

Legality of Using Crypto Currency as a Means of Payment in the Industrial Era 4.0

¹Mukharrom Hadi Kusumo, ² Nuryanto A. Daim

¹Yayasan Lembaga Perlindungan Konsumen (YLPK) Jawa Timur

²Universitas Wijaya Putra Surabaya

Email : ¹mukharromhadi@gmail.com, ²nuryantoadaim@uwp.ac.id

Abstract

The public has made many changes to the pattern of economic transactions and non-cash currency transactions, indicating the increasing acceptance and preference of the public for online shopping and the formation of an e-commerce ecosystem, so Bank Indonesia will accelerate the issuance of a central bank digital currency. As in the preamble of the 1945 Constitution that the Indonesian nation is an independent nation based on the freedom of life as a nation, as a form of the Government of the State of Indonesia to promote general welfare and educate the nation's life, there needs to be a normative juridical type of research. The policy to regulate cryptocurrencies as legal tender in the country of El Salvador is a new breakthrough in the world of legal development so that the law follows technological developments in Era Industri 4.0. The legality of the Bitcoin crypto currency of the Republic of El Salvador is not much different from the legality of the regulation of the Indonesian Rupiah currency, thus enabling the Indonesian Government to make the Indonesian Rupiah cryptocurrency as a new means of payment in Era Industri 4.0.

Keywords : *Legality, Currency, Crypto, Payments, Industrial Age*

A. INTRODUCTION

1. Background of the Problem

The history of currency is not spared from the development of human civilization in meeting daily needs because basically humans as social beings , cannot live alone. Every need to fulfill clothing, food, and boards, humans need a medium of exchange as a substitute for goods of equivalent value so that their needs are met.

The development of human civilization can be seen from the use of its means of exchange as history records the beginning of human transactions by bartering or exchanging goods, then developing using currency based on Weatherford's notes in the book History of Money (1997), the first nation to

use currency was the Lydiates, the life of the nation was included in the territory of Turkey in 1,000 BC (BC).¹

Currency is a means of payment within a country, valid nationally because each country has its own authority in the use of currency. Types of currency consist of paper currency and metal currency but have their own characteristics and vary in each country, currency is a symbol of the sovereignty of a country such as the state of Indonesia imposes the obligation to use the Rupiah currency in the state of Indonesia as stated in article 2 paragraph (1) of PBI Number 17/3/PBI/2015 concerning the Obligation to Use the Rupiah in the Territory of the Unitary State of the Republic of Indonesia.

Then currencies have developed along with the progress of the times since the existence of smartphones, transactions are easier because they do not use cash in transactions, it is enough to add money balances to payment applications. Various kinds of payment applications such as OVO, Flip, Go-Pay, DANA, Sakuku, Link Aja, Paytren, and many other payment applications, non-cash payment arrangements are contained in the Attachment to the Presidential Instruction of the Republic of Indonesia Number 18 INPRES RI Number 10 of 2016 concerning Corruption Prevention and Eradication Actions in 2016 and 2017, but the implementation is limited to the implementation of state administration such as Ministries/Institutions and The Regional Government has not touched the social needs of the Indonesia people.

The people of Indonesia already have many communication tools based on Apple's Android or IOS, from the bottom to the upper class because these communication tools are no longer luxury goods but have become a daily necessity and people's dependence on smartphones every day is getting higher, one of which is as a non-cash transaction tool, but Indonesia is a country the lowest in the use of non-cash transactions compared to other ASEAN countries.

Indonesia's cash circulation is greater than the circulation of non-cash money, it is recorded that the use of Indonesia's non-cash transactions is around 31% of the total money supply of Rp. 550 trillion, while other ASEAN countries have reached above 50% in 2019,2 therefore the government of

¹ Tirto, **The History of Money in Human Civilization: From Barter to Bitcoin**, <<https://tirto.id/sejarah-uang-dalam-peradaban-manusia-dari-barter-hingga-bitcoin-ejXX>>, November 19, 2021.

Indonesia through Bank Indonesia together with other banks has the same vision, which is to encourage the growth of the use of non-cash transactions.²

Smartphones as a sign in the industrial revolution 4.0 so that it leads to the era of "*artificial intelligence*" and "*big data*" because in the Industrial Era 4.0 gave rise to the internet of things (IoT) and blockchain, the important role of technology can influence human activities forcing to adapt to new means of payment, namely cryptocurrencies.³ In 2022, Cryptocurrency still does not have a major influence on the basic needs of daily life, but as time goes by, the Government of Indonesia must really prepare regulations and regulations on the use of Indonesia's Cryptocurrency.

The public has made many changes in economic transaction patterns and non-cash currency transactions, indicating an increase in public acceptance and preference for online shopping and the formation of an e-commerce ecosystem, so BI will accelerate the issuance of central bank digital currency.⁴

In fact, until now there has been no initiative from the government to make the Cryptocurrency Bill as a means of payment, as stated by Rosalia Suci Handayani, as the Executive Director of the Head of the BI Legal Department revealed that starting from May 29, 2021 until the next ten years, cryptocurrencies other than the Central Bank will not be allowed to become legal tender in Indonesia.⁵ This attitude shows the occurrence of a legal vacuum in regulation of cryptocurrencies, so that legal development tends to lag behind the advancement of android technology in the Industrial Era 4.0.

2. Problem Formulation

After the research topic or title is obtained, the next step is to determine the research problem. In accordance with the title of the study, namely "The Legality of the Use of Cryptocurrency as a Means of Payment in the Industrial Era 4.0", the author will determine two relevant research issues and in

² Tempo Data and Analysis Center, **Getting to Know the Development of Non-Cash Transactions in Indonesia Until 2019**, Tempo Publishing, Jakarta, 2019, p. 13.

³ Alexander Sugiharto, and Muhammad Yusuf Musa, **Blockchain & Cryptocurrency in a Legal Perspective in Indonesia and the World**, Indonesian Legal Study for Crypto Asset and Blockchain, Jakarta, 2020, p. 4.

⁴ CBN, **BI Issues Digital Money, the 'Apocalypse' of Banknotes in Front of Your Eyes**, <<https://www.cnbcindonesia.com/tech/20211126135342-37-294686/bi-terbitkan-uang-digital-kiamat-uang-kertas-di-depan-mata>>, March 14, 2022.

⁵ In fact, **BI Emphasizes at Least the Next 10 Years Cryptocurrency Must Not Be a Means of Payment**, from <https://nasional.kontan.co.id/news/bi-tegaskan-minimal-10-tahun-ke-depan-cryptocurrency-tidak-boleh-jadi-alat-pembayaran>, accessed on July 4, 2022.

accordance with the title of the proposal as follows: What is the legality of using cryptocurrency as a means of payment in transactions?

3. Research Methods

As the object of the research discusses "legality" more, this research method uses the normative juridical law research method, namely laws and regulations as the concept of rules or norms because it is related to legal vacuums and legal development in accordance with the research to be conducted.⁶ As a legal *research* and in accordance with the distinctive character of *jurisprudence*, as well as the substance of the problem or legal issue to be studied in the research, namely the legality of the use of cryptocurrency as a means of payment in the Industrial Era 4.0, the approaches that will be used are in accordance with the problem to be studied.

B. DISCUSSION

1. History of Cryptocurrencies

The journey of currency as a means of payment until this second has never slept, history records the latest invention, namely cryptographic electronic currency or known as e-cash, by United States cryptographer David Chaum in 1983. The first form of cryptographic electronic payment was applied through Digicash in 1995. To make cryptographic electronic payments, users need software as the primary tool to pull a specific encrypted key record from an electronic central bank before sending it to the recipient, the transaction is unlikely to be traced by the issuing bank, the government, or any third party.⁷

The National Security Agency (NSA) was the first cryptography agency in the United States to publish a paper titled *How to Make a Mint: the Cryptography of Anonymous Electronic Cash* in 1996 describing the cryptocurrency system, and the second in *The American Law Review* in 1997. Wei Dai published a description of "*b-money*" in 1998 characterizing cryptocurrency as a distributed electronic cash system, shortly afterwards Nick Szabo described bit gold, describing it as an electronic currency system,

⁶ Muhaimin, **Legal Research Methods**, Mataram University Press, Mataram, 2020, p. 55.

⁷ iNews, **The History and Development of Cryptocurrencies, Starting With the Emergence of Bitcoin**, <<https://www.inews.id/finance/keuangan/sejarah-dan-perkembangan-mata-uang-kripto-dimulai-dengan-kemunculan-bitcoin>>, accessed on June 14, 2022.

but it was still imperfect because users still needed proof that the gold bit was unified as well as its issuance functioned or worked using cryptography. The *bitgold system* has the disadvantage of not being able to be used over and over again, while the basis of the currency system requires a way of working that can be used over and over again, so Hal Finney recreated it by following the work of Dai and Szabo.

Cryptocurrency can first be decentralized by cryptography developer Satoshi Nakamoto in 2009, called the Bitcoin cryptocurrency using Secure Hash Algorithm 256-bit (SHA-256) technology is a design from the United States NSA in the form of a hash cryptographic function, published in 2001, while the hash function itself is a form of function useful for mapping data with arbitrary sizes to fixed-size values. The return value by the hash function means a hash value, a hash code, a digest, or just a hash, which is usually useful for indexing a fixed-size table or named a hash table as a proof-of-work scheme for bitcoin.

The beginning of human thinking using cryptocurrencies is a breakthrough in technological advances in the Industrial Era 4.0. The following are digital currencies or cryptocurrencies before the invention of the bitcoin cryptocurrency:

- 1) E-cash inventor David Chaum in 1983.
- 2) B-money inventor Wei Dai in 1998.
- 3) Bit gold inventor Nick Szabo in 1999.
- 4) Bitcoin inventor Satoshi Nakamoto in 2009.

People are increasingly fond of cryptocurrencies, even a reference book company called Merriam-Webster added the word cryptocurrency in the dictionary in March 2018. Here are some cryptocurrencies after bitcoin:

- 1) Altcoin

Stephanie defined herself in *The Wall Street Journal* of the New York City international *daily newspaper* as an alternative digital currency while Paul Vigna in the same newspaper described the altcoin as an alternative version of bitcoin, first launched in 2011. Why many opinions and views that altcoin is an alternative to bitcoin, this opinion is not wrong, based on performance, altcoins want to show an improvement in aspects of bitcoin in terms of transaction speed or energy efficiency. Here is a list of some of the most popular types of altcoins:

- 1) Ethereum; is a blockchain platform with smart transaction functions such as virtual machines, running peer-to-peer (P2P) smart transactions using the Ether currency. Vitalik Buterin started the major Ethereum project in 2013, releasing its debut on July 30, 2015.

- 2) Lite Coin; is a type of open-source software-based cryptocurrency under the supervision of the MIT/X11 license, namely the permissive free software license, originated from the Massachusetts Institute of Technology, created in 2011. Lite Coin as one of the derivatives of the Bitcoin Core QT cryptocurrency. All the components in Lite Coin are not much different from Bitcoin.
- 3) NEO; previously had the name Antshares then rebranded to the name NEO in 2017. NEO is an open source blockchain decentralized application, its founders named Da Hong Fei and Erik Zhang in 2014. The NEO project aims to realize a smart economy from issuance to management by utilizing blockchain technology and smart transactions.
- 4) Cardano (ADA); has the ADA symbol is a cryptocurrency with smart transaction platform equipment, uses a third-generation blockchain and has proof of stake. Ethereum co-founder Charles Hoskinson as the founder of the ADA cryptocurrency in 2015, aims to provide P2P transaction facilities.
- 5) EOS; is a blockchain protocol based on the EOS cryptocurrency, claiming to use a smart platform that can eliminate transaction fees and perform millions of transactions per second. The private company block.one as the developer of the EOSIO platform based on the white paper published in 2017, then released it for the first time as open source software on June 1, 2018.
- 6) DASH; is an open-source cryptocurrency. DASH is an altcoin offshoot of the bitcoin protocol and a decentralized autonomous organization (DAO), with its drive in the form of a subset, namely a set of parts as in mathematics focusing on set theory, formed based on a set A is a set of parts or subsets of set B if A is contained in part B. A and B may be the same set, while the user is mentioned as masternodes. The DASH currency was first launched in January 2014 named xcoin as a fork of the bitcoin protocol by Evan Duffield.⁸

Every cryptocurrency development always prioritizes computing platform services and technology, namely in computer science, platforms, platforms, or vehicles are a combination of a hardware architecture and a

⁸ Republika, Altcoins: Definition, Types and List of Best Altcoins, <<https://www.republika.co.id/berita/r7tgfx9416000/altcoin-pengertian-jenis-dan-daftar-altcoin-terbaik>>, accessed on June 15, 2022.

software framework. This combination allows a software, especially application software, to run.

Developers always develop smart contracts, of course the meaning of contracts in the cryptocurrency system is different from legal contracts in general, the meaning of the smart contract of the cryptocurrency system is a term used to describe a computer protocol as a means of contract facilities and agreements between one party and another without going through a third party P2P.

Developers always say that cryptocurrency as open source software is a type of software with open source code so that all parties can learn, change, improve, and disseminate, but not all parties can change the programming code because the software license rules apply, as an illustration of the Microsoft company freeing its software so that everyone can access or but users cannot modify and develop the software product. Based on these three meanings, such as computing platforms, smart contracts, and open source software, it is a term in cryptocurrencies.

The emergence of cryptocurrencies does not cause them to be completely homogeneous, like other types of cryptocurrencies, namely token coins with functional characters and have differences according to the definition in numismatics, which are coin-like objects used in place of coins, in the form of a part of the field of exonomia and its designation as token money, have a denomination in the form of clues or implied by size, color or shape.

In general, crypto tokens or coin tokens have limitations according to the issuer such as private companies, association groups, or individuals and countries recognize the existence of tokens because the working system is a convergence between tokens and currencies, as an illustration when someone plays casino slot games, then the use of metal token coins as a substitute for cash, the existence of tokens has existed since the 17th to the 19th century, In the Industrial Era 4.0, the use of fixed tokens functions as crypto tokens in making payments using blockchain accounts, decentralized applications or smart transactions.

2. Use of Cryptocurrencies

Cryptocurrency is a certain type of electronic payment scheme using certain cryptographic properties,⁸¹ in contrast to online payment gateway systems that use third parties, namely banks or other parties, using the method of depositing money first to a third party, when there is a third party transaction telling the owner of the money to transfer to the seller.

The future of the cryptocurrency payment system will be more practical and efficient, because it does not use a third party, namely banks or other parties, everyone becomes their own bank, the sender and receiver of cryptocurrency can make payments directly (P2P) without requiring a third party to function such as buying goods to the market or store with cash, but all transaction or payment activities use the cryptocurrency network.

One of the cryptocurrencies is bitcoin, this is a new type of currency using electronic exchange facilities and infrastructure, such as rupiah or other currencies, there is a use to obtain goods and service products or services. Cryptocurrencies consist of an alphanumeric sequence so that they can be read by the public using virtual wallets, in every exchange, currency payment, people need a cryptographic key, without a key it will not work.

The advantages of using cryptocurrency as a means of payment and the advantages are first, cryptocurrency is a global currency so that it opens up direct opportunities to the global economy, not hindered by the world's geography, second, cryptocurrency is a currency that can be divided into several decimals according to currency exchange rates around the world, third, transactions using cryptocurrency based on time according to the world's geographical area so as to provide security to sellers As well as buyers of goods or services in global trade, the four circulation of cryptocurrencies are not bound by the state, government, banks and other financial institutions, from these advantages cryptocurrencies apply to all corners of the world according to the interests of users, and the possibility of counterfeiting cryptocurrencies is very unlikely, because the security of the combination of cryptographic techniques has been proven, besides that everyone must have a cryptographic key in order to be able to Use.⁹

Cryptocurrency is an internet currency, its use can increase human prosperity in accordance with the teachings of the welfare state theory, so the government as a representative of the state has an obligation to provide basic economic security for its citizens so that they have a minimum decent life stability. Transactions using cryptocurrencies can optimize the payment process by not using third-party service intermediaries, namely banking, so people have saved expenses from commissions for each banking transaction service. Cryptocurrencies function as financial investment instruments, initiating negotiations in different forms of investment and adapting to

⁹ Laurie Law, et.al, **How to Make a Mint: Cryptography of Anonymous Electronic Money**, American University Law Review, Vol. 46:1131, 1996, p. 1133.

different investor profiles, will make economic development and financial growth increasingly increase through the stock market.

People's commercial activities are growing because cryptocurrencies provide a new model mechanism to achieve ideal and effective economic activities, regardless of the geographical location and territorial use of currency in a country. Means of communication will not use traditional methods such as radio and television media but using digital platform media, these activities will trigger the growth of new jobs and new income for the community.¹⁰

The Republic of El Salvador has legalized the use of cryptocurrencies according to the letter of the House of Representatives of the Finance Commission on June 8, 2021, the Legislative Assembly of the Republic of El Salvador has approved Legislative Decree Number 57 on the side of the Bitcoin Law as a legal tender, in all transactions and in all conditions, since the enactment of the Law all people are obliged to comply and implement it, however, the decision came into effect on September 7, 2021.¹¹

With the enactment of cryptocurrency in the Republic of El Salvador, the Central American country aims to advance and protect the interests of the majority of the population so that conditions arise according to the needs of increasing national wealth. In the latest conditions since the enactment of cryptocurrencies, the government wants to provide financial access more easily than formal access to finance by cash, so that there is an improvement in the quality of life, based on authority, the state is obliged to facilitate citizens from financial inclusion so that the rights to access national or international finance are guaranteed. The implementation of cryptocurrency as a means of payment is part of the digital revolution 4.0, it is impossible for El Salvador to turn a blind eye to the development and new mechanism of digital currency as one of the entrances to the free market.

In contrast to the treatment of cryptocurrencies by the State of Indonesia, based on the Regulation of the Minister of Trade of the Republic of Indonesia Number 99 of 2018 concerning the General Policy for the Implementation of Futures Trading of Crypto Assets (*Crypto Assets*), as well as based on BAPPEBTI Regulation Number 5 of 2019 concerning Technical

¹⁰ Belvin Tannadi, **Ilmu Crypto**, Gramedia, Jakarta, 2022, h. 4.

¹¹ Arias, El Salvador, **Berlakunya Hukum Bitcoin dan Peraturannya di El Salvador**, <<https://ariaslaw.com/es/noticia-in/el-salvador--entrada-en-vigencia-de-la-ley-bitcoin-y-su-normativa-en-el-salvador>>, diakses pada tanggal 24 Juni 2022.

Provisions for the Implementation of the Physical Market of Crypto Assets (Crypto Assets) on the Futures Exchange. The regulation of crypto as an asset originated from the concept of the 1945 Constitution as quoted in the consideration of Law of the Republic of Indonesia Number 10 of 2011 concerning Amendments to Law Number 32 of 1997 concerning Commodity Futures Trading letters a and b as follows:

- a. that the Unitary State of the Republic of Indonesia is a state of law based on Pancasila and the 1945 Constitution of the Republic of Indonesia with the aim of realizing a safe, orderly, prosperous, and just system of national life;
- b. that in an effort to further ensure legal certainty, fairness, transparency and accountability of public services, to support efforts to improve and develop the national economy related to global trade, and so that Commodity Futures Trading which aims to increase commodity business activities can be carried out in an orderly, reasonable, efficient, effective, and protected manner from adverse actions and provide legal certainty to all parties who carry out Commodity Futures Trading activities, need clearer regulation in the implementation of Commodity Futures Trading;

These considerations have the goal of realizing a safe, orderly, prosperous, and just life for the Indonesia nation by providing a guarantee of legal certainty in the form of protection from adverse actions in commodity futures trading, as well as being able to compete in the development of the national or global economy.

The Minister of Trade of the Republic of Indonesia implements Law Number 32 of 1997 concerning Commodity Futures Trading and its amendments to Law Number 10 of 2011 concerning Amendments to Law Number 32 of 1997 concerning Commodity Futures Trading based on the provisions of article 2 paragraph (2) which basically gives the authority to the Minister of Trade to make regulations on general policies in the field of futures trading.

Based on the hierarchy of the legal line, the Government Regulation of the Minister of Trade of the Republic of Indonesia Number 99 of 2018 was formed, stating that crypto is a futures trading asset, the widespread spread of crypto assets to the public, the government considers the commodity worthy of being the subject of futures contracts in futures exchange trading, this desire needs legal protection, legal certainty to the public and business actors.

Other institutions other than the Minister of Trade are BAPPEBTI as a government institution has the task of basically coaching, regulating, developing and supervising futures trading, in accordance with BAPPEBTI Regulation Number 5 of 2019, B APPEBTI implements the provisions as the Regulation of the Minister of Trade, it is necessary to regulate the technical provisions for the implementation of the physical market of crypto assets (crypto assets) on the futures exchange.

The Minister of Trade stipulates crypto as an asset, in the form of a futures contract subject in futures exchange trading, so there needs to be coaching, supervision and development by the BAPPEBTI institution. Futures exchange as a place to provide systems and/or facilities for commodity buying and selling activities based on futures contracts, sharia derivative contracts, and/or other derivative contracts, the implementation of such activities by business entities.

The parties in the futures exchange are the members of the futures exchange, the futures clearing board and the futures guarantor. A futures clearing institution will have a member of the futures exchange as a user of the system and/or means of a futures clearing institution, collectively all of these activities are called the physical market of crypto assets on the futures exchange.

The physical market of crypto assets is a gathering place for physical traders of crypto assets to make transactions to sell or buy crypto assets between physical traders of crypto assets and crypto asset customers. The management of crypto assets in BAPPEBTI regulations is very different from the characteristics of the definition of crypto itself, all management is based on physical, ranging from physical markets, clearing houses, physical traders, physical customers, managers of crypto asset storage sites, as well as evidence in the form of crypto asset storage documents, while cryptocurrency is a digital currency without a physical one.

Cryptocurrency is a new technology in the world's currency, so it is not surprising that there is a different treatment, such as the Republic of El Salvador using cryptocurrency as a legal tender with digital computing-based services, while the State of Indonesia uses cryptocurrency as a commodity asset with all-physical services.

3. Cryptocurrency Security

In accordance with the conceptual approach, cryptography is the origin of the Greece word "cryptos", which means secret, the creation of the first

hieroglyphs by Ancient Egypt scribes in the form of sacred carvings in the form of a writing format system with a combination of alphabet logographic elements, in its application now cryptography using an encrypted algorithm first appeared a cryptocurrency called bitcoin using Secure Hash Algorithm 256-bit (SHA-256) technology.

The Republic of El Salvador states that cryptocurrencies cannot be counterfeited, because in the cryptographic system there is the science of writing that hides and secretes the intent of the writing, here are some of the purposes of cryptography:

- 1) Confidentiality, provides a service to keep messages from being read by unauthorized parties. Protect privacy against eavesdropping, as well as provide confirmation of key delivery information or cryptocurrency addresses.
- 2) Data Integrity, which provides protection against tampering or replacement and ensures that a copy of the recipient's message is the same as the delivery by the sender or the recipient's ability to verify that the message has not been modified within the delivery time lag.
- 3) Authentication, provides the ability to receive the message as genuine and the system will reject the non-genuine message.
- 4) Non-repudiation, providing protection against rejection of transactions at a later date or the sender of the message cannot deny and avoid sending the sent message.
- 5) User Identification is to provide protection for users from acts of impersonation.¹²

These five levels of security are collectively features to demonstrate authenticity. The five security can be achieved using several techniques, widely applied are first, starting from the establishment of an authentication infrastructure using encrypted privacy settings on each message using a private key, the knowledge is open to the sender and receiver, while the authenticity is based on the management of the use of the key starting from the system generating the key or cryptocurrency address, distributing, and storing the user's key.

Second, perform key management using a certification authority or a trusted agent as the person in charge of confirming the user's identity. Certification applies to every user as the issuer of a digital identity certificate.

¹² Belvin Tannadi, *op.cit*, h. 7

Whenever a user can identify himself to others, the digital certificate system needs to prepare a private key between users using authenticated security.

Running away from cryptocurrency counterfeiting is impossible to avoid in every payment system, there is definitely the potential for criminal actors to abuse it, ranging from defrauding the digital financial system or taking advantage of the digital situation on payment mechanisms, but each payment protocol has its own built-in security. Cryptocurrency security is indeed very tempting, starting from an electronic cash system with full security support in transmission and storage, but the use of the internet is very vulnerable to viruses, so there needs to be security in addition to digital physical security.

Security will be more prone to criminal acts if there are many cryptocurrency withdrawals through one private key, so it is necessary to disable the double spending mechanism by using public key cryptography, they are a pair of private key cryptography with public key cryptography, each user keeps his secret key for himself and creates a public key for everyone, while the private key remains the owner's secret.

The addition of security through signatures and identification in the public key system is useful as user identification by proving that the user knows his private key without the need to disclose, by performing several operations using the public key, as identification to himself. As an illustration, if someone uses a message and someone else's private key so that a digital signature occurs on the message, then the original digital signature will play its role to identify the fake signature such as comparing handwritten signatures to automatically identify fake signatures, not being able to deny the digital signature on the message because the integrity of the message will provide confirmation. For the rest of the security, it will lead to the functions and techniques of digital basic materials.¹³

4. Legality of Cryptocurrencies

Currency is functionally useful as a means of payment and a means of borrowing from money holders, but functionally the state uses money as a control to control the macroeconomy and channel financial transactions throughout the validity period of money. Most countries still cannot define cryptocurrencies exactly.

¹³ Laurie Law, et.al, *op.cit*, h. 1138

Then why do you want to regulate cryptocurrencies if in the sense you still can't explain it clearly. The government as a representative of the state still has the obligation to regulate currency because one of the oldest objects of government regulations is currency, there are many interventions of interest so that this cryptocurrency does not immediately have rules from the government, various reasons have emerged starting from the overlap of regulations and legislation so that it is necessary to reopen the discussion of the role of the Indonesia government in regulating cryptocurrencies.

Before regulating cryptocurrencies, the government needs to first establish accounting standards, starting from the most basic role as an affirmation by the government to related parties in cryptocurrencies, the achievement is to define a general monetary unit according to the concept of currency based on the 1945 Constitution article 23B concerning "The types and prices of currencies are determined by law.***". Starting from this concept, legal experts will determine the value of cryptocurrencies from various classes and markets, with the hope that the classes and markets can be segmented economically, geographically, or politically.

According to the constitution of the power to regulate currency, the government of Indonesia should be able to adopt a normative system in Law of the Republic of Indonesia Number 7 of 2011 concerning Currency, stipulating that the monetary notation of the rupiah cryptocurrency is the same as the notation of the cash currency of the Indonesia rupiah based on decimals as the current cryptocurrency can be divided into fractions of decimal value, the determination of the government as a validation to establish a standard unit of monetary measure of the rupiah cryptocurrency, a manifestation of the sovereignty of the Unitary State of the Republic of Indonesia (NKRI). The Indonesia government's view to establish cryptocurrency as a means of payment can be correct if it is understood universally as a need of the world community.

How is the relationship between cryptocurrency and other assets if cryptocurrency as a legal tender in a country, in the concept of the value level of a form of money as a medium of exchange for other valuable assets, to be able to describe the concept requires knowledge of the context of cryptocurrency as a whole or representative knowledge of cryptocurrency as a whole, according to the concept of money the monetary value must be symmetrical with the economic value (real economy) equation formula equation $M.V = P.Y$, or the exchange rate system representing 44 countries based on the Bretton Woods Agreement by establishing a system of the existence of a fixed currency exchange rate can be made by using gold as a

universal standard so as to result in the establishment of the International Monetary Fund (IMF) as the implementer of the World Bank in 1946 to 1971, adopting from the Bretton Woods Treaty of the United States Act in 1945, states that the rate of the value of a country's currency can redeem its currency for gold so that the value of the currency is stable with the circulation of goods or services.

Historically, the relationship between currency benchmarks and other assets is very useful for beginner currencies such as cryptography, but in the modern era countries such as the United States tend to withdraw from determining the relative value of currencies, as a result the government allows the relative rate of its determination based on the private sector, because the government provides opportunities for the currency market to continue to grow and develop.

Regarding the cryptocurrency exchange rate, it is necessary to consider the feasibility of the number of demand and the amount of supply per day because no issuer is willing and able to subsidize the difference between the exchange rate and the market price. It is necessary to provide an initial source of cryptocurrency, for Indonesia, the authority to provide money is BI as the Central Bank of the Republic of Indonesia, functioning as a pump for the circulation of cryptocurrencies, controlling cryptocurrencies, as well as an antidote to cryptocurrency monopoly or other functions in its duties and authorities as stated in Law of the Republic of Indonesia Number 23 of 1999 concerning BI; along with the Amendments to Law of the Republic of Indonesia Number 3 of 2004 concerning Amendments to Law of the Republic of Indonesia Number 23 of 1999 concerning BI; along with the amendment of Law of the Republic of Indonesia Number 6 of 2009 concerning the Stipulation of PERPU Number 2 of 2008 concerning the Second Amendment to Law Number 23 of 1999 concerning BI into Law.

In addition to the BI function, the Government needs to facilitate and ensure that the public is ready to accept cryptocurrencies in order to immediately inject cryptocurrencies into trade flows Fostering public acceptance of cryptocurrencies is the most difficult task and requires adequate proficiency The implementation may not be in accordance with normative legal provisions, but all these plans will return to the people of Indonesia themselves to the extent of their ability to receive cryptocurrencies

cryptocurrency, so the need for the role of the government often to establish various forms of public relations in all monetary matters.¹⁴

Determining the first legal income of cryptocurrency to the public, is part of the acceptability of a form of cryptocurrency, at first not all people can accept, indeed at the beginning there must be obstacles but these obstacles can be overcome with regulations on the receipt of the first income of cryptocurrency to the public.

Another obstacle when people find demeaning to cryptocurrencies such as counterfeiting, as well as destruction through viruses, but all these criminal activities go back to the security of cryptocurrencies. The role of the Indonesia government in regulating the development of new currencies such as crypto is very important to prosper the lives of Indonesia citizens. Based on the normative authority theory, legal subjects will be more compliant with government officials based on laws and regulations after gaining legitimacy from the authority holder. One of the Central American countries, the Republic of El Salvador, has legalized the bitcoin cryptocurrency through Decree Number 57 of the Legislative Assembly of the Republic of El Salvador on June 8, 2021 and came into effect on September 7, 2021.

The ratification of the bitcoin cryptocurrency by the government of El Salvador by taking into account the conditions of subjective authority and the conditions of objective authority are as follows:

1) Subjective Authority Conditions; First, based on article 102 of the Constitution of the Republic of China, the state is obliged to promote and protect the economic activities of the community, as well as create new conditions to increase national wealth for the benefit of the population as much as possible. Second, based on Legislative Decree No. 201, dated November 30, 2000, along with the publication in Statute Book No. 241, Volume 349, dated December 22, 2000, on adopting the United States dollar as legal tender. Third, the state's conscience obligation to facilitate the financial inclusion of its citizens to ensure that their rights are properly protected. These subjective considerations first show that the Government of the Republic of El Salvador adheres to the welfare theory system by being based as much as possible on the welfare interests of its people. Second, the Republic of El Salvador is a state or commonwealth country of the United States, which is an administrative region of the first level of the Federal

¹⁴ David G Oedel, *Why Regulate Cyber Money*, *American University Law Review*, vol. 46:1075,____, p. 1081.

Government of the United States, so its official currency adopts the United States dollar. Third, it is a pure obligation of the state's conscience, having the assumption that there will be financial inclusion when it does not legalize digital currencies as a global currency regardless of geographical conditions.

- 2) Objective Authority Conditions; First, the Government of the Republic of El Salvador has data if the population of its population is seventy percent without access to traditional financial services or cash. Second, to encourage the country's economic growth, it is necessary to legalize the circulation of digital currencies provided that their value meets the criteria for an exclusive free market.

The objective consideration is the prediction of the government of the Republic of El Salvador that seventy percent of the conditions of people's difficulty in accessing traditional currency or cash can change to a condition of free access through digital currency, hoping that seventy percent of its people can access digital money or traditional money. Second, it gives hope that digital currencies will be able to encourage the country's economic growth, with the provision of currency value based on free market criteria, exclusively.

In the general provisions of Legislative Decree Number 57, dated June 8, 2021, it has the intention of being a regulator of bitcoin legal tender with the nature of not being limited to the force of other laws, there are no restrictions on transactions by individuals or public legal entities or private legal entities, but still refer to the Monetary Integration Law. The determination of the exchange rate between bitcoin and the United States dollar is based on free determination by the market. The following are other articles of Legislative Decree No. 57, dated June 8 concerning bitcoin rules in the Republic of El Salvador:

Article 3: All prices can be expressed in bitcoin.

Article 4: All tax contributions can be paid in bitcoin.

Article 5: Bitcoin exchanges will not be taxed on capital gains as well as legal tender currency.

Article 6: For accounting purposes, dollars will be used as the reference currency.

Article 7: Every economic agent must accept bitcoin as a form of payment when offered by the person who buys the goods or services.

Article 8: Without prejudice to the actions of the private sector, the State shall provide an alternative that allows users to transact in bitcoin, as well as have an automatic and instant conversion of bitcoin to dollars if desired. The state will

promote the necessary training and mechanisms so that residents can access bitcoin transactions.

Article 9: The limitations and operation of the automatic and instant conversion alternative of bitcoin to dollars provided by the State will be specified in the Regulations issued for this purpose.

Article 10: The Executive Branch will create the necessary institutional structure for the purpose of applying the current law.

Based on these articles, all people can make payment transactions using cryptocurrency exchange for all goods and or services. People can pay tax obligations to the state using cryptocurrency, when they want to exchange with cryptocurrency, there is no imposition of taxes when there is a profit to the exchange, and there is no personal income tax from cryptocurrency, for accounting calculations, the dollar currency is a reference.

Every trade in goods and or services must accept cryptocurrency as a means of payment. The Government of El Salvador provides support for facilities of convenience between business actors and users to make transactions using cryptocurrencies more easily, such as having automatic conversions and instantly choosing the exchange rate from cryptocurrency to dollars, as well as providing training and mechanisms as needed so that residents can access cryptocurrency transactions.

The government of El Salvador will set up a branch as well as coordinate with other institutional structures as necessary to implement the legal objectives of cryptocurrencies. About the operation of automatic and instant conversion of cryptocurrencies to dollars, further technical through separate settings.

After there was Legislative Decree Number 57, dated June 08 regarding bitcoin regulations, the President of the Republic of El Salvador issued Decree Number 27, concerning bitcoin Legal Regulations, dated August 27, 2021. The arrangement of article 1 regarding the object or scope is as follows:

Object

Article 1.- The purpose of these Regulations is to develop, facilitate and ensure the implementation of the Bitcoin Act, hereinafter referred to as the "Law", in order to create a clear regulatory environment in which individuals and businesses can conduct transactions in bitcoin. as legal tender in a manner that respects laws and standards against money laundering and other Republic laws and safeguards the security, health and integrity of the financial system in general.

The regulation has the object of developing, facilitating, and ensuring the implementation of the Bitcoin Law, based on these three objects, the Government of the Republic of El Salvador hopes to create a conducive environment in accordance with regulations so that people and business people can make transactions using cryptocurrency as a legal tender. Respect other laws from criminal or civil aspects for the sake of maintaining security, development or growth of the integrity of the financial system in general.

As in Law of the Republic of Indonesia Number 12 of 2011 concerning the Establishment of Laws and Regulations and its amendments to Law of the Republic of Indonesia Number 15 of 2019, there will be general provisions containing the meaning of terms and phrases, regulatory materials, sanctions provisions, transitional provisions, not much different from Decree Number 27, concerning the Bitcoin Legal Regulation, dated August 27, 2021, the Republic of El Salvador with the following definition:

Article 2.- For the purposes of this Regulation, it shall be understood as:

- a) Bank: An institution that usually acts in the financial market, urges the public to obtain funds through deposits, issuance and placement of securities or other passive activities, which are directly obliged to cover principal, interest and other equipment, for placement. public in active operation.
- b) Digital wallet for bitcoin: A digital record of bitcoin or dollars for the benefit of an individual or in the exercise of its constitutional powers, legal, to be provided through a digital platform;
- c) Digital exchange house or Exchange: Bitcoin or dollar exchange house, whose activity is usually the purchase and sale of bitcoin through an electronic platform or computer application at a price determined by market supply and demand;
- d) Bitcoin Custodian: A person who provides custody services on behalf of a third party, bitcoin or a means of access to such bitcoin, in the form of a private cryptographic key;
- e) Bitcoin Service Provider: A legal entity or legal entity that provides for itself or for third-party services related to bitcoin such as, but not limited to, custodians, exchange houses or "exchanges" and payment processors or wallets.

Excluded from this definition are people who use bitcoin for their own use, including economic actors who transact in bitcoin solely as a means of payment in connection with the purchase and sale of their goods and services. Also excluded are technology providers who do not maintain custody of their clients' bitcoins or private keys;

From this definition, there is a definition of a fixed bank as a financial market driving institution according to the main functions and tasks of

banking, continuing to the definition of a digital wallet, this definition is in accordance with the general sense but simpler to show ownership, namely a digital record of cryptocurrency for individuals based on legal constitutional rights through a digital platform, continuing to the definition *of a digital exchange house or Exchange* (Digital Exchange House or Exchange) is the provision of a digital currency exchange house through purchase and sale using an electronic platform or computer application with pricing based on market supply and demand, continuing in the sense that Bitcoin custodian has the meaning of being a provider of securities custody services and other assets but in this sense the custody is in the form of a private cryptographic key with the symbol "Y", Continuing to the definition of a Bitcoin service provider, it is a form of legal entity as a provider for itself or a third-party service related to cryptocurrency.

For the next article, article 3 regulates the registration of bitcoin service providers, using the method of registering bitcoin service providers, later serving as a partner of the Central Reserve Bank (Central Reserve Bank), in the registration register the functions and duties include custodians, exchange houses or the last exchange payment processors or digital wallets, after registering cryptocurrency service providers must submit the required documents in the twenty working days to the Central Reserve Bank, if later the cryptocurrency service provider will break off from the partnership, from the seventy-two hour notice the Central Reserve Bank will remove from the register.

The money management partnership system is like in the financial system of Indonesia based on PBI Number 21/10/PBI/2019 concerning Rupiah Money Management, BI appoints a PJPUR legal entity after obtaining permission from BI, continuing to article 4 of the Republic of El Salvador regulates the Standards of Conduct for cryptocurrency service provider partnerships as follows:

- 1) Maintain anti-money laundering programs in accordance with laws and regulations in accordance with national or international practices.
- 2) Maintain client assets with the highest level of prudence in accordance with policies and procedures in order to prevent loss, theft, or damage to client assets.
- 3) Maintain books and records that accurately reflect the assets, liabilities and equity of service providers, customer account records, records of every transaction at the request of customers or banking activities.

- 4) Maintaining a record of complaints consists of the nature of the complaint, the decision to resolve the complaint and the date of resolution.
- 5) Publish on the website general information, contacts, notifications, as well as complaints in the process.
- 6) Maintain a cybersecurity program according to the service module of the service provider.
- 7) Maintain a physical security program and disaster recovery plan according to the service module of the kite provider.
- 8) Maintain a resolution plan in the event of liquidation based on the rules due to the bankruptcy of the service provider.
- 9) Maintain a consistent policy of restricting transactions in the service program platform, comprehensive risk management, preventing money laundering and other money crimes.

The next arrangement is supervision and sanctions in accordance with article 5 stating that full power is in the Financial System Supervisor with the authority to supervise, regulate, all subjects are subject to the regulations of the Cryptocurrency Law, while to determine legal cases, the Financial System Supervisor is authorized to check the books, records, operations to the personnel of cryptocurrency service providers. The Supervisory Authority is responsible for imposing sanctions on cryptocurrency service providers if they do not comply with the provisions of article 3 of Decree Number 27, concerning the Bitcoin Legal Regulation or do not comply with the standards of conduct in accordance with the regulations, the Supervisory Law, Financial System Regulation, and other provisions.

The next regulation is about the role of banks in cryptocurrencies stating that banks are not obliged to provide financial services to cryptocurrency service providers, or open accounts for cryptocurrency users, if they want to provide cryptocurrency services, banks must comply and comply with regulations in accordance with cryptocurrency service providers.

Continuing on the digital wallet arrangement for state-owned cryptocurrencies aimed at guaranteeing the financial inclusion of the population, the obligation of banks to provide services to the residents as an exchange platform without giving commissions from the end users of digital wallets as per the regulations of the Central Reserve Bank.

After issuing Decree Number 27, on bitcoin Legal Regulations, on August 27, 2021, the Standards Committee of the Central Reserve Bank of El Salvador issued NRP-29 on Technical Standards to Facilitate the Participation of Financial Institutions in the Bitcoin Ecosystem with the following considerations:

- 1) Subjective; The Bank Standards Committee first considers based on article 1 of Legislative Decree Number 57, dated June 8, 2021, regarding the bitcoin cryptocurrency as a legal tender, the second is based on the approval of the Bitcoin Law regarding cryptocurrency as a new means of payment in the operation of economic agents, the third is based on article 11 of the Bitcoin Law, the Central Bank needs to issue related regulations, the fourth is based on article 99 of the Law on Supervision and Regulation of the Financial System in the fourth paragraph regarding functions and duties of the Central Bank.
- 2) Objective; The Bank Standards Committee first considers based on technological advances in financial matters allowing operations and transactions to be carried out effectively and promptly through various electronic and digital mechanisms, it is necessary to first establish rules for its operation. Settings for Chapters. I relates to Objects, Subjects, and Conditions. Article 1 regulates the purpose and purpose of the regulation to regulate cryptocurrency-based services to users in the form of individuals or legal entities, in the form of direct services or through cryptocurrency service providers, having the authority to provide bitcoin-based custodial or non-custodial wallet services, exchange services, payment processing, and other services, but such services need to be offered through a series of offers to Bitcoin Service Providers.

Continuing to the regulation of the subject of the law, article 2 regulates the banking parties, namely Banks, Cooperative Banks and Savings and Loan Companies, Electronic Money Operators, requiring compliance with the provisions of laws and regulations, continuing to article 3 regulates the meaning of the terms as follows:

- a) Entity: Bank, Cooperative Bank or Savings and Loan Institution established in accordance with the Banking Law or the Law on Cooperative Banks and Savings and Loan Institutions, Electronic Money Providers;
- b) Bitcoin Service Provider: This term has the meaning associated with it in Executive Decree Number 27 of August 27, 2021, which contains the Bitcoin Law Regulations;
- c) Central Bank: Central Reserve Bank of El Salvador;
- d) Bitcoin: Legal tender under Bitcoin Law;
- e) Dollars: United States Dollars;
- f) FATF: International Financial Action Task Force; you
- g) Supervision: Financial System Supervision.

There are several institutional functions according to this understanding from entities, namely banking institutions such as banks, cooperatives, savings and loan institutions, electronic money providers,

bitcoin service providers, central banks, FATF, which is an international financial action task force, and supervision, there are five institutions according to their respective functions when using cryptocurrencies as legal tender in the Republic of El Salvador, the next meaning is the meaning of bitcoin and the US dollar Union.

The next arrangement is chapter II on corporate obligations with a sub-chapter on general obligations article 4, which regulates that each legal entity must comply with laws and regulations in accordance with its main duties and functions. Continuing to the next sub-chapter is the determination of the contractual relationship of article 5, each entity must enter into a contractual relationship with the Bitcoin Service Provider based on proper testing because the nature of the service contains risks in accordance with the policies of each entity.

Each entity must have improved through a series of tests to maintain the security, goodness, integrity of the entity as well as the financial system in general, in addition to these eligibility entities obtain additional business qualifications based on the criteria of Bitcoin Service Provider such as financial condition, legal and regulatory compliance, risk management and control, money laundering risk prevention system, consumer financing, terrorism, information security, and operational resilience.

The next arrangement is the general regulation of the performance of the entity to the Bitcoin Service Provider regarding the relationship with the contract article 6, limitations and responsibilities of article 7, operational capacity of article 8, Supervision of article 9, continuing in chapter III of Registry, Traceability, Reports and Maintenance of Records, the next sub-chapter regulates the registration of article 10, traceability of article 11, suspicious operation report of article 12, maintenance of the archive of article 13, continuing in chapter IV of Other Provisions and Validity, the next sub-chapter regulates the sanctions of article 14, unexpected aspects of article 15, and finally the validity of article 16.

The three laws and regulations belonging to the Republic of El Salvador are a form of effort to legalize cryptocurrency as a means of payment as follows:

- 1) Legislative Decree Number 57, concerning Bitcoin Rules, dated June 08, 2021
- 2) Decree of the President of the Republic of El Salvador Number 27, on Bitcoin Legal Regulations, dated August 27, 2021.
- 3) The Central Reserve Bank of El Salvador Standards Committee published NRP-29 on Technical Standards to Facilitate the Participation of Financial

Institutions in the Bitcoin Ecosystem, dated September 07, 2021. The policy to regulate cryptocurrencies as legal tender in the country of El Salvador is a new breakthrough in the world of legal development so that the law follows technological developments in the Industrial Era 4.0, with the benchmark of improving the economy and improving the welfare of the population. The form of responsibility of the government as a representative of the state to provide basic economic security is to support the situation so that it has stable income or other resources to support the standard of living now and in the future as the theory of the welfare state.

The ideal of prospering the people can be realized if the authority is used in a normative sense, namely running the state in order to create public order using cryptocurrency, then an official needs to use his authority to issue orders or make rules such as the Republic of El Salvador has provided legality from the institution that holds the authority so that cryptocurrency becomes a legal tender in a country, So the people must comply with it as a new government policy as the application of the theory of authority.

The legality of cryptocurrencies is formed based on consideration of the subjective authority conditions of the Republic of El Salvador, namely article 102 of the Constitution of the Republic of Indonesia, Legislative Decree Number 201, dated November 30, 2000, and the initiative of the Republic of El Salvador to facilitate its citizens towards financial inclusion, from the concept of these laws and regulations can provide knowledge to give rise to new laws as positive laws, so that non-legal circumstances arise following the circumstances as they should but about the law at the time of application according to Hans Kelsen's theory.

C. CONCLUSION

The legality of cryptocurrency is not much different from the legality of regulating the Indonesia Rupiah currency, allowing the Indonesia Government to make the Indonesia Rupiah cryptocurrency as a new entity in the advancement of cryptocurrency technology as a means of payment in the Industrial Era 4.0. Meanwhile, the current condition of Indonesia is limited to regulating cryptocurrencies as crypto assets and not as a means of payment based on article 2 paragraph (2) of Law of the Republic of Indonesia Number 32 of 1997 concerning Commodity Futures Trading and its amendments to Law of the Republic of Indonesia Number 10 of 2011 concerning Amendments to Law of the Republic of Indonesia Number 32 of 1997 concerning Trade Commodity Futures reads "General policy as referred to in paragraph (1) is regulated by Ministerial Regulation", technically it is then regulated in the Regulation of the Minister of Trade of the Republic of Indonesia Number 99 of 2018 concerning General Policies for the Implementation of Crypto Asset

Futures Trading, as well as based on BAPPEBTI Regulation Number 5 of 2019 concerning Technical Provisions for the Implementation of the Physical Market for Crypto Assets (*Crypto Assets*) on the Futures Exchange.

REFERENCE

Book

Al Rosyid, Salman, *Perkembangan Uang Dalam Sejarah Dunia*, Uwais Inspirasi Indonesia, Ponorogo, 2019.

Burnley, Matthieu, *Perspektif Tiongkok tentang Aturan Hukum Internasional*, Edward Elgar Publishing Limited, Cheltenham, 2018.

Departemen Keuangan, *Rupiah di Tengah Rentang Sejarah*, Departemen Keuangan Republik Indonesia, Jakarta, 1991.

Iskandar, A. Muhaimin, *Negara Dan Politik Kesejahteraan Reorientasi Arah Baru Pembangunan*, Gramedia Pustaka Utama, Jakarta, 2021.

Kelsen, Hans, *Teori Hukum Murni Dasar-dasar Ilmu Hukum Normatif*, Terjemahan Raisul Muttaqien, Nusa Media, Bandung, 2019.

Muhaimin, *Metode Penelitian Hukum*, Mataram University Press, Mataram, 2020.

Pusat Data Dan Analisa Tempo, *Mengenal Perkembangan Transaksi Non Tunai di Indonesia Sampai 2019*, Tempo Publishing, Jakarta, 2019.

Rahman, Abdurrahman Arum, *Uang Gratis Menggagas Demokrasi Mata Uang Internasional*, Global Currency Initiative, Jakarta, 2021.

Sugiharto, Alexander, dan Musa, Muhammad Yusuf, *Blockchain & Cryptocurrency Dalam Perspektif Hukum Di Indonesia Dan Dunia*,

Indonesian Legal Study for Crypto Asset and Blockchain, Jakarta, 2020.

Suryawati, Nany, *Hak Asasi Politik Perempuan*, Ideas Publishing, Gorontalo, 2020.

Tannadi, Belvin, *Ilmu Crypto*, PT. Gramedia, Jakarta, 2022.

Yılmaz, Avci Ufuk, *Kripto Parave Mining Rehberi Kitabı*, Dikeyksen Yayıncılık, Turki, 2019.

CONSTITUTION

Keputusan Legislatif Nomor 57, tentang Aturan Bitcoin, tanggal 08 Juni 2021

Keputusan Presiden Republik El Salvador Nomor 27, tentang Peraturan Hukum Bitcoin, tanggal 27 Agustus 2021.

Komite Standar Bank Cadangan Tengah El Salvador menerbitkan NRP-29 tentang Standar Teknis Untuk Memfasilitasi Partisipasi Badan Lembaga Keuangan Dalam Ekosistem Bitcoin, tanggal 07 September 2021.

Peraturan Anggota Dewan Gubernur Nomor 22/6/PADG/2022 tentang Penyelenggara Jasa Pengolahan Uang Rupiah.

Peraturan Bank Indonesia Nomor 17/3/PBI/2015 tentang Kewajiban Penggunaan Rupiah di Wilayah Negara Kesatuan Republik Indonesia.

Peraturan Bank Indonesia Nomor 18/29/PBI/2016 tentang Pengeluaran Uang Rupiah Kertas Pecahan 100.000 (Seratus Ribu) Tahun Emisi 2016.

Peraturan Bank Indonesia Nomor 18/40/PBI/2016 tentang Penyelenggaraan Pemrosesan Transaksi Pembayaran.

Peraturan Bank Indonesia Nomor 21/10/PBI/2019 tentang Pengelolaan Uang Rupiah.

Peraturan Pemerintah Republik Indonesia Nomor 6 Tahun 2019 tentang Perusahaan Umum (PERUM) Percetakan Uang Republik Indonesia

Undang-Undang Dasar Tahun 1945

Undang-Undang Republik Indonesia Nomor 17 Tahun 1946 tertanggal 1 Oktober 1946 berbunyi “menetapkan bahwa mulai tanggal 23 Oktober 1946 ORI mulai diedarkan” Undang-Undang Republik Indonesia Nomor 10 Tahun 2011 tentang Perubahan Atas UU Nomor 32 Tahun 1997 tentang Perdagangan Berjangka Komoditi Undang-Undang Republik Indonesia Nomor 19 Tahun 2003 tentang Badan Usaha Milik Negara

Undang-Undang Republik Indonesia Nomor 3 Tahun 2004 tentang Perubahan atas Undang-Undang RI Nomor 23 Tahun 1999 tentang Bank Indonesia; beserta perubahannya Undang-Undang RI Nomor 6 Tahun 2009 tentang Penetapan PERPU Nomor 2 Tahun 2008 tentang Perubahan Kedua atas Undang-Undang Nomor 23 Tahun 1999 tentang Bank Indonesia menjadi Undang-Undang Undang-Undang Republik Indonesia Nomor 7 Tahun 2011 tentang Mata Uang Internet

Al-Qur’an Online, Nabi Adam as, Kisah Para Nabi dan Rosul dalam Al-Qur’an, dari https://p2k.utn.ac.id/q7a/3069-2966/Nabi-Adam-as_58_2221131_p2k-utn.html, diakses pada tanggal 25 Mei 2022.

Andrew, Teori Hukum Menurut Para Ahli, dari <https://www.gramedia.com/literasi/teori-hukum-menurut-para-ahli/> diakses pada tanggal 21 Maret 2022.

Arias, El Salvador – Berlakunya Hukum Bitcoin dan Peraturannya di El Salvador, dari <https://ariaslaw.com/es/noticia-in/el-salvador--entrada-en-vigencia-de-la-ley-bitcoin-y-su-normativa-en-el-salvador>, diakses pada tanggal 24 Juni 2022.

Asshiddiqie, Jimly, Gagasan Negara Hukum Indonesia, dari https://www.pn-gunungsitoli.go.id/assets/image/files/Konsep_Negara_Hukum_Indonesia.pdf, diakses pada tanggal 05 Juli 2022.

BPCB Banten, Koin Cina Dinasti Tang Koleksi Museum Situs Kepurbakalaan Banten Lama, dari <http://kebudayaan.kemdikbud.go.id/bpcbbanten/koin-cina-dinasti-tang-koleksi-museum-situs-kepurbakalaan-banten-lama/>, diakses pada tanggal 30 Mei 2022.

CBN, BI Terbitkan Uang Digital, 'Kiamat' Uang Kertas di Depan Mata, dari <https://www.cnbcindonesia.com/tech/20211126135342-37-294686/bi-terbitkan-uang-digital-kiamat-uang-kertas-di-depan-mata>, diakses pada tanggal 14 Maret 2022.

Ensiklopedia Filsafat Stanford, Wewenang, dari <https://plato.stanford.edu/entries/authority/>, diakses pada tanggal 12 Mei 2022.

Hadijah, Siti, Uang Kertas dan Logam, Ini Dia Kelebihan dan Kekurangannya, dari <https://www.cermati.com/artikel/uang-kertas-dan-uang-logam-ini-dia-kelebihan-dan-kekurangannya>, diakses pada tanggal 03 Juni 2022.

iNews, Sejarah dan Perkembangan Mata Uang Kripto, Dimulai Dengan Kemunculan Bitcoin, dari <https://www.inews.id/finance/keuangan/sejarah-dan-perkembangan-mata-uang-kripto-dimulai-dengan-kemunculan-bitcoin> diakses pada tanggal 14 Juni 2022.

Kenton, Will, Negara Kesejahteraan, dari <https://www.investopedia.com/terms/w/welfare-state.asp>, diakses pada tanggal 27 April 2022.

Kompas, Punya Uang Lusuh atau Sobek, Begini Ciri Uang Tak Layak Edar, dari <https://money.kompas.com/read/2021/06/13/141850426/punya-uang-lusuh-atau-sobek-begini-ciri-uang-tak-layak-edar?page=all>, diakses pada tanggal 04 Juni 2022.

Kompas, Tertua di Dunia, Tangan Logam dari Zaman Perunggu Ditemukan, dari <https://sains.kompas.com/read/2018/09/28/190600323/tertua-di-dunia-tangan-logam-dari-zaman-perunggu-ditemukan?page=all>, diakses pada tanggal 24 Mei 2022.

Kontan, BI Tegaskan Minimal 10 Tahun kedepan cyptocurrency tidak boleh jadi alat pembayaran, dari <https://nasional.kontan.co.id/news/bi-tegaskan-minimal-10-tahun-ke-depan-cryptocurrency-tidak-boleh-jadi-alat-pembayaran>, diakses pada tanggal 04 Juli 2022.

Maulida, Syafira, Sejarah Uang dalam Peradaban Manusia : dari Barter Sampai Digital, dari <https://www.tanamduit.com/belajar/inspirasi/sejarah-uang-dalam-peradaban-manusia-dari-barter-sampai-digital>, diakses pada tanggal 23 Mei 2022.

Midtrans, 7 Sistem Pembayaran Favorit di Indoneisa, dari <https://midtrans.com/id/blog/sistem-pembayaran-favorit-di-indonesia>, diakses pada tanggal 11 Juni 2022.

Pamungkas, Destriana Indria, Pembagian Zaman Pra-Aksara Secara Arkeologi, Silahkan Disimak!, dari <https://edukasi.okezone.com/read/2022/04/05/624/2573325/pembagian-zaman-pra-aksara-secara-arkeologi-silakan-disimak>, diakses pada tanggal 20 Mei 2022.

Peruri, Detail Uang Logam, dari <https://www.peruri.co.id/produk/uang-kertas-logam/detail/3>, diakses pada tanggal 04 Juni 2022.

Republika, Altcoin : Pengertian, Jenis dan Daftar Altcoin Terbaik, dari <https://www.republika.co.id/berita/r7tgfx9416000/altcoin-pengertian-jenis-dan-daftar-altcoin-terbaik>, diakses pada tanggal 15 Juni 2022.

Tirto, Sejarah Uang dalam Peradaban Manusia : Dari Barter Hingga Bitcoin, dari <https://tirto.id/sejarah-uang-dalam-peradaban-manusia-dari-barter-hingga-bitcoin-ejXX>, diakses pada tanggal 19 Nopember 2021.

Wikipedia, Hieroglif Mesir, dari https://id.wikipedia.org/wiki/Hieroglif_Mesir, diakses pada tanggal 30 Maret 2022.

JOURNAL

Asimaki, Anna, et.al, Konsep Kewenangan dan Disiplin Dalam Teori oleh Michel Foucault, Universitas Patras, Vol. V, 2016.

Kementerian Keuangan, Jelajah Sejarah Rupiah, Media Keuangan, Vol. XV/NO. 157, 2020.

Law, Laurie, et.al, Cara Membuat Mint : Kriptografi Uang Elektronik Anonim, Tinjauan Hukum Universitas Amerika, Vol. 46:1131, 1996.

Oedel, David G, Mengapa Mengatur Cyber Money, Tinjauan Hukum Universitas Amerika, Vol. 46:1075,____.