



An Integrative Model for Sharia-Based Cryptocurrency Development in Indonesia

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Abstract: *The development of cryptocurrency as part of the digital economic transformation has brought significant changes to the global financial system, including in Indonesia. However, its implementation remains controversial from a sharia perspective, particularly regarding elements of usury (riba), gharar (gharar), and maysir (gambling). This study aims to formulate an integrative model for the development of sharia-compliant cryptocurrencies that aligns with the principles of Islamic jurisprudence (fiqh) and the regulatory framework in Indonesia. The research method used is a qualitative approach, incorporating literature studies and conceptual analysis of regulations, Islamic economic theory, and the development of blockchain technology. The results indicate that the development of sharia-compliant cryptocurrencies requires the integration of four main aspects: law and sharia, economics, technology, and institutions. The proposed integrative model emphasizes the use of underlying assets, the transparent implementation of blockchain technology, and oversight by sharia institutions to ensure compliance with Islamic principles. Furthermore, this model also considers national regulatory aspects to create legal certainty and protect users. This study concludes that sharia-compliant cryptocurrencies have significant potential to support financial inclusion and strengthen the sharia economy in Indonesia. However, their implementation requires synergy between regulators, Islamic scholars, academics, and industry players.*

Keywords: *Sharia Cryptocurrency, Digital Economy, Fiqh Muamalah; Financial Regulation, Integrative Model of Islamic Finance*

Introduction

The development of digital technology in recent decades has brought about significant transformations in the global financial system, one of which is the emergence of blockchain-based cryptocurrencies. Cryptocurrencies are not only seen as an innovation in payment systems but also as an investment instrument and part of the ever-growing digital economic ecosystem. In Indonesia, this phenomenon has shown rapid growth, marked by the increasing number of crypto asset investors and regulatory attention in regulating their circulation. However, this development has also given rise to various debates, particularly regarding legality, security, and compliance with sharia principles (Putri, R., et al., 2024). From an Islamic economic perspective, every financial instrument must meet basic principles such as the prohibition of riba (interest), gharar (excessive uncertainty), and maysir (speculation or gambling). Conventional cryptocurrencies are often criticized for their high price volatility and lack of clear underlying assets, potentially containing elements of gharar and maysir. This situation raises doubts among the Muslim community regarding the permissibility of using and investing in crypto assets (Birjaman, MI, et al., 2023). On the other hand, the need for financial innovations that comply with sharia principles is increasing, along with the development of the sharia financial industry in Indonesia, which has great potential as one of the centers of the global Islamic economy.

Indonesia, as the country with the largest Muslim population in the world, has a strategic opportunity to develop Sharia-compliant cryptocurrencies that not only comply with Islamic law but are also able to

compete in the global digital financial ecosystem. Several efforts have been made, including academic studies, religious fatwas, and the development of blockchain-based technology that adopts Sharia principles (Arifin, S., et al., 2025). However, to date, there is no comprehensive and integrative model capable of combining legal, economic, and technological aspects in the development of Sharia-compliant cryptocurrencies in Indonesia. The main problem lies in the lack of a clear and integrated conceptual framework on how cryptocurrencies can be designed, implemented, and supervised to comply with Sharia principles while meeting national regulatory standards and market needs. Furthermore, there is a gap between the rapid development of blockchain technology and regulatory readiness and public understanding of the concept of Sharia-compliant crypto. This has the potential to hinder the optimal use of this technology to support financial inclusion and Sharia-compliant economic growth in Indonesia.

The urgency of research on an Integrative Model for Sharia-Based Cryptocurrency Development in Indonesia lies in the increasingly rapid development of crypto assets as part of the unavoidable transformation of the global digital economy (Widyadhana, H., et al., 2024). Cryptocurrency has become a phenomenon that not only influences the conventional financial system but is also beginning to enter the discourse of sharia economics. In Indonesia, the increasing number of crypto asset users and transactions indicates that society is increasingly open to this innovation. However, this development has not been fully balanced by clear concepts and implementations in accordance with sharia principles. From a normative perspective, there are still differing views among scholars and practitioners regarding the legal status of cryptocurrency in Islam, particularly regarding the elements of *gharar* (uncertainty), *maysir* (speculation) (Hafiz, A., et al., 2025), and the lack of clear underlying assets. This uncertainty raises doubts among the Muslim community about utilizing crypto assets, potentially hindering the adoption of digital financial technology in the sharia economic ecosystem. Therefore, a study is needed that can provide a more comprehensive and integrated conceptual foundation so that cryptocurrency can be developed in accordance with sharia principles.

From a practical perspective, there is currently no model for developing sharia-compliant cryptocurrencies that systematically integrates legal, economic, and technological aspects. Without a clear model, the development of sharia-compliant cryptocurrencies risks being unfocused, difficult to implement, and potentially creating new problems (Solichah, NAM, Arif, NA, Fathoni, MF, & Muis, A. (2025), both in terms of regulation and public trust. Furthermore, the unpreparedness of regulatory and technological infrastructure to accommodate the concept of sharia-compliant cryptocurrencies could cause Indonesia to lag behind in global competition in sharia-compliant digital finance. Furthermore, the urgency of this research is also related to Indonesia's enormous potential as a country with the largest Muslim population in the world, which has the opportunity to become a center for global sharia-compliant economic and financial development. The development of sharia-compliant cryptocurrencies could be a strategic instrument in encouraging financial inclusion, increasing transaction efficiency, and expanding public access to financial services in accordance with Islamic principles. However, this potential will not be optimal without a clear and implementable model framework.

Most previous studies have focused on normative analysis of Islamic law regarding cryptocurrency, such as studies of Islamic jurisprudence (*fiqh muamalah*) and the *maqashid sharia* (Islamic principles). For example, research by Setiawan (2024) emphasized that cryptocurrency remains a topic of debate among Islamic scholars due to the presence of *gharar* (unclear), *maysir* (unlawful activity), and the lack of a clear

underlying asset, despite the proposed halal crypto model based on the principles of transparency and sharia oversight. Furthermore, other studies have highlighted the maqashid sharia approach in assessing cryptocurrency as a new financial instrument. The results indicate that cryptocurrency is conditionally acceptable as long as it fulfills the objectives of asset protection and economic justice, but have not yet provided an operational implementation framework. Similar research also emphasizes that the legal status of cryptocurrency cannot be generalized as halal or haram, but rather depends on the characteristics of the asset and its transaction mechanism. On the other hand, several studies have begun to examine the economic aspects and market potential of sharia-compliant cryptocurrencies. A study by Sari (2024) shows that crypto has potential as a halal investment instrument, but faces significant challenges such as price volatility and high speculation. Other studies also highlight the opportunities for cryptocurrency integration in the global Islamic financial ecosystem, but are still limited to analyzing opportunities and challenges without offering a comprehensive system model.

Meanwhile, technology-based research has begun developing the concept of sharia-compliant cryptocurrencies, such as the use of blockchain with Sharia-compliant mechanisms and smart contracts. Studies on Islamic Coins show efforts to integrate Sharia principles through technologies such as Shariah Oracle, but still face obstacles in adoption, regulation, and contract standardization. Other research has even developed an artificial intelligence-based halal-haram cryptocurrency classification system, but it has not yet integrated legal and economic aspects comprehensively. Therefore, an integrative approach is needed that can bridge various disciplines, including Islamic law, Islamic economics, and information technology, in formulating a comprehensive Sharia-compliant cryptocurrency development model. This model is expected to not only provide legal certainty and clarity of Sharia principles, but also accommodate technological innovation and digital market dynamics. Thus, the development of Sharia-compliant cryptocurrencies in Indonesia can be carried out systematically and sustainably, and make a real contribution to strengthening the Islamic digital economy ecosystem at the national and global levels.

Formulation of the problem

Based on the background and urgency of the research, the problem formulation in this research is as follows:

1. What are the concepts and characteristics of cryptocurrency from the perspective of modern digital economy and finance?
2. How do sharia principles (fiqh muamalah) assess the validity of cryptocurrency, particularly regarding the elements of *riba*, *gharar*, and *maysir*?
3. What is the state of regulations and policies related to cryptocurrency in Indonesia and how are they relevant to sharia principles?
4. What are the potential, challenges, and risks in developing sharia-based cryptocurrencies in Indonesia?
5. How are legal, economic, and technological aspects integrated in designing a cryptocurrency that complies with Sharia principles?
6. How can an integrative model be developed to support the implementation of sharia-based cryptocurrency in Indonesia?

Relevant Concepts and Theories

The Concept of Cryptocurrency and Blockchain Technology

Cryptocurrency is a digital asset that utilizes cryptography and distributed ledger technology (DLT) to ensure transaction security and transparency without the involvement of a central authority. The primary technology underlying cryptocurrency is blockchain, a distributed ledger system that allows every transaction to be permanently and irreversibly recorded. According to Tapscott and Tapscott (2018), blockchain serves not only as a record-keeping technology but also as a foundation for transforming the global financial system toward a more open and decentralized one. Recent developments indicate that cryptocurrency has become part of the decentralized finance (DeFi) ecosystem, enabling various financial services such as loans, investments, and payments to be conducted without intermediaries (Schär, 2021). However, key characteristics of cryptocurrency, such as high volatility, anonymity, and minimal oversight, present challenges in terms of regulation and implementation in various countries, including Indonesia.

Fiqh Muamalah Theory in Digital Finance

From an Islamic perspective, all economic activity must adhere to the principles of Islamic jurisprudence (fiqh muamalah), which emphasize justice, transparency, and utility. The three main principles that form the basis for evaluating cryptocurrencies are the prohibition of riba (interest), gharar (uncertainty), and maysir (speculation). According to research by Solichah et al. (2025), cryptocurrency investment practices often contain highly speculative elements, potentially contradicting Sharia principles. However, some academics argue that cryptocurrencies do not automatically violate Sharia law, but rather depend on their mechanism and intended use. Hafiz et al. (2025) assert that cryptocurrencies can be categorized as halal if they meet the principles of transparency, have clear utility, and are not used for excessively speculative activities. Therefore, a more comprehensive approach is needed to assess the compliance of cryptocurrencies with Islamic law.

Theory of Maqashid Syariah as a Normative Foundation

Maqasid sharia is a conceptual framework used to assess the goals and wisdom of Islamic law, which encompasses the protection of religion, life, intellect, descendants, and property. In the context of digital finance, maqasid sharia serves as a crucial analytical tool for evaluating whether an innovation benefits or causes harm. According to Iman et al. (2024), the application of blockchain technology in Islamic finance has the potential to support the principles of maqasid, particularly in terms of transparency, efficiency, and accountability. This demonstrates that technology does not necessarily conflict with Sharia but can instead be instrumental in achieving Sharia goals if properly designed. Therefore, the development of Sharia-compliant cryptocurrencies must consider the overall welfare aspect, not just the formal legal aspects.

Islamic Finance Theory

Islamic financial theory emphasizes an economic system based on justice, balance, and real economic activity. One of the key principles of Islamic finance is risk-sharing, where profits and risks are distributed fairly among the parties involved. In this context, cryptocurrencies need to be examined to determine whether they can fulfill their functions as a medium of exchange, a store of value, and a unit of account. According to research by Birjaman et al. (2023), most cryptocurrency usage is currently dominated by speculative activities, thus not fully reflecting Islamic financial principles. Therefore, a cryptocurrency system design is needed that can connect digital assets with real economic activity to ensure compliance with Sharia principles.

Theory of Technology Adoption and Digital Finance

The success of implementing Sharia-compliant cryptocurrencies is determined not only by legal and technological aspects, but also by the level of public acceptance. Technology adoption theories, such as the Technology Acceptance Model (TAM), explain that technology acceptance is influenced by perceived ease of use and perceived benefits. Research by Hidayatullah et al. (2025) shows that young Muslims are highly inclined to adopt digital technology, including cryptocurrency, while still considering Sharia compliance. This suggests that Sharia financial literacy and technological education are key factors in the development of Sharia-compliant cryptocurrency in Indonesia.

Integration of Blockchain and Islamic Finance (Islamic Fintech)

The integration of blockchain technology and Islamic finance has given rise to the concept of Islamic fintech, which aims to create an innovative financial system while remaining compliant with Sharia principles. According to Febriza et al. (2024), blockchain has significant potential to increase efficiency, transparency, and security in Islamic financial transactions, including the development of digital sukuk and Sharia-compliant smart contracts. However, the main challenge in this integration is the lack of global standards for implementing Sharia principles in blockchain technology. Furthermore, regulatory aspects, Sharia oversight, and infrastructure readiness are also crucial factors that need to be considered in the development of Sharia-compliant cryptocurrencies.

Theory Synthesis in Integrative Model

Based on the various concepts and theories above, it can be concluded that the development of Sharia-compliant cryptocurrencies requires an integrative approach that combines various disciplines. The integrative model developed in this research is based on four main pillars:

- a. Technology → Blockchain and DeFi as the foundation of the system
- b. Islamic Law → Fiqh muamalah as a normative basis
- c. Objectives of Sharia → Maqashid Sharia as a direction of development
- d. Economics → Islamic Finance as an operational framework

The integration of these four pillars is expected to produce a sharia-compliant cryptocurrency model that is not only technologically innovative but also compliant with sharia principles and the needs of the Indonesian people.

Implementation Method

Research Approach and Method Design

The implementation method in this research uses a qualitative approach with an integrative design, combining conceptual analysis, literature review, and model development. This approach was chosen because the development of Sharia-compliant cryptocurrencies involves not only technological aspects but also Islamic law and economic dimensions.

According to Febriza et al. (2024), research related to the integration of fintech, blockchain, and Islamic finance generally uses the systematic literature review (SLR) method to identify patterns, trends, and research gaps. Therefore, this study adopts a similar approach by expanding it into an applicable integrative model. Furthermore, a descriptive-analytical method is used to explain the cryptocurrency

phenomenon from a sharia perspective and examine the relevance of blockchain technology in the Islamic financial system.

Data Collection Stages

Data collection in this study was carried out through several main stages, namely:

- a. Literature Review
This research examines various scientific sources, such as journals, books, and research reports related to cryptocurrency, blockchain, and Islamic finance. Literature review is used to build a theoretical foundation and identify key variables in the development of Islamic crypto. Previous research has shown that literature is the dominant approach in blockchain and Islamic finance studies because it provides a comprehensive overview of implementation opportunities and challenges.
- b. Regulatory Document Analysis
Policy and regulatory documents related to cryptocurrency in Indonesia were analyzed to understand the applicable legal framework and opportunities for integration with Sharia principles.
- c. Comparative Study
A comparison is made between conventional cryptocurrencies and the concept of sharia cryptocurrency to identify differences in characteristics, risks, and development potential.

Data Analysis Techniques

Data analysis was conducted using a thematic qualitative analysis approach, grouping data based on key themes such as technology, law, economics, and sharia. According to Elfida et al. (2024), thematic analysis in sharia blockchain studies is used to systematically identify patterns of technology integration with sharia principles. In this study, the analysis was conducted in several stages:

- a. Data reduction → selecting relevant information
- b. Categorization → grouping by theme
- c. Synthesis → integrating findings into a conceptual model

This approach enables researchers to generate a comprehensive understanding of complex and multidisciplinary phenomena.

Stages of Integrative Model Development

The development of the sharia cryptocurrency model is carried out through several systematic stages:

- a. Identify Main Components
The main components analyzed include:
 - 1) Technology (blockchain, smart contract)
 - 2) Sharia principles (fiqh muamalah, maqashid sharia)
 - 3) Economic aspects (value, utility, financial inclusion)
 - 4) Regulation (national policy)
- b. Integration Between Components
Integration is achieved by linking Sharia principles to the blockchain technology system, ensuring that every transaction is free from riba (usury), gharar (gharar), and maysir (risk of betting). Research shows that blockchain can increase transparency and reduce manipulation, thus supporting Sharia compliance in financial transactions.
- c. Conceptual Model Design

The model is designed in the form of an integrative framework that describes the relationship between technology, law, economics, and regulation.

d. Conceptual Validation

The resulting model is compared with existing literature and practices to ensure compliance with Sharia principles and the needs of a digital financial system.

Implementation of Blockchain Technology in Sharia Crypto

In the implementation phase, blockchain technology becomes the primary foundation of the Islamic cryptocurrency system. Blockchain enables:

- a. Transaction transparency
- b. Data security
- c. Elimination of intermediaries (disintermediation)
- d. Real-time sharia audit

Research shows that blockchain can improve operational efficiency and trust in the Islamic financial system. Furthermore, the use of smart contracts allows for the automation of Sharia-compliant transactions, allowing contracts to operate according to established terms without third-party intervention.

Ecosystem-Based Implementation Approach

The implementation method in this research not only focuses on technology, but also on ecosystem development, which includes:

- a. Regulator → Sharia crypto policy formulation
- b. Islamic financial institutions → product integration
- c. Technology developer → blockchain platform development
- d. Society → digital financial adoption and literacy

According to Wiyani et al. (2023), fintech plays a crucial role in increasing financial inclusion and the efficiency of the Islamic financial system. Therefore, an ecosystem approach is key to the successful implementation of Islamic cryptocurrency in Indonesia.

Results and Discussion

The concept and characteristics of cryptocurrency in the perspective of modern digital economy and finance

The development of the digital economy has spurred the birth of various innovations in the financial system, one of which is cryptocurrency. Cryptocurrency is a digital asset designed as a medium of exchange based on cryptography and distributed ledger technology (DLT), specifically blockchain. In this system, transactions no longer rely on a central authority like a bank or traditional financial institution, but are instead verified by a globally distributed decentralized network. This marks a paradigm shift from the conventional financial system to one that is more open, transparent, and technology-driven. From a digital economy perspective, cryptocurrency is seen as part of the transformation toward a data- and technology-driven economy (digital economy). Tapscott and Tapscott (2018) state that blockchain, as the underlying technology for cryptocurrency, enables the creation of an "internet of value," a system where value can be transferred directly without intermediaries. This concept provides high efficiency in cross-border

transactions, reduces transaction costs, and accelerates payment settlement processes compared to conventional banking systems.

Furthermore, within the modern financial framework, cryptocurrency is part of the development of financial technology (fintech), particularly in the decentralized finance (DeFi) sector. DeFi enables various financial services such as loans, investments, and trading to be carried out automatically through smart contracts without the involvement of third parties. Schär (2021) explains that DeFi has the potential to create a more inclusive and open financial system, as it is accessible to anyone with an internet connection, without geographical restrictions or complex administrative requirements. However, cryptocurrency also has several unique characteristics that distinguish it from traditional financial instruments. First, its decentralized nature, where no single authority controls the system. Second, transparency and immutability, where every transaction is permanently recorded on the blockchain and can be verified by the public. Third, anonymity or pseudonymity, which allows users to conduct transactions without having to directly reveal their identities. Fourth, high price volatility, which makes cryptocurrency not only a means of payment but also a speculative investment instrument.

From a modern financial perspective, this volatility is a key issue. The fluctuating value of cryptocurrencies is influenced by various factors, such as market sentiment, regulation, technology adoption, and global dynamics. According to various recent studies, this high volatility poses a challenge to making cryptocurrencies a stable medium of exchange or store of value. On the other hand, cryptocurrencies also offer several advantages in the modern financial system, such as operational efficiency, reduced transaction costs, increased security through cryptography, and the potential for financial inclusion for the unbanked population. This makes cryptocurrency an innovation with significant potential to drive transformation of the global financial system.

However, the existence of cryptocurrencies also poses various challenges, particularly related to regulatory aspects, consumer protection, and the risk of misuse for illegal activities. Therefore, in the context of the modern digital economy and finance, a balanced approach between innovation and oversight (innovation vs. regulation) is needed to optimize the benefits of cryptocurrencies without compromising the stability of the financial system. Therefore, it can be concluded that cryptocurrencies are a significant innovation in the digital economy, possessing unique characteristics, both technologically and economically. Their existence reflects the transformation of the financial system toward a more decentralized digital era, but they still require proper management to provide sustainable benefits.

Sharia principles (fiqh muamalah) in assessing the validity of cryptocurrency, especially regarding the elements of riba, gharar, and maysir

From the perspective of Islamic jurisprudence (fiqh muamalah), all economic activities are essentially permissible (al-ashlu fil mu'amalat al-ibahah) as long as there is no evidence prohibiting them. However, the validity of a financial instrument, including cryptocurrency, must comply with the basic principles of sharia, which emphasize justice (al-'adl), transparency (al-shafafiyah), and benefit (maslahah). In this context, the three main elements that serve as evaluation parameters are the prohibitions against riba (usury), gharar (unlawful activity), and maysir (deliberate activity). First, riba refers to additional or unlawfully obtained profits in a transaction, particularly in the practice of lending and borrowing or the exchange of unequal, riba-based goods. In the context of cryptocurrency, the issue of riba becomes relevant

when crypto assets are used in schemes that generate fixed profits without any real economic activity, such as staking with a specific return resembling interest. However, if cryptocurrency is treated as a commodity or digital asset traded on the spot (cash), some scholars argue that there is no element of *riba* as long as the transaction is conducted transparently and does not involve additional, exploitative elements. Therefore, the assessment of usury in cryptocurrency depends heavily on the mechanism of its use, not solely on the form of the asset.

Second, the element of *gharar* relates to uncertainty or ambiguity in a transaction that can harm one of the parties. Cryptocurrencies are often criticized for their high price volatility and lack of clear underlying assets. This situation has the potential to give rise to *gharar*, especially if the transacting parties lack adequate information or if prices are influenced solely by speculation. However, not all forms of uncertainty are categorized as prohibited *gharar*. In Islamic jurisprudence (*fiqh muamalah*), prohibited *gharar* is excessive *gharar* (*gharar fahish*) and can lead to injustice. If information about cryptocurrencies is openly available, transaction mechanisms are clear, and risks are understood by the parties, some scholars believe that the element of *gharar* can be minimized. Third, the element of *maysir* refers to the practice of speculation or gambling, where profits are obtained through chance without a clear basis for economic activity. In practice, the use of cryptocurrencies as an instrument of short-term speculation with the aim of profiting from extreme price fluctuations can be categorized as *maysir*. This is one of the main reasons some religious authorities have expressed caution against the use of cryptocurrencies. However, if cryptocurrency is used as a means of payment or as part of a long-term investment based on rational analysis, then the element of *maysir* can be avoided.

In assessing the legitimacy of cryptocurrency, the Islamic jurisprudence (*fiqh muamalah*) approach not only focuses on prohibitions but also considers aspects of benefit and necessity (*hajah*). In the context of the digital economy, cryptocurrency can provide benefits such as transaction efficiency, financial inclusion, and transparency. Therefore, some Islamic financial academics and practitioners have proposed a conditional approach, whereby cryptocurrency can be deemed *halal* if it meets certain criteria, such as clear transaction mechanisms, does not contain excessive speculative elements, and is used for productive purposes and does not violate Sharia principles. Furthermore, the *maqasid sharia* approach is also important in evaluating cryptocurrency more comprehensively. If a cryptocurrency system is able to safeguard wealth (*hifz al-mal*), improve welfare, and reduce injustice in the financial system, then its existence can be considered part of an innovation that aligns with Sharia objectives. Therefore, the assessment of the legitimacy of cryptocurrency from a *fiqh muamalah* perspective is contextual and cannot be absolutely generalized as *halal* or *haram*. Its legal status depends heavily on how the cryptocurrency is designed, used, and regulated.

The regulatory and policy conditions related to cryptocurrency in Indonesia and its relevance to sharia principles

The development of cryptocurrency in Indonesia shows significant dynamics, both in terms of public adoption and strengthening government regulations. In general, Indonesia adheres to a dual-track policy approach, recognizing cryptocurrency as an investment commodity but prohibiting its use as legal tender. This aligns with the provision that the rupiah is the sole valid means of payment in Indonesia. Within the national regulatory framework, oversight of crypto assets was initially under the Commodity Futures

Trading Regulatory Agency (BAPPEBTI), which established various regulations, such as BAPPEBTI Regulations No. 5 of 2019 and No. 11 of 2022. These regulations provide legal certainty by classifying cryptocurrency as a tradable asset on the futures market and establishing oversight mechanisms for crypto businesses and transactions.

As the industry develops, the government continues to strengthen regulations to create a more transparent and structured ecosystem. One important step is the issuance of policies to optimize physical crypto asset market trading, aimed at increasing transparency, efficiency, and investor protection in the national crypto ecosystem. Furthermore, there has been a shift in supervisory authority from BAPPEBTI (the Indonesian Composite Materials Trading Regulatory Agency) to the Financial Services Authority (OJK) through the Financial Sector Development and Strengthening Law (UU P2SK). This demonstrates that cryptocurrency is no longer viewed solely as a commodity but is beginning to be positioned as part of a broader digital financial system. Recent data also shows that crypto transaction activity in Indonesia remains high, underscoring the importance of adaptive and responsive regulations to technological developments.

However, from a sharia perspective, existing regulations still face several challenges. Although cryptocurrency is legally permitted as a commodity, there is no explicit integration between crypto regulations and sharia compliance standards. This means that aspects such as halal certification, sharia supervision, and assessment mechanisms based on muamalah fiqh (Islamic jurisprudence) have not been fully accommodated in national policy. From a sharia perspective, authoritative institutions such as the Indonesian Ulema Council (MUI) provide a more normative perspective. Cryptocurrency is not permitted as a medium of exchange, but can be categorized as a commodity (sil'ah) under certain conditions, such as having a utilitarian value, not containing excessive gharar and maysir elements, and being supported by a clear underlying asset.

The relevance between national regulations and Sharia principles can be seen from several points of intersection. First, government policy that treats cryptocurrency as a commodity aligns with the Sharia perspective, which permits crypto assets as objects of transaction (al-mal) as long as certain conditions are met. Second, regulatory efforts to increase transparency and investor protection also align with the principles of justice (al-'adl) and protection of assets (hifz al-mal) within the maqasid of Sharia. However, significant gaps remain. One is the lack of a requirement to ensure that traded crypto assets meet Sharia standards, such as the presence of a clear underlying asset or mechanisms to prevent excessive speculation. To address this, regulators have begun encouraging the development of models based on the tokenization of real assets, such as gold and property, which are considered more compliant with Sharia principles due to their tangible underlying value.

Thus, the cryptocurrency regulatory environment in Indonesia can be said to have developed quite progressively in providing legal certainty and market protection. However, from a sharia perspective, these regulations still require strengthening, particularly in integrating the principles of Islamic jurisprudence (fiqh muamalah) into industry policies and practices. Therefore, an integrative model is needed that can bridge national regulations, technological developments, and sharia principles, so that cryptocurrency development in Indonesia is not only legal but also legitimate and acceptable from an Islamic perspective.

What are the potential, challenges, and risks in developing sharia-based cryptocurrency in Indonesia

The development of Sharia-compliant cryptocurrencies in Indonesia is a phenomenon that lies at the intersection of technological innovation, the needs of the digital economy, and the demands of adherence to Islamic principles. As the country with the largest Muslim population in the world, Indonesia has a strategic opportunity to become a pioneer in the development of a Sharia-compliant crypto ecosystem. However, realizing this potential is not without complex and multidimensional challenges and risks. In terms of potential, Sharia-compliant cryptocurrencies offer significant opportunities to promote financial inclusion and economic system efficiency. Blockchain technology, as the primary foundation, enables transactions to be conducted quickly, transparently, and without intermediaries, thereby reducing operational costs and increasing public access to financial services. In the Indonesian context, this is particularly relevant given the continued presence of unbanked populations. Furthermore, the development of Sharia-compliant cryptocurrencies also has the potential to strengthen the Islamic financial ecosystem through integration with other instruments such as zakat, waqf, and digital sukuk. With the right design, Sharia-compliant cryptocurrencies can become an alternative, halal investment instrument and support economic growth based on Islamic values.

Furthermore, Indonesia's potential lies in its potential to become a global hub for Islamic financial innovation. With progressive regulatory support and adequate human resources, Indonesia can develop a cryptocurrency model that is not only technologically competitive but also offers advantages in terms of Sharia compliance. This could enhance the competitiveness of the national financial industry and attract global investors seeking Sharia-compliant financial instruments. However, this potential faces several challenges. One of the main challenges is the lack of established standards for implementing cryptocurrency in accordance with Sharia principles. Differing views among Islamic scholars and practitioners regarding the legal status of crypto have created uncertainty in its development. Furthermore, the integration of blockchain technology with the principles of Islamic jurisprudence (fiqh muamalah) still requires in-depth study, particularly to ensure that the system developed is truly free from elements of *riba* (usury), *gharar* (gharar), and *maysir* (risk of gambling).

Another challenge is the regulatory and institutional aspects. Although Indonesia has a regulatory framework for crypto assets, there is no specific policy governing Sharia-compliant cryptocurrencies. This creates a lack of legal certainty for industry players wishing to develop Sharia-compliant crypto products. Furthermore, the readiness of technological infrastructure and human resources is also crucial. Developing a secure, efficient, and Sharia-compliant blockchain system requires multidisciplinary expertise, which is still limited in Indonesia. In addition to these challenges, there are also various risks that must be anticipated in the development of Sharia-compliant cryptocurrencies. The first risk is high price volatility, which can fuel speculation and contradict the principle of stability in Islamic finance. This risk not only impacts investors but can also undermine public trust in the Sharia-compliant crypto system. The second risk is the potential for misuse of the technology, such as money laundering and illicit funding, which can undermine the integrity of the financial system.

Another risk relates to cybersecurity, where blockchain-based systems remain vulnerable to digital attacks, such as hacking and asset theft. Furthermore, low financial and technological literacy among the public poses a distinct risk, as it can lead to misunderstandings in cryptocurrency usage and increase the potential for losses. From a sharia perspective, the greatest risk lies in the possibility of deviations from

basic Islamic principles, such as excessive speculation (*maysir*) or unclear transactions (*gharar*). Therefore, the development of sharia-compliant cryptocurrencies must be accompanied by strict oversight mechanisms, both from regulatory and sharia-compliant institutions. Thus, the development of sharia-compliant cryptocurrencies in Indonesia holds enormous potential, but also faces significant challenges and risks. A comprehensive and integrative approach is needed that balances technological, legal, economic, and sharia-compliant aspects. Through this approach, it is hoped that sharia-compliant cryptocurrencies can develop sustainably and make a tangible contribution to the Islamic financial system in Indonesia.

Integration of legal, economic, and technological aspects in designing cryptocurrencies that comply with sharia principles

Designing a Sharia-compliant cryptocurrency requires an integrative approach, combining three main dimensions: legal aspects (Sharia and regulations), economic aspects (Islamic finance), and technological aspects (blockchain and digital systems). Integrating these three aspects is key to ensuring that the developed cryptocurrency is not only technologically innovative but also legally valid and provides sustainable economic benefits. From a legal perspective, the design of a Sharia-compliant cryptocurrency must be based on the principles of Islamic jurisprudence (*fiqh muamalah*), which govern the validity of transactions in Islam. Basic principles such as the prohibition of *riba* (usury), *gharar* (gharar), and *maysir* (gambling) must be key parameters in system design. This means that every mechanism within the cryptocurrency—from token issuance and transaction processing to profit distribution—must be designed to avoid these prohibited elements. Furthermore, integration with national regulations is crucial to ensure operational legality. Sharia-compliant cryptocurrencies must comply with positive legal provisions in Indonesia, such as classification as digital assets and compliance with the financial authority's supervisory system. Thus, the legal aspect serves as a normative foundation that provides legitimacy and certainty in the development of Sharia-compliant cryptocurrencies.

Furthermore, from an economic perspective, Islamic cryptocurrencies must be designed to align with Islamic financial principles, which emphasize fairness, balance, and linkages to real economic activity. In this regard, the concept of risk-sharing is a crucial element, where profits and risks are shared fairly between parties. Therefore, Islamic cryptocurrencies should not merely function as speculative instruments but also have real utility value, for example, as a means of payment within a specific ecosystem or as a representation of real assets through a tokenization mechanism. This approach can reduce excessive speculation and increase value stability, thus better aligning with Islamic principles. Furthermore, integration with Islamic financial instruments such as *zakat*, *waqf*, and *sukuk* can also strengthen the social function of Islamic cryptocurrencies. Meanwhile, from a technological perspective, blockchain is a key foundation in the development of Islamic cryptocurrencies. This technology enables the creation of a transparent, secure, and decentralized system. In the context of Islamic law, the transparency generated by blockchain can support the principles of honesty (*sidq*) and openness in transactions. Furthermore, the use of smart contracts allows for the automation of pre-programmed agreements in accordance with Islamic law, thereby minimizing the potential for violations. For example, contracts can be designed to only execute transactions that meet certain criteria, such as the presence of an underlying asset or the absence of interest. Thus, technology serves not only as a tool but also as a Sharia compliance mechanism.

The integration of these three aspects can be realized through a holistic system design approach. In this model, the legal aspect provides normative boundaries, the economic aspect determines the system's objectives and functions, and the technological aspect serves as the means of implementation. All three must be interconnected and inseparable. For example, the concept of real asset tokenization can bridge the gap between these three aspects: legally fulfilling the principle of clear ownership, economically possessing tangible value, and technologically feasible through blockchain. However, this integration also faces challenges, particularly in aligning the rapidly evolving technological dynamics with the often more cautious legal *ijtihad* process. Therefore, collaboration between Islamic scholars, regulators, academics, and technology developers is necessary to design a comprehensive Sharia-compliant cryptocurrency system. Furthermore, a Sharia supervisory body is required to ensure that the system remains consistent with Islamic principles. Therefore, the integration of legal, economic, and technological aspects is a key prerequisite for the development of Sharia-compliant cryptocurrencies. This approach is expected to produce a cryptocurrency system that not only meets digital innovation standards but also upholds the values of fairness, transparency, and utility as emphasized in Sharia principles.

An integrative model that can be developed to support the implementation of sharia-based cryptocurrency in Indonesia

The development of Sharia-compliant cryptocurrency in Indonesia requires an integrative model capable of simultaneously combining legal, economic, technological, and institutional dimensions. This model serves not only as a conceptual framework but also as an implementation guide for building a sustainable, secure, and Islamically compliant Sharia-compliant crypto ecosystem. In this context, the integrative model is designed as a system that connects various key components into a mutually supportive whole. Conceptually, the integrative model for Sharia-compliant cryptocurrency can be built on four main pillars: (1) legal and Sharia, (2) economic, (3) technological, and (4) institutional and regulatory. These four pillars interact with each other and form a complete ecosystem to support the implementation of Sharia-compliant cryptocurrency in Indonesia.

The first pillar, namely the legal and sharia aspects, serves as the normative foundation for cryptocurrency development. Within this pillar, the principles of Islamic jurisprudence (*fiqh muamalah*), such as the prohibition of usury (*riba*), *gharar* (*gharar*), and *maysir* (gambling), must be integrated into the system design. Furthermore, the *maqasid sharia* approach is used to ensure that the developed cryptocurrency provides benefits and does not cause harm to society. Implementation of this pillar can be achieved through the establishment of a sharia supervisory board tasked with overseeing the system's compliance with sharia principles. The second pillar is the economic aspect, which focuses on the functions and benefits of cryptocurrency within the financial system. In this model, sharia-compliant cryptocurrencies are positioned not merely as speculative instruments but as tools with real economic value. One approach that can be used is asset-backed cryptocurrencies, namely cryptocurrencies backed by real assets such as gold, property, or other commodities. This approach aims to reduce volatility and ensure intrinsic value, thus better aligning with Islamic financial principles. In addition, this model can also be integrated with other Islamic financial instruments, such as *zakat*, *waqf*, and digital *sukuk*, to strengthen social and economic functions.

The third pillar is the technological aspect, which serves as the primary implementation tool in this model. Blockchain technology is used to create a transparent, secure, and decentralized system. In the context of Sharia, blockchain transparency can support the principles of honesty and accountability in transactions. Furthermore, the use of smart contracts enables the automatic application of Sharia rules in every transaction. For example, the system can be designed to reject transactions containing excessive speculative elements or lacking clear underlying assets. Thus, technology serves not only as a tool but also as a mechanism for controlling Sharia compliance. The fourth pillar is the institutional and regulatory aspect, which plays a role in ensuring the sustainability and legitimacy of the system. In the Indonesian context, the development of Sharia-compliant cryptocurrencies must align with national policies and be supervised by the relevant authorities. Furthermore, collaboration between various parties, such as the government, Sharia-compliant financial institutions, technology developers, academics, and the public, is required. This ecosystem-based approach is crucial for creating synergy and increasing public trust in Sharia-compliant cryptocurrencies.

The integration of these four pillars can be realized in the form of a layered system model. The first layer contains the sharia foundation and regulations, which form the basis for all activities. The second layer is the economic system that regulates the value mechanisms, transactions, and distribution of benefits. The third layer is the blockchain-based technology infrastructure that technically implements the system. Meanwhile, the fourth layer is the ecosystem of users and institutions that interact within the system. Furthermore, this integrative model must also be equipped with a continuous monitoring and evaluation mechanism, including sharia audits, regulatory oversight, and system performance evaluation. This is crucial to ensure that sharia-compliant cryptocurrencies remain within the bounds of Islamic principles while adapting to technological and market developments. Therefore, the integrative model for developing sharia-compliant cryptocurrencies in Indonesia represents a comprehensive approach that combines legal, economic, technological, and institutional aspects within a single systematic framework. This model is expected to provide a solution to bridge the need for digital financial innovation with the demands of sharia compliance, thereby promoting inclusive, sustainable, and globally competitive sharia-compliant economic growth.

Conclusion

Based on the discussion above, it can be concluded that the development of Sharia-compliant cryptocurrencies in Indonesia is a strategic necessity in facing the increasingly rapid transformation of the digital economy. Cryptocurrency, as part of financial technology innovation, has significant potential to increase financial inclusion, transaction efficiency, and strengthen the Sharia economic ecosystem. However, its implementation requires caution to maintain compliance with the principles of Islamic jurisprudence (fiqh muamalah), particularly in avoiding elements of usury (riba), gharar (gharar), and maysir (gambling). The current regulatory environment in Indonesia provides a legal basis for trading crypto assets as commodities, but does not yet fully address comprehensive Sharia compliance.

On the other hand, differing views among Islamic scholars, as well as the high volatility and speculation inherent in cryptocurrency practices, pose challenges in ensuring its halal status. Therefore, an integrative model combining legal, economic, technological, and institutional aspects is needed. This model emphasizes the importance of using underlying assets, transparent implementation of blockchain

technology, and oversight by sharia institutions. With this integrative approach, sharia-compliant cryptocurrencies will not only be legally and religiously acceptable but also provide sustainable and equitable economic benefits.

Based on these conclusions, several suggestions that can be put forward are as follows:

1. For Government and Regulators
Special regulations are needed to more comprehensively govern Sharia-compliant cryptocurrencies, including Sharia compliance standards, oversight mechanisms, and investor protection. Furthermore, synergy between financial authorities and fatwa institutions is essential to create clear legal certainty.
2. For Islamic Financial Institutions
Islamic financial institutions are expected to play an active role in developing cryptocurrency products that comply with Islamic principles, for example through the tokenization of real assets or integration with zakat, waqf, and digital sukuk instruments.
3. For Academics and Researchers
Further, more in-depth and empirical research is needed regarding the implementation model of sharia cryptocurrency, including testing its stability, security, and impact on the national economy.
4. For Technology Developers
Developers are expected to be able to design blockchain and smart contract systems that are not only technically sophisticated, but also accommodate Sharia principles in a systematic and measurable manner.
5. For the Community and Investors
The public needs to improve their financial literacy and understanding of cryptocurrencies, particularly regarding their risks and sharia-compliant aspects, so they can make wise investment decisions that align with Islamic values.

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