Personal Data Protection in CBDC Transactions Discussion

The development of global financial technology has encouraged central banks in various countries to develop CBDC as an official digital currency issued by monetary authorities, so that it has the same legal status as banknotes. In Indonesia, this discourse is realized in the Digital Rupiah initiative initiated by Bank Indonesia. However, the existence of CBDCs raises complex legal issues, one of which is related to the protection of customer personal data. The main problem arises because the characteristics of CBDC allow for very detailed transaction records, so that every financial activity of the community can be monitored directly by the state. Because in the context of the digital rupiah, from issuance to circulation, it is supervised by the government. In a legal context, this creates a potential conflict between the state's need to maintain monetary stability and citizens' constitutional rights to privacy.

If examined further, the protection of customer personal data in CBDC transactions must be understood through national and international legal frameworks. Normatively, Article 28G of the 1945 Constitution guarantees everyone's right to protection of self, family, honor, dignity, and property. This protection of human rights is a constitutional norm, which is then clarified through Law No. 27 of 2022 on Personal Data Protection (PDP Law), which regulates the principles of data processing, the rights of data subjects, and the obligations of data controllers.

CBDC allows Bank Indonesia to access all public transaction data. This has the potential to create a financial panopticon, where the state can directly monitor the economic behavior of its citizens. This poses a dilemma between monetary efficiency and individual privacy.

Within this framework, Bank Indonesia as the issuer of Digital Rupiah automatically acts as the Controller of Personal Data. Consequently, BI must comply with data protection principles, including the principles of lawfulness, fairness, transparency, purpose limitation, data minimization, accuracy, storage limitation, integrity, confidentiality, and accountability.

However, the implementation of these principles in the context of CBDC is not simple, because the traceable characteristics of CBDC make every transaction can be directly monitored and regulated because CBDC is centralized so it is easy to monitor. On the one hand, this is beneficial to prevent money laundering, terrorism financing, and corruption. On the other hand, large-scale data collection can lead to excessive surveillance that violates the principle of proportionality in the PDP Law. The two legislations are incompatible because the former seeks to protect privacy while the latter seeks to control financial transactions involving personal data. Thus, the protection of customers' personal data demands specific regulations that balance public interest and individual privacy rights.

Another issue that has come to the fore is cybersecurity. CBDCs that are entirely digital-based face serious threats in the form of hacking, abuse of authority, and data leakage. If the CBDC system is compromised, the implications will not only affect individuals but also national monetary stability. The PDP Law actually mandates that every data controller maintain data security and confidentiality through adequate technical and organizational mechanisms. However, in the context of CBDC, this obligation must be enhanced through the implementation of global standards such as end-to-end encryption, multi-factor authentication, as well as the principles of privacy by design and privacy by default. This principle requires data protection to be part of the technical architecture from the design stage, not just an add-on after the system is running. Data security is important because the issuance of CBDC is related to monetary policy, where Bank Indonesia is the authority that issues CBDC as well as the controller of personal data. This becomes ambiguous when the CBDC issuer also acts as the data controller.

In addition to domestic issues, CBDC transactions also have the potential to cause cross-border data transfer problems. If Digital Rupiah is traded in regional or international schemes, the personal data of Indonesian customers may be transferred to foreign jurisdictions. PDP Law Articles 56-59 stipulate that cross-border personal data transfer can only be done if the receiving country has equivalent or higher data protection standards. Challenges arise if the partner country does not have adequate protection, leaving Indonesian customer data vulnerable to exposure. Therefore, it is necessary to harmonize CBDC regulations with international standards, such as the European Union's General Data Protection Regulation (GDPR) and the Bank for International Settlements (BIS) guidelines.

The next issue concerns the rights of data subjects. The PDP Law grants various rights to data subjects, including the right to access, rectify, erase, and restrict data processing. However, the implementation of these rights in the context of CBDC faces

a dilemma. If a customer requests the deletion of his or her transaction history, it may conflict with the monetary authority's need to retain the data for audit, transparency or fiscal policy reasons. This clash points to the need for a clear legal mechanism to regulate the limits of data subjects' rights in the context of CBDC. Existing regulations should emphasize when these rights can be exercised, when they are restricted, and what the redress procedures are in the event of a violation.

In terms of governance, a check and balance mechanism are needed so that monetary authorities do not have absolute power over customer data. Transaction data can be used for tax, criminal investigation, and monetary policy. However, on the other hand, use beyond the original purpose can be considered excessive use and violates the purpose limitation principle in the PDP Law.

Bank Indonesia should not be the only entity in control. An independent institution, such as a personal data protection authority or special commission, should be given the authority to supervise, audit, and take action against violations. This is important so that data protection is not only formal, but also substantive. Without an independent oversight mechanism, CBDC risks becoming an instrument of state surveillance that violates the principles of democracy and the rule of law.

Conclusion

The protection of personal data of customers transacting with CBDCs is a very fundamental legal aspect. CBDC brings great potential in strengthening monetary stability, increasing financial inclusion, and promoting transparency of the payment system. However, its traceable and programmable nature also poses serious risks to individual privacy. Therefore, the protection of customers' personal data in the context of CBDC cannot rely solely on the PDP Law as a general regulation, but must be complemented by a lex specialist that details the data processing mechanism in Digital Rupiah.

Bank Indonesia, as the data controller, must ensure the security, confidentiality, and proportionality of the use of customer data. In addition, an independent supervision mechanism and harmonization with international standards are required to avoid abuse of authority and cross-border risks. CBDCs operate on centralized or semi-distributed digital systems. The threat of hacking, data leakage, and abuse of authority are the main risks. Therefore, CBDCs must be designed with end-to-end encryption, multi-factor authentication, and zero-trust security models.

The rights of data subjects must still be guaranteed, albeit with certain restrictions that are proportionate to the needs of monetary policy. With the right legal framework, CBDC can become a modern and secure financial instrument, without compromising citizens' constitutional rights to personal data protection.

Therefore, implementing regulations drafted by Bank Indonesia or authorized institutions are needed to ensure security, transparency, and limit access to personal

data of CBDC users. This regulation is important to prevent potential misuse of data by the state or third parties, as well as to guarantee the rights of data subjects as guaranteed by the constitution and the PDP Law. Without detailed and measurable regulations, the implementation of CBDC could threaten the right to privacy and reduce public trust in the national digital financial transformation

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