

LEGAL RESPONSIBILITY AND ISLAMIC ECONOMIC PERSPECTIVE IN THE USE OF BLOCKCHAIN TECHNOLOGY IN INDONESIA

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ABSTRACT

The development of blockchain brings efficiency, transparency, and security to transactions, but at the same time raises the issue of attribution of responsibility when there are smart contract errors, data leaks, system failures, or user losses. This study uses normative legal methods through legislative, conceptual, and Islamic law approaches with primary, secondary, and tertiary legal materials that are analyzed qualitatively. The results of the study show that legal responsibility in the blockchain ecosystem cannot be centered on one party, but rather needs to be divided proportionally according to the level of control and risk contribution of each legal subject. Developers are responsible for code security, system design, and smart contract reliability. The platform assumes obligations for service governance, consumer protection, and data security. Users remain responsible for the legitimate and secure use of the technology. In the perspective of Islamic economic law, the principles of amanah, dhaman, and maslahah affirm the importance of accountability, justice, and usefulness in the use of blockchain. This research emphasizes the need to harmonize national regulations and sharia values so that the blockchain ecosystem develops responsibly, adaptively, and protects the interests of the parties. The findings also show that an adaptive legal framework is needed to prevent norm vacuums and clarify recovery mechanisms when losses occur.

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INTRODUCTION

Education is a process aimed not only at developing a person's intellectual abilities but also at developing good character and personality. From an Islamic perspective, educational success is measured not only by mastery of knowledge but also by the quality of the students' morals. Morals are a crucial component in shaping the perfection of a Muslim's personality, thus Islamic education places significant emphasis on the development of human morals and character (Al-Syaibani, 1979; Daradjat, 2014; Nata, 2020).

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Children are a trust bestowed by Allah SWT upon their parents. Parents' responsibility extends beyond fulfilling their physical needs to guiding them in aspects of faith, worship, and morals. Early childhood education significantly impacts a child's personality development, as childhood is a crucial stage in the formation of a person's moral, emotional, and social development. Therefore, moral education must be continuously implemented through habituation, role modeling, and a supportive environment (Suyadi, 2010; Yusuf, 2019; Umar, 2017).

Modern developments present various challenges in children's moral education. Advances in digital technology provide benefits to human life, but can also have negative impacts if not accompanied by the strengthening of moral and religious values. Easy access to information can influence children's thought patterns and behavior, thus necessitating an education that instills Islamic values so that children can filter various influences from their surroundings (Abdullah, 2011; Azra, 2012; Nata, 2020).

Islam has placed great emphasis on children's education through the Qur'an and the hadith of the Prophet Muhammad (peace be upon him). The Qur'an is the primary source of Islamic teachings, providing educational principles, while the Prophet's hadith provide practical explanations on how to educate people through his words, deeds, and example. The Prophet (peace be upon him) was known as an educator who prioritized compassion, gentleness, habituation, and role modelling in shaping the character of his followers (Al-Nawawi, n.d.; Bukhari, n.d.; Muslim ibn al-Hajjaj, n.d.; Ibn Hajar al-Asqalani, n.d.).

The concept of moral education in the hadith of the Prophet Muhammad (peace be upon him) encompasses various core values such as honesty, trustworthiness, responsibility, compassion, patience, and respect for parents and teachers. Moral education governs not only the relationship between humans and Allah SWT, but also their relationships with others and the environment. These values serve as the foundation for building children's character, enabling them to face changing times while adhering to Islamic teachings (Al-Ghazali, n.d.; Tirmidhi, n.d.; Sulaiman ibn al-Ash'ath Abu Dawud, n.d.).

Although numerous studies have been conducted on moral education in Islam, research specifically examining the hadiths of the Prophet Muhammad (peace be upon him) using a thematic approach remains a need for development. A thematic approach allows researchers to compile various hadiths that are thematically related, thus yielding a more comprehensive understanding of the concept of moral education for children from a hadith perspective. This research is expected to contribute to the development of hadith studies and serve as a reference for parents and educators in implementing moral education for children (Sugiyono, 2023; Abdullah, 2011).

Based on this description, this study seeks to answer the question: what is the concept of moral education for children from the perspective of the hadith of the Prophet Muhammad ﷺ? This study aims to explain the principles of moral education contained in the hadith, analyze their meaning, and examine their relevance to the challenges of child education in the modern era.

RESEARCH METHODS

This study employed a qualitative method with library research. Library research is conducted by reviewing various relevant written sources to obtain data and information relevant to the study's focus. This method was chosen because the study focuses on analyzing the hadiths of the

Prophet Muhammad (peace be upon him) and various literature related to the concept of children's moral education from an Islamic perspective (Sugiyono, 2023).

The approach used in this research is the thematic (maudhu'i) hadith study approach. The thematic approach is carried out by collecting hadiths that have a specific thematic relationship, then analyzing them thoroughly to gain a comprehensive understanding. In this study, hadiths related to children's moral education are examined based on their meaning, the context in which they are conveyed, and their relevance to the development of Islamic education today (Al-Nawawi, n.d.; Ibn Hajar al-Asqalani, n.d.).

The primary data sources in this study come from the main hadith books, namely Sahih al-Bukhari, Sahih Muslim, Sunan Abi Dawud, and Jami' al-Tirmidzi. These books were chosen because they have an important position in the study of hadith and are the main references in understanding the hadith of the Prophet Muhammad ﷺ. The secondary data sources include hadith commentary books, Islamic education books, moral books, and scientific literature related to the theme of children's moral education (Bukhari, n.d.; Muslim ibn al-Hajjaj, n.d.; Sulaiman ibn al-Ash'ats Abu Dawud, n.d.; Tirmidzi, n.d.).

The data collection technique was carried out through documentation, namely by identifying, collecting, classifying, and reviewing various literature sources related to the research object. The collected data were then analyzed using content analysis to identify the main themes related to children's moral education in the hadith of the Prophet Muhammad ﷺ. The results of the analysis are presented descriptively and analytically to obtain a systematic overview of the concept of children's moral education from the perspective of the hadith and its relevance to modern life (Sugiyono, 2023).

RESULTS AND DISCUSSION

Construction of Legal Responsibility for the Blockchain Ecosystem in Indonesia

Blockchain technology differs from conventional digital systems in that it utilizes a decentralized mechanism involving multiple parties within a single ecosystem. This situation makes determining who is legally responsible impossible using a single-subject-centered approach to liability. Based on the study, the construction of legal liability in the blockchain ecosystem must be based on the role, level of system control, risk management ability, and each party's contribution to the loss.

Blockchain developers play a crucial role in determining system security and reliability. This is because they have the authority to design the technology architecture, code programs, develop protocols, and ensure smart contracts function as intended. Therefore, if user losses occur due to system design errors, security weaknesses, code defects, or smart contract failures that could have been prevented through adequate development standards, the developer can be held legally liable. The duty of care principle underpins the responsibility of technology developers not only for the technical success of the system but also for potential risks that may arise from the technology products they develop (Dingman et al., 2019).

In addition to developers, blockchain platform operators also have legal responsibilities because they act as service providers and connect technology with users. Platform responsibilities extend beyond technical aspects to providing transparent information, maintaining system security, protecting user data, and providing resolution mechanisms in the event of issues. In the development of modern digital law, platforms are no longer viewed as passive parties but

rather have an obligation to monitor and manage risks related to the services they provide. Therefore, if user losses arise from governance failures or negligence in maintaining service security, the platform can be legally liable (Ter-Martirosyan, 2025).

On the other hand, blockchain users also have the status of legal subjects with both rights and obligations. Users not only act as recipients of protection but also have a responsibility to use the technology correctly and in accordance with applicable regulations. Actions such as system abuse, transaction manipulation, fraud, or negligence in maintaining private access can give rise to user liability. Therefore, the construction of legal responsibility in the blockchain ecosystem is not appropriate if it is solely placed on the developer or platform. Instead, a proportional liability approach must be used based on each party's contribution and level of control over the risks involved (Pahlawan MP & Riqiey, 2025).

Based on this analysis, it is clear that blockchain requires a distributive legal accountability model. This model positions developers, platforms, and users as responsible parties based on their respective roles. This approach better aligns with the collaborative and decentralized nature of blockchain, as it balances user protection, legal certainty, and the sustainability of digital technology innovation (Liu et al., 2022).

Table 1. ruck Cost Model: The Impact of Blockchain and the Islamic Economic System

Actor	Responsibilities in the Blockchain Ecosystem	Principles of Islamic Economic Law
Developer	Ensuring system security, maintaining software quality, developing reliable program code, and guaranteeing the integrity and reliability of smart contracts.	As-Salamah (Security)
Platform Provider	Ensuring consumer protection, maintaining digital service security, and protecting users' personal data.	Amanah (Trustworthiness) and Maslahah (Public Benefit)
User	Using blockchain technology responsibly, maintaining the confidentiality of personal accounts and data, and avoiding misuse of technology for unlawful or harmful activities.	Dharar (Avoidance of Harm)

Blockchain Liability Analysis Based on Islamic Economic Law Perspective

From an Islamic economic legal perspective, the use of blockchain technology is not only assessed based on its efficiency and benefits, but also on the moral values and Sharia principles that underlie transactional activities. Research shows that the principles of trust, justice, and welfare are the primary foundations for determining the responsibilities of parties within the blockchain ecosystem. These principles affirm that every party involved in economic activity has an obligation to safeguard the rights, interests, and security of others.

The principle of trustworthiness is closely linked to the concept of responsibility in blockchain technology. Developers are mandated to build secure, transparent, and trustworthy systems. This responsibility is realized through the development of quality code, system security testing, and efforts to prevent risks that could harm users. Meanwhile, platforms are mandated to provide services that protect user interests through good governance, information transparency, and personal data protection. Users are mandated to use blockchain technology

responsibly, not to misuse the system, and to safeguard digital access within their control (Nouruzzaman et al., 2026).

In addition to the principle of trust, the concept of dhaman in Islamic law is also relevant in determining accountability for losses. Dhaman implies the obligation to provide compensation or bear legal consequences if someone causes harm to another party. In the blockchain context, this concept can be applied through the allocation of responsibility based on the source of the loss. If the loss is caused by a technical error by the developer, then the responsibility rests with the developer. If the loss arises from the platform's negligence in managing the service, then the platform is obligated to be responsible. Meanwhile, if the loss occurs due to error or misuse by the user, then the user must bear the consequences of their actions (Desky & Hye, 2025).

This concept demonstrates the alignment between the principle of accountability in Islamic economic law and modern legal liability theory. Both emphasize that the burden of responsibility must be assigned to the party with a causal relationship to the loss. Therefore, the application of the principle of proportional liability in the blockchain ecosystem aligns with Islamic values of justice because it does not impose responsibility on parties who have no contribution to the loss (Wardani, 2025).

In addition to trustworthiness and dhaman (benefit), the principle of maslahah (benefit) is also an important consideration when evaluating the use of blockchain technology. Blockchain has the potential to provide significant benefits to economic activities by increasing transaction transparency, maintaining data integrity, and reducing the risk of manipulation. From the perspective of maqasid al-syariah (the principle of protection of wealth) and providing convenience for the community is acceptable as long as it does not conflict with sharia principles (Dewaya, 2025).

However, the benefits of blockchain must be accompanied by monitoring of potential harms. The use of this technology can conflict with Sharia principles if it creates uncertainty (gharar), harmful practices, data misuse, or activities containing elements of excessive speculation. Therefore, the application of blockchain in Islamic economics requires a balance between technological innovation and the protection of public interests. The principle of al-aşlu fı al-mu'āmalāt al-ibāḥah provides the basis for muamalah activities to be essentially permissible as long as they do not contain elements that conflict with Sharia, while the principle of la dharar wa la dhirar emphasizes the prohibition of causing harm to others (Yaqin et al., 2025).

Based on this analysis, it can be concluded that legal accountability in the blockchain ecosystem, from an Islamic economic law perspective, is not solely oriented toward formal legal aspects but also encompasses ethical and moral dimensions. The principle of amanah (trustworthiness) provides the basis for the obligation to maintain trust, the principle of dhaman (benefit) regulates the assignment of responsibility for losses, and the principle of maslahah (benefit) ensures that technological development remains directed toward providing benefits to society. The integration of these three principles can form the basis for building blockchain governance that is innovative, fair, and in accordance with Islamic values.

Blockchain Legal Liability Construction Model in Accordance with Islamic Economic Law

Based on the analysis of the characteristics of blockchain technology and the principles of Islamic economic law, a legal accountability model is needed that can accommodate

technological developments while providing protection for the parties involved. This accountability model cannot fully utilize conventional, centralized accountability patterns, as blockchain operates through a network system involving multiple actors with different functions and authorities. Therefore, the construction of accountability within the blockchain ecosystem needs to be based on the principle of division of responsibilities according to the roles of each party.

In this model, developers are primarily responsible for the technical and security aspects of the system. As the parties designing and building the technology, developers are obligated to ensure that the blockchain system is developed based on adequate security standards and does not contain any vulnerabilities that could harm users. This responsibility aligns with the Islamic principle of trust, which is the obligation of a person to carry out their assigned tasks responsibly and to refrain from actions that cause harm to others (Al-Ghazali, n.d.; Nata, 2020).

Furthermore, blockchain platforms or service providers have responsibilities in governance and user protection. Platforms not only serve as technological providers but also have an obligation to create a transparent system, provide clear information regarding usage risks, and provide a dispute resolution mechanism. From the perspective of Islamic economic law, these actions demonstrate the application of the principle of justice (al-'adl) and the prohibition of actions that harm others. Every economic service provider is obligated to maintain a balance between business interests and user protection.

Meanwhile, blockchain users have a responsibility to use the technology wisely and in accordance with applicable regulations. Users must understand the risks of using digital systems, maintain the security of their accounts or digital assets, and refrain from any actions that violate the law. The principle of individual responsibility in Islam emphasizes that every human being will be held accountable for their actions. Therefore, legal protection in the blockchain ecosystem does not eliminate users' obligation to act responsibly.

This model of division of responsibility demonstrates a parallel relationship between modern legal theory and the principles of Islamic economic law. In legal theory, responsibility is assigned to the party with a causal relationship to a loss. Meanwhile, in Islam, the concept of accountability is related to the principles of trust, justice, and the prohibition of causing harm (la dharar wa la dhirar). Both approaches share the same goal: to create a system that provides legal certainty and protection for society.

Thus, the ideal blockchain legal accountability model is a proportional liability model that involves all parties according to their function and level of control over the system. This model not only provides legal certainty in the use of digital technology but also reflects the values of Islamic economic law, which emphasize justice, responsibility, and the common good.

CONCLUSION

Based on the research results, it can be concluded that blockchain technology presents significant changes in digital transaction systems through its decentralized, transparent, and high-level data security characteristics. However, these characteristics also raise legal issues, particularly regarding determining who is responsible for losses in the blockchain ecosystem. Therefore, a framework for legal accountability is needed that focuses not solely on one party but is based on the role and level of control of each actor involved.

The construction of legal responsibility in the blockchain ecosystem can be divided based on the functions of the parties: developers, platform providers, and users. Developers are responsible for technical aspects, system security, and the quality of technology development. Platforms are obligated to provide secure, transparent services and protect user interests. Meanwhile, users are responsible for using technology wisely and complying with applicable regulations. A proportional liability model is a more appropriate approach because it reflects the principle of fairness in assigning responsibility based on each party's contribution to a loss.

From the perspective of Islamic economic law, the implementation of blockchain technology must adhere to fundamental principles such as trustworthiness, justice, and public interest. The principle of trustworthiness emphasizes the obligation of each party to carry out its role responsibly, the principle of justice requires a balance in the granting of rights and obligations, while the principle of public interest emphasizes that technology must provide benefits and prevent harm. Therefore, blockchain technology is acceptable within the framework of Islamic economic law as long as its implementation maintains the values of transparency, responsibility, and protection for all parties involved.

This research demonstrates that integrating modern legal accountability concepts with Islamic economic law principles can form the basis for building more equitable blockchain governance. Clear regulatory development is necessary to allow blockchain technology innovation to thrive without neglecting legal protection, ethics, and humanitarian values.

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