Implementation of Non-Cash Payment Regulations in Indonesian

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Abstract
The advancement of electronic payment systems has given rise to various innovations in financial transactions, which are expected to enhance convenience, flexibility, efficiency, and simplicity for users. Among these innovations, electronic money (e- money) demonstrates distinct characteristics compared to pre-existing electronic payment instruments such as phone banking, internet banking, credit cards, and debit/ATM cards. Unlike those systems, transactions conducted through e-money do not always require authorization procedures or processes directly related to customer bank accounts. Based on this development, the researchers formulated the central problem of inquiry as follows: How is the implementation of non- cash payment systems within the Indonesian economic framework evaluated from the perspective of justice values? The study employed a constructivist paradigm, with a descriptive and prescriptive research design, and applied a socio-legal methodology. Data analysis was conducted through a qualitative descriptive approach. The sources of data included both primary and secondary materials, obtained through library research and field research, the latter involving interviews with relevant stakeholders. The findings of this study indicate that the Indonesian government and regulatory authorities have introduced a range of legal instruments to strengthen the non-cash transaction ecosystem. One significant example is Bank Indonesia Regulation (PBI) No. 19/8/PBI/2017 concerning the National Payment Gateway (NPG), which enables interoperability so that one payment card may be used across multiple platforms at minimal or no additional cost. Furthermore, the government's commitment to promoting cashless transactions is reflected in the regulation requiring all toll road users to adopt electronic money as the sole payment method effective from October 1, 2017. The study concludes that the Indonesian government is expected to continuously encourage the implementation of policies that enhance economic efficiency through non-cash transactions while ensuring that the public is not burdened by excessive costs that could discourage adoption. Moreover, these policies are anticipated to foster the development of sustainable business models for electronic payment services in Indonesia.

I. Introduction

Economic development is intrinsically related to human progress and the advancement of technological knowledge within society. Throughout the history of human civilization, human interactions have consistently been manifested in various forms of social relationships, primarily aimed at fulfilling essential needs. Initially, these relationships were realized through barter systems, followed by the use of exchange instruments such as gold coins, and subsequently, the adoption of money as a formal medium of exchange. Money, as a means of transaction, has historically been materialized in tangible forms, including metal and paper currency. However, in line with the advancement of financial technology (fintech), new innovations in electronic payment systems have emerged. These innovations are designed to optimize the use of cash-based payment instruments and simultaneously encourage the transition toward a less-cash society.[1.]

The advancement of information technology, accompanied by increasing competition among banking and non-banking institutions, has stimulated the need for greater innovation in the provision of non-cash payment alternatives. These services are manifested in the form of transfer systems and electronic card-based payment instruments, which are designed to ensure safety, speed, efficiency, and global accessibility in financial transactions.[2] Innovations in payment systems and banking have transformed money into an intangible commodity. This transformation aligns with the advancement of information and communication technologies, which enhance the efficiency of payment systems while reducing both the time and cost required for financial transactions traditionally conducted through instruments such as checks. Since the 1990s, there has been a growing tendency for society to adopt electronic money (*e-money*) in various forms, including internet banking, debit cards, and automated teller machine (ATM) cards. The evolution of money, however, has not ceased at this stage. Further developments introduced electronic money in the form of smart cards equipped with embedded chips, which allow users to preload a desired monetary value and subsequently utilize the card for practical and seamless transactions.[3]

The advancement of electronic payment systems has led to the emergence of various innovations in the field of financial transactions, which are expected to enhance convenience, flexibility, efficiency, and simplicity in their implementation. In response to

[1]Rachmadi Usman, ***KarakteristikUangElektronikDalamSistemPembayaran***, JurnalYuridika: Volume 32 No. 1, Januari 2017, FakultasHukumUniversitasAirlangga, Surabaya, page. 134
[2]Santomero,A.andJ.Seater, ***AlternativeMoniesand the DemandforMedia of Exchange***,Journal of Money,Credit, and Banking,1996,Vol.28,No.4,942-964.
[3]***Ibid.***LihatjugadidalamSolikindanSuseno, ***Uang: Pengertian, Penciptaan, Dan PeranannyaDalamPerekonomian***, PusatPendidikandanStudiKebanksentralan Bank Indonesia, Jakarta, 2002. page. 8-9

these developments, Bank Indonesia introduced a regulatory framework and payment instrument designed to accommodate such aspects, namely electronic money (*e-money*).[4]

Electronic money (*e-money*) possesses distinctive characteristics that differentiate it from earlier forms of electronic payments such as phone banking, internet banking, credit cards, and debit/ATM cards. Transactions conducted using e-money do not necessarily require authorization processes or direct linkage to the customer's bank account, as payments are not automatically debited from the account at the time of transaction. Instead, e-money functions as a stored-value product, in which a predetermined monetary value is recorded and maintained within the prepaid payment instrument.[5]

In its early stages, electronic payment systems were still directly linked to the accounts of bank customers utilizing the service. However, along with rapid technological advancements, patterns and mechanisms of payment in economic transactions have undergone continuous transformation. These technological innovations have gradually shifted the role of cash as the primary medium of exchange toward more efficient and economical non-cash instruments. Generally, non-cash payments are executed not through the physical use of money, but rather via inter-bank or intra-bank transfers conducted through internal banking networks. In addition, non-cash transactions can also be facilitated through card-based payment instruments, including automated teller machine (ATM) cards, debit cards, and credit card.[6]

In its subsequent development, various countries have introduced and implemented electronic payment instruments commonly referred to as electronic money (*e-money*), which possess characteristics distinct from previously established electronic payment systems. Transactions conducted through e-money do not necessarily require an authorization process or online connectivity with a customer's bank account. This is possible because e-money operates as a stored-value product, in which a specific monetary value is preloaded and recorded within the payment instrument, thereby enabling its use for transactions independently of direct account linkage.

The emergence of non-cash payment instruments is driven not only by innovations within the banking sector but also by the growing societal demand for practical means of payment

[4]Mintarsih, ***PerlindunganKonsumenPemegangUangElektronik (E-Money) DihubunganDenganUndang-UndangNomor 8 Year* 1999 *TentangPerlindunganKonsumen***, JurnalWawasanHukum, Vol. 29 No. 02 September 2013, page. 896

[5]***Ibid.,***page. 896-897

[6]BambangPramono, Tri Yanuarti; Pipih D. Purusitawati,dan YosefinTyas Emmy DK, ***DampakPembayaran Non TunaiTerhadapPerekonomiandanKebijakanMoneter***, Working Paper Nomor 11, September 2006, page. 1.

capable of facilitating everyday transactions. The convenience offered by these instruments contributes to the reduction of transaction costs, which in turn has the potential to stimulate economic growth. Nevertheless, alongside these benefits, the widespread use of non-cash payment instruments has also generated debates regarding their possible implications for the implementation of monetary policy, particularly with respect to the effectiveness of monetary control.[7]

At present, the role of paper money has gradually shifted toward the use of electronic money (*e-money*). E-money is regarded as a more advanced payment instrument, offering simplicity and practicality. Through the issuance of e-money cards, transactions can be conducted more efficiently, without the inconvenience of handling cash or providing change. The transformation of money from a physical to an electronic form remains consistent with regulatory standards, as it represents only a change in medium, while its function and value as a means of payment are preserved.

Despite its advantages, the use of e-money also entails certain risks. One of the most concerning risks is the potential loss of the e-money card, which results in the loss of the monetary value contained within it. Unlike ATM cards, e-money cards generally cannot be blocked or secured once misplaced. Nevertheless, under the regulations of Bank Indonesia (BI), e-money is recognized as a legitimate means of payment, with functions that do not significantly differ from those of banknotes and coins.

In October 2017, Bank Indonesia issued the Regulation of the Board of Governors No. 19/10/PADG/2017 concerning the National Payment Gateway (NPG). This regulation classifies e-money top-up mechanisms into two categories. The first, known as *top-up on us*, is conducted through the payment channels of the issuing bank, free of charge for transactions below IDR 200,000, while transactions exceeding that amount are subject to a maximum fee of IDR 750. The second, known as *top-up off us*, involves top-ups through the payment channels of other banks or partner institutions, with a maximum fee of IDR 1,500.

Although intended to protect consumers and ease their financial burden, the implementation of this pricing scheme has raised concerns regarding its potential to impose additional costs on society. For example, the regulation exempts top-ups below IDR 200,000 from charges, yet imposes fees for larger amounts, as well as for inter-bank top-ups. In practice, consumers face further costs, such as IDR 2,000 for top-ups at Transjakarta bus shelters, IDR 1,000 at minimarkets, and IDR 6,500 when using shared

[7]BambangPramono, Tri Yanuarti; Pipih D. Purusitawati,dan YosefinTyas Emmy DK,***Op. Cit.***,page. 1.

ATM networks. Moreover, the initial purchase of e-money cards often results in financial disadvantages, as the value of the balance provided is lower than the purchase price. For instance, an Indomaret card is sold at IDR 75,000 but carries a balance of only IDR 50,000, while a Brizzi card is priced at IDR 50,000 with a balance of only IDR 10,000.

These circumstances demonstrate that consumers are disadvantaged in two significant ways. First, the purchase of e-money cards often entails a monetary loss, as the difference between the card price and stored value directly benefits the issuing banks. Second, when banks collaborate with service operators, such as toll road operators, the imposition of additional top-up fees further burdens consumers, despite the expectation that operational costs should already be covered through such partnerships. Consequently, the regulatory framework, while designed to promote efficiency and consumer protection, has in practice created new financial burdens for society.

Based on the above background, the authors were interested to conduct research by formulating the problem: How Non-Cash Payment System In Economic System In Indonesia Based on Value of Justice.

2. Research Method

The researchers used constructivism paradigm. Since, construction paradigm takes into account that the law is a social reality, then the truth depends on how people do interpretation. Based on the above description, according to E. G. Guba and Y.S Lincoln[8], ontology is relativism, an understanding of reality constructed based on individual social experiences locally and specifically. Epistemologically it is transactional/subjective to the invented findings or investigators and the object of investigation is interacted so that the findings are created or constructed together and the methodology using hermeneutics/dialectical constructs is traced through interaction between the investigator and the object of investigation with hermeneutics techniques and dialectical exchange ' construction 'is interpreted.[9]

The research employed both descriptive and prescriptive methods. The descriptive aspect was utilized to present and elaborate on the empirical facts observed in the field, while the prescriptive aspect was applied through a statutory approach. This approach enabled the

[8]According to Guba and Lincoln differentiating paradigms based on their respective answers to 3 'fundamental questions' concerning: The shape and nature of reality, and what can be known about it (called 'ontological' questions) The nature of relationships or relationships between individuals or groups society with the environment or everything that exists outside of itself, including what can be known about it (referred to as 'epistemological' questions, into which includes 'axiological' questions): The way in which individuals or community groups (including researchers, of course) answer to what one wants to know certain (called a 'methodological' question').

[9] E. G. Gubadan Y. S. Lincoln, 2011, ***KontroversiParadigmatik, KontradiksidanArusPerpaduanBaru***, dalam Norman K. Denzindan Y. S. Lincoln, ***Tha Sage Handbook Of Qualitative Research***,EdisiKetiga,dialihbahasakanolehDariyatno, PustakaPelajar, Yogyakarta, page. 207.

analysis of legal norms and regulations, thereby providing prescriptive solutions and recommendations in accordance with the findings.[10] The research applied a socio-legal approach, which integrates doctrinal legal studies with social science perspectives. This integration is grounded in the premise that legal norms do not operate in a vacuum, but rather within a social context shaped by value systems and competing interests that are often non-neutral. Accordingly, the socio-legal approach involves a textual examination of statutory provisions, followed by an in-depth analysis of whether these legal rules are capable of realizing justice, maintaining social stability, and promoting societal welfare. To ensure accuracy and validity, the study also incorporates social research methods as a means to evaluate the extent to which legal norms can effectively deliver justice in practice.[11] The data analysis used by the researcher was descriptive qualitative. Qualitative analysis in this case is the work done by working with data, organizing the data, sorting it into manageable units, synthesizing it, searching and finding patterns, finding what is important and what is learned, and deciding what can be told to others.[12] Researchers analyzed all the data by combining every problem that exists

[10] Peter Mahmud Marzuki, ***Op. Cit.***,page. 96.

[11] Fx.Adji Samekto, ***Menempatkan Paradigma Penelitian Dalam Pendekatan Hukum Non-Doktrinal dan Penelitian Dalam Ranah Sosio-Legal***, Pedoman Bagi Mahasiswa S3 Ilmu Hukum UNDIP.
[12] Lexi J. Moleong, 2007, ***Metode Penelitian Kualitatif***, Remaja Rosdakarya, Bandung, page. 248.

3. Results and Discussion

The means of payment have undergone rapid development and transformation throughout history. In the early stages of human civilization, transactions were predominantly conducted through a barter system, whereby goods were exchanged directly. Over time, a standardized unit of value, namely money, emerged as a more efficient medium of exchange and continues to serve as a primary instrument of payment in society. Subsequently, the evolution of payment systems progressed from cash-based instruments to non-cash methods, including paper-based instruments such as checks and giro slips. Further advancements introduced paperless payment mechanisms, including electronic funds transfers and card-based payment instruments, such as automated teller machine (ATM) cards, credit cards, debit cards, and prepaid cards.[13]

Cash payment is still the main choice, whereas there is a burden of cost, effort and time when transacting using cash. Cash payment tools use more currency (paper and metal). The *cartal*money (currency) still plays an important role especially for small value transactions. In contemporary society, the use of cash payments in the form of currency has become relatively less dominant compared to demand deposits. In 2005, the ratio of currency to the total money supply was recorded at 43.3 percent. Nevertheless, the utilization of currency presents significant challenges in terms of efficiency. The procurement and management of cash (cash handling) involve considerable costs, which further reduce its practicality. Moreover, inefficiencies also arise in the process of transactions, such as the prolonged time required for payments at counters due to long queues. In addition, large-value transactions conducted in cash are vulnerable to various risks, including theft, robbery, and counterfeiting.[14]

Recognizing the inefficiencies and limitations inherent in the use of physical currency, Bank Indonesia (BI) has taken the initiative to promote and continuously encourage the development of a payment culture oriented toward non-cash transactions, commonly referred to as the Less Cash Society (LCS). This transformation reflects a broader shift in payment systems and economic transaction patterns, wherein cash is progressively being replaced by non-cash instruments that are considered more efficient, practical, and economically beneficial.[15]

[13]BankIndonesia,2011,***Sistem Pembayaran di Indonesia***,Bank Sentral Republik Indonesia
[14]***Ibid.***

[15]Pramono, Bambang, Tri Yanuarti, Pipih D. Purusitawati, dan Yosefine Tyas Emmy,2006,***DampakPembayaranNonTunaiTerhadapPerekonomiandan KebijakanMoneter***,Working Paper Indonesia, No WP/11/2006,September.

The introduction of electronic payment cards was intended to facilitate public transactions by providing greater convenience and efficiency. Prior to the development of electronic payment systems, transactions generally required direct physical meetings between the parties involved. With the advent of such systems, transaction costs can be reduced while ensuring practicality and ease of use. In response to these demands, banks have actively competed to develop various forms of electronic payment instruments, including debit cards, ATM cards, credit cards, smart cards, and electronic money (e-money).[16]

ATM and debit cards have the same definition of payment instruments by using cards, it can be used for cash withdrawals and/or transfer of funds whereas the obligation of the card holders is met instantly by directly reducing the cardholder's savings to a bank or institution other than a bank that gets to collect it

According to Warjiyo[17], the role of non-cash payment system will be greater and vital for the economic development of a country, especially with the increasingly dominant role of the payment system of great value compared to the small value payment system. The security and efficiency of this system not only supports the parties served directly, but also the national financial system as a whole. Furthermore, Lahdenpera[18] In his study, it is stated that the impact of payment technology developments on the implementation of monetary policy largely depends on the extent of public preference in selecting particular means of payment for conducting transactions.[19]

Since 2006, Bank Indonesia has introduced a work program with the central theme of enhancing non-cash payment systems, particularly through the development of card-based payment instruments (Alat Pembayaran Menggunakan Kartu/APMK). This initiative aims to reduce the volume of cash circulating in society while promoting a secure, efficient, and reliable payment system. Such efforts are expected to contribute to strengthening the national economy and reducing the costs associated with currency printing and distribution. Furthermore, in 2012, Bank Indonesia sought technical assistance for the first time to design and implement appropriate legal, regulatory, and supervisory frameworks. These measures were intended to enhance the efficiency of payment systems and to support the implementation of a national strategy for financial inclusion.

[16]BankIndonesia,2011,***Op. Cit.***
[17]Warjiyo, Perry., dan Solikin, 2003,***Kebijakan Moneter di Indonesia***, PPSK BI, Jakarta.
[18]Lahdenpera,Harri,2001,***PaymentandFinancialInnovation,ReserveDemand and Implementation of Monetary Policy***,Bank of Finland Discussion Papers 26/2001

[19]Pramono, Bambang, Tri Yanuarti, Pipih D. Purusitawati, dan Yosefine Tyas Emmy,2006,***Op. Cit.***

The initial project, which focused on strengthening payment supervisory systems, was implemented between July 2012 and June 2014. As a result, Bank Indonesia received a series of policy recommendations covering the following aspects:[20]

1. Legal and regulatory framework for the payment system, including a technical note outlining key elements of payment and settlement laws, as well as provisions for legislative drafting.

2. Suggestions for payment system monitoring frameworks, emphasizing the principles of financial market infrastructure and clarifying the central bank's role in supervising payment systems.

3. Guidance on the standardization of monetary instruments and the development of the National Payment Gateway (NPG), aimed at integrating ATM, mobile banking, and internet banking processing into a single interface.

4. Assessment and recommendations regarding the implementation of the World Bank's Committee on Payment and Settlement Systems (CPSS) general principles for international remittance services.

Bank of Indonesia recognizes the benefits of first technical assistance in its first feedback. According to A. Donanto H. Wibowo:[21] The first technical assistance proved invaluable in enhancing institutional capacity as the authority responsible for the payment system. The exchange of experiences and discussions between consultants, regulators, and industry representatives—facilitated by the World Bank in Jakarta—significantly broadened perspectives and reinforced the feasibility of establishing the National Payment Gateway (NPG). The development of the NPG not only strengthens Indonesia's bargaining position at the international level but also represents a substantial step forward in improving the efficiency, reliability, and competitiveness of the national payment system.

Since completing the first technical assistance, Bank of Indonesia has achieved a number of tangible results, including the following:[22]

1. Issuance of Bank of Indonesia Regulation on the transfer of funds, Bank of Indonesia is circular on the transfer of funds and regulations of Bank of Indonesia.

[20]http://www.monacolifecheck.com/info/sistem-pembayaran-di-indonesia-ingin-tau-silahkan-simak-yang-satu-ini/ , accesses on 27 June 2018 at 21.00 WIB.
[21]A. Donanto H. Wibowo, asisten direktur di Bank Indonesia, komentarnya dalam http://www.monacolifecheck.com/info/sistem-pembayaran-di-indonesia-ingin-tau-silahkan-simak-yang-satu-ini/ , accesses on 27 June 2018 at 22.00 WIB.
[22]Ibid.

2. Improved monitoring of payment systems.
3. The decision to apply an NPG that will make any debit and credit transaction, using any payment method (ATM, mobile, Internet) within or outside the United States in the NPG interface, thereby improving transaction convenience and security as well as lowering costs) as it is networked and connected global cooperation).
4. Prohibition of exclusivity of agreements on the money market, which can open the market for competition and thereby reduce costs for users.

Non-cash payment instruments have experienced significant growth and are increasingly prevalent in Indonesian society. This development demonstrates that non-cash payment services provided by both banking institutions and non-bank financial institutions (Lembaga Selain Bank/LSB)—including fund transfers, clearing systems, and settlement processes—are widely available and effectively operational in Indonesia.

It is important to highlight that Bank Indonesia (BI) emphasizes not only the efficiency of the payment system but also equitable access and consumer protection. Efficiency in the payment system refers to the availability of diverse and affordable payment methods accessible across regions. Equitable access reflects BI's commitment to ensuring fairness in the implementation of payment systems. Meanwhile, consumer protection entails the obligation of payment system operators to adopt principles of fairness and safeguard user interests.

The rapid development of non-cash payment instruments, particularly card-based payments (Alat Pembayaran Menggunakan Kartu/APMK), has contributed to the increasing use of ATMs, debit cards, and credit cards in Indonesia. The expansion of these non-cash transactions has not only facilitated practical, safe, and efficient payment solutions for large-scale transactions but also aligned with the Central Bank's objective of promoting a Less Cash Society (LCS). Furthermore, this development is expected to reduce practices such as bribery and money laundering. The increasing availability of Automated Teller Machines (ATMs) across Indonesia, strategically located to ensure public accessibility, further supports this transformation.

Empirical findings from Bank Indonesia (2018) indicate that public interest and business sector participation in utilizing non-cash payment instruments remain high. Data on card-based payment instruments (APMK)—including ATMs, debit cards, and credit cards—demonstrate a consistent upward trend over the past six years, as presented in Table 1.1.

Table 1.1
The Amount of Payment Tools
Using Cards (APMK) Circulating in Indonesia Year 2011-2017

Period	Year 2011	Year 2012	Year 2013	Year 2014	Year 2015	Year 2016	Year 2017
Credit Card	14.785.382	14.817.168	15.091.684	16.043.347	16.863.842	17.406.327	17.244.127
ATM Card	3.623.992	4.533.187	6.292.164	7.189.917	7.330.388	8.361.351	8.815.007
ATM + Debet Card	59.761.318	73.219.365	83.170.125	98.638.287	112.948.818	127.786.999	155.663.442

Source: Bank of Indonesia (2018)

The data presented above demonstrate that the utilization of non-cash payment systems has shown a consistent upward trend, as reflected in the increasing volume of transactions from year to year. This trend indicates a growing public preference for conducting transactions through non-cash instruments.

The transition from cash-based to electronic non-cash payment systems is not only occurring in Indonesia but is also a global phenomenon. For instance, Japan and several European countries have recorded significant adoption rates of electronic payment systems, accounting for approximately 78 percent and 66 percent of total non-cash transactions, respectively. The economic implications of such transitions are noteworthy, given that the operational costs of maintaining a payment system can reach up to three percent of a country's Gross Domestic Product (GDP) or national income. Since the electronic non-cash payment system incurs only one-third to one-half of the costs associated with paper-based non-cash systems, it is evident that adopting electronic payments can substantially reduce the overall social costs of payment systems.[23]

In this context, a study conducted by Oyewole provides empirical evidence by examining non-cash payment variables, particularly the number of ATM transactions, in relation to their impact on economic growth. The findings indicate that ATM transaction variables have a positive contribution to economic growth and reveal a significant relationship

[23]Humprey, David B, 1995,***PaymentSystems: Principles, Practice, andImprovement***. Washington, D.C.: TheWorld Bank.

between electronic payments and overall economic development.

Within the framework of endogenous growth theory, both physical capital investment and human capital development play a crucial role in sustaining long-term economic growth. Savings and investments serve as key drivers that foster sustainable growth, thereby reinforcing the importance of non-cash payment systems in supporting economic progress.[24]

Empirical findings demonstrate that the amount of currency in circulation has a negative and statistically insignificant effect on Indonesia's economic growth. Conversely, the number of circulating ATM/debit cards and credit cards shows a positive and significant impact on economic growth, as reflected in the Gross Domestic Product (GDP). These results indicate that an increase in circulating currency contributes to a decline in economic growth during the study period, whereas a greater use of card-based payment instruments supports economic expansion. This finding aligns with the research hypothesis, which posits that the volume of currency circulating through banks exerts a negative influence on economic growth, particularly in terms of the currency composition. Moreover, rising demand for cash tends to trigger inflationary pressures and reduces the efficiency of monetary circulation. By contrast, urban populations and middle-to-upper income groups increasingly rely on card-based payment instruments such as ATMs, debit cards, and credit cards due to their efficiency, security, and accessibility, especially in commercial centers, thereby facilitating consumption activities.

From the government's perspective, the promotion of non-cash transactions contributes to economic efficiency through significant cost savings, including reduced expenditures for currency printing, distribution, cash handling, and administrative management. Furthermore, the adoption of non-cash payments enhances transparency and accountability, as all transactions can be recorded and monitored. For consumers, the availability of non-cash transactions provides continuous accessibility, convenience, and lower transaction costs, thereby encouraging greater participation in the formal financial system.[25]

The government's aspiration to realize a *cashless society* requires strong support not only from the banking sector but also from financial technology (*fintech*) pioneers. The role of

[24]Mankiw, Gregory N. *Makroekonomi, EdisiKeenam*. Fitria, Liza. dan Imam, Nurmawan.(penerjemah). PT. Gelora Aksara. 2000

[25]Kompas.com, ***Layanan Pembayaran Non-Tunai Berkelanjutan untuk Efisiensi Ekonomi Indonesia,***https://ekonomi.kompas.com/read/2017/10/03/150445226/layanan-pembayaran-non-tunai-berkelanjutan-untuk-efisiensi-ekonomi-indonesia., accesses on 20 June 2018 at 21.30 WIB.

fintech companies extends beyond providing financial service solutions; it also encompasses public education, particularly for the unbanked population, to encourage a shift toward non-cash transactions. Nonetheless, the development of payment services to support non-cash transactions presents considerable challenges. Key aspects that must be addressed in building a new electronic payment ecosystem include ensuring security and strengthening infrastructure.

According to a survey conducted by JakPat, the adoption of electronic payment services in Indonesia has shown remarkable progress. For instance, Go-Pay rapidly secured the fourth position in usage share (27.1 percent), following Mandiri e-Money (43.8 percent), BCA Flazz (39.1 percent), and Telkomsel T-Cash (29.1 percent). This rapid adoption underscores the importance of coupling innovation with robust security guarantees, as consumer trust is essential for sustaining the growth of electronic payment systems and mitigating potential risks.[26]

Data from Bank Indonesia indicate that as of May 2017, the number of card-based payment instruments in circulation had reached 137,325,105 units. However, the availability of Electronic Data Capture (EDC) machines was limited to approximately one million units, with the majority concentrated on the island of Java. This disparity between the number of card users and the limited distribution of acceptance points creates a significant barrier for consumers in transitioning to non-cash transactions.[27]

Electronic money (e-money) possesses distinct characteristics compared to pre-existing electronic payment instruments such as phone banking, internet banking, credit cards, and debit cards/ATMs. Unlike those instruments, transactions conducted using e-money do not necessarily require authorization or a direct link to the customer's bank account at the time of payment. This is because e-money functions as a *stored-value* product, whereby a specific amount of monetary value is preloaded and recorded within the prepaid payment instrument itself. Consequently, payments can be executed directly from the stored value without debiting the customer's bank account.[28]

In its early stages, electronic payments were directly linked to the accounts of bank customers who utilized them. However, along with rapid technological advancements, the patterns and systems of economic transactions have continued to evolve. Progress in payment technology has gradually shifted the function of cash as a medium of exchange toward more efficient and cost-effective non-cash instruments. Non-cash payments are

[26]Ibid.
[27]Ibid.
[28]***Ibid.***,page. 896-897

generally executed not through the physical transfer of money, but rather by means of inter-bank or intra-bank transfers facilitated through banking networks. Furthermore, non-cash payments can also be carried out using card-based instruments, such as Automated Teller Machine (ATM) cards, debit cards, and credit cards.[29]

In its development, several countries have adopted electronic payment products known as Electronic Money (e-money), which possess distinct characteristics compared to earlier forms of electronic payments. Unlike conventional electronic payments that generally require authorization and a direct online connection with a customer's bank account, e-money transactions do not necessarily involve such processes. This is possible because e-money represents a *stored-value product*, whereby a predetermined monetary value is recorded and embedded within the payment instrument itself.

Currently, the role of paper-based currency has begun to shift toward electronic money, marking a transition from banknotes to e-money as a more advanced, convenient, and practical means of payment. Through the issuance of e-money cards, transactions can be conducted without the inconvenience of handling physical change or other inefficiencies commonly associated with cash payments. Although the transformation of money into electronic form represents a change in its medium, its fundamental value as a legal means of payment remains intact.

Nevertheless, e-money presents certain risks. A significant concern is that, in the event of losing an e-money card, the stored balance is lost as well, unlike ATM or debit cards that can be blocked and replaced by the issuing bank. Despite this limitation, e-money is formally recognized as a valid payment instrument under the regulations of Bank Indonesia (BI), with no substantive difference in function compared to conventional banknotes and coins.

To strengthen the infrastructure of non-cash transactions, various regulatory frameworks have been introduced. One notable example is Bank Indonesia Regulation (PBI) No. 19/8/PBI/2017 concerning the National Payment Gateway (NPG), which allows interoperability so that a single card can be used more widely across different payment channels. The government's commitment to fostering a cashless society is also evident in the mandatory use of electronic money for toll road payments beginning October 1, 2017. Further, preparations are underway to extend electronic payment adoption to Pertamina fueling stations.

With these policy initiatives and regulatory support, it is anticipated that the adoption of

[29]BambangPramono, Tri Yanuarti; Pipih D. Purusitawati,dan YosefinTyas Emmy DK, ***DampakPembayaran Non TunaiTerhadapPerekonomiandanKebijakanMoneter***, Working Paper Nomor 11, September 2006, page. 1.

electronic money among the public will accelerate significantly. Government backing is crucial to the success of a cashless society, and in this regard, Indonesia may benefit from learning best practices from other countries that have successfully advanced non-cash payment ecosystems.

In India, for instance, the government has actively promoted the use of non-cash payments by providing incentives such as discounts or tax reductions in certain sectors, including fuel stations and toll roads. These initiatives, coupled with strong policy demonstrations, have significantly accelerated the adoption of electronic payments. The broader objective is to ensure that all segments of society, including those in remote areas, gain access to financial services through banking channels, thereby advancing financial inclusion.

Drawing from this example, the Government of Indonesia is likewise expected to continue implementing policies that promote economic efficiency through non-cash transactions. However, such measures must be carefully designed so as not to impose excessive costs on the public, which could otherwise discourage adoption. Instead, policy interventions should foster an enabling environment that encourages the development of sustainable business models for electronic payment services. In doing so, Indonesia can not only increase the efficiency of its payment system but also expand financial inclusion in a manner that supports long-term economic growth.

4. Conclusion

Various regulations have been issued to support the implementation of non-cash transactions, including Bank of Indonesia Regulation (PBI) No. 19/8/PBI/2017 on the National Payment Gateway (NPG), which enables interoperability so that a single payment card can be used across different networks. The government's commitment to advancing a non-cash movement is further demonstrated through regulations mandating the use of electronic money for toll road payments, effective October 1, 2017.

Going forward, the Government of Indonesia is expected to continue formulating policies that enhance economic efficiency through non-cash transactions. However, such measures must be designed in a way that does not impose excessive costs on the public, which could otherwise discourage adoption. Well-calibrated policies are therefore essential to support the development of a sustainable business model for electronic payment services, while simultaneously promoting broader financial inclusion and economic growth.

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