TADAYUN: Jurnal Hukum Ekonomi Syariah
P-ISSN: 2961-8436 | E-ISSN: 2774-4914
Vol.5 No.1, Januari-Juni 2024

UTILIZATION OF BLOCKCHAIN TECHNOLOGY IN THE ECONOMIC SECTOR: A COMPILATION OF SHARIA ECONOMIC LAW PERSPECTIVES

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Doi: 10.24239/tadayun.v5i1.311

Received: 29 May 2024	Revised: 23 June 2024	Accepted: 26 June 2024

Abstract
Blockchain is a revolutionary concept in information technology that allows the creation and storage of data in a decentralized and encrypted manner. However, blockchain is still a new system in the economic world, so it is necessary to ensure that this technology complies with Sharia standards. In this case, the Compilation of Sharia Economic Law is an essential guideline in Sharia economics in Indonesia because it provides legal certainty, regulatory standards, and consumer protection and supports the development of Sharia finance. This article was written to provide an overview of the opportunities for utilizing blockchain technology in the economic sector from a KHES perspective. The method used is library research, a normative juridical approach, by analyzing documents and information related to the study problem. The results show that KHES articles suit the blockchain character, some of which are articles 21, 179-180, 200, 413, and 577. However, an in-depth analysis is needed regarding the principles of Sharia and the need for a fatwa. Apart from that, it is essential to make clear regulations by the government and government authorities regarding the use of blockchain technology. With proper regulations, blockchain can become helpful in developing the Sharia economy.

Keywords: Blockchain technology; Compilation of Islamic Economic Law (KHES); Sharia economics.

Abstrak
Blockchain adalah konsep yang revolusioner dalam teknologi informasi yang memungkinkan pembuatan dan penyimpanan data secara terdesentralisasi dan terenkripsi. Keunggulan utama dari blockchain adalah transparansi dan keamanan. Kendati demikian, blockchain tetaplah system baru dalam dunia ekonomi, sehingga perlu dipastikan jika teknologi ini sesuai dengan standar syariah. Dalam hal ini, Kompilasi Hukum Ekonomi Syariah menjadi pedoman penting dalam ekonomi syariah di Indonesia karena memberikan kepastian hukum, standar regulasi, perlindungan konsumen, dan

dukungan pengembangan keuangan syariah. Artikel ini ditulis untuk memberikan gambaran mengenai konsep blockchain dan peluang pemanfaatan teknologi blockchain di bidang ekonomi dalam perspektif KHES. Metode yang digunakan adalah library research, pendekatan normatif yuridis. Tahapan dalam penelitian ini, meliputi: pengidentifikasian secara sistematik, serta analisis dokumen dan informasi yang berkaitan dengan masalah kajian. Hasil menunjukkan terdapat pasal KHES yang sesuai karakter blockchain, beberapa diantaranya: pasal 21, pasal 179-180, Pasal 200, Pasal 413 dan Pasal 577. Meski demikian, dibutuhkan analisis mendalam terkait prinsip kepatuhan syariah dan perlu adanya fatwa khusus. Selain itu, penting dibuatnya regulasi yang jelas oleh pemerintah dan otoritas keuangan mengenai penggunaan teknologi blockhcain. Dengan regulasi yang tepat, edukasi yang memadai, dan penilaian dari ahli syariah, blockchain dapat menjadi alat yang sangat berguna dalam mengembangkan ekonomi syariah yang lebih adil dan transparan.

Kata Kunci: Ekonomi syariah; Kompilasi Hukum Ekonomi Syariah (KHES); Teknologi Blockchain.

A. INTRODUCTION

The advancement of digital technology cannot be separated from the risk of data hacking by unauthorized parties.[1] The lack of optimization of the current security system is one of the causes. Standard data operation applications are also why the information data is easily hacked.[2] Unauthorized parties can misuse hacked data and, of course, can harm various parties. The impact of data hacking in the banking industry is severe and potentially detrimental to all parties involved. When customer data is hacked, sensitive information such as credit card numbers, personal information, and transaction history can fall into the wrong hands. It can lead to identity theft, financial fraud, and customer financial loss.[3] In addition, the financial institution's reputation can also suffer, causing a loss of trust from the public and investors. The cost of recovery

[1] Eni Pudjiarti, Siti Faizah, and Sri Hardani, "Analisa Kesadaran Masyarakat Terhadap Bahaya Cybercrime Pada Penggunaan Teknologi Dan Media Sosial," *Bina Insani Ict Journal* 10, no. 1 (2023): 210–23.

[2] M M H Yahya, "Rancang Bangun Prototype Sistem Keamanan Perpustakaan Menggunakan Radio Frequency Identification Rc-522 Dan Node Mcu ...," *Seminar Teknologi Majalengka (Stima)*, 2021, 25–30.

[3] Muhammad Khairul Faridi, "Kejahatan Siber Dalam Bidang Perbankan," *Cyber Security Dan Forensik Digital* 1, no. 2 (2019): 57–61, https://doi.org/10.14421/csecurity.2018.1.2.1373.

and security upgrades can also be an additional burden for banks.[4] Data hacking is, therefore, a threat that the banking industry must take seriously by strengthening security systems and taking appropriate precautions.

In line with these problems, a new system known as Blockchain. Blockchain is a revolutionary concept in information technology that enables the creation and storage of data in a decentralized and encrypted manner.[5] Every transaction recorded in a blockchain uses cryptography, so it cannot altered easily. However, the concept is in the context of cryptocurrencies such as Bitcoin. Blockchain has expanded to various industries, including finance, logistics, healthcare, etc.[6]

However, Blockchain is still a new system in the world of economics. We need adequate literacy before deciding to use this technology. The provisions regarding Sharia economic principles in Indonesia are regulated in Supreme Court Regulation Number 2 of 2008 concerning the Compilation of Sharia Economic Law (KHES).[7] KHES is an essential guideline in Islamic economics in Indonesia because it provides legal certainty, regulatory standards, consumer protection, and support for developing the Islamic financial sector.[8] Apart from these issues, this article provides an overview of Blockchain and the opportunities for utilizing blockchain technology in the economic field from the perspective of the Compilation of Sharia Economic Law.

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[4] Tonny Rompi and Harly Stanly Muaja, "Tindak Kejahatan Siber Di Sektor Jasa Keuangan Dan Perbankan," *Lex Privatum* 9, no. 4 (2021): 183–92.

[5] Rina Candra Noorsanti, Heribertus Yulianton, and Kristophorus Hadiono, 'Blockchain - Crypto Currency Technology,' Proceedings of SENDI_U 2018, July 2018, pp. 978-979.

[6] Daffa Eka Septianda, Sitti Fatimah Khairunnisaa, and Rachma Indrarini, "Blockchain Dalam Ekonomi Islam," *SIBATIK JOURNAL: Jurnal Ilmiah Bidang Sosial, Ekonomi, Budaya, Teknologi, Dan Pendidikan* 1, no. 11 (2022): 2629–38, https://doi.org/10.54443/sibatik.v1i11.407.

[7] Bagus Ahmadi, "Akad Bay', Ijarah Dan Wadi'Ah Perspektif Kompilasi Hukum Ekonomi Syariah (Khes)," *Epistemé: Jurnal Pengembangan Ilmu Keislaman* 7, no. 2 (2012), https://doi.org/10.21274/epis.2012.7.2.311-336.

[8] Nashihul Ibad Elhas, "Kompilasi Hukum Ekonomi Syariah: Tinjauan Umum Hukum Islam," *Qolamuna: Jurnal Studi Islam* 1, no. 2 (2016): 213–22.

Research on the utilization of blockchain in the economic sector has been extensively conducted. However, this study offers a different perspective compared to previous research. The focus of this study is on the perspective of the Compilation of Islamic Economic Law (KHES), in which it comparatively analyzes the characteristics of Blockchain, the opportunities and challenges of its application in the economic field, and its relationship with the provisions of the KHES regulation.

Previous research tends to discuss the general characteristics of blockchain that are suitable for application in Islamic financial transactions without utilizing a specific legal framework. [9] For instance, Dimyati focuses his research on one of the advantages of blockchain, namely smart contracts, using the *maqasid sharia* approach. [10] Meanwhile, Lia Novita Sarti's research employs a normative legal perspective with the Statute Approach of KHI, but focuses on the use of cryptocurrency as a marriage dowry.[11] Muhammad Syarief Hidayatullah discusses the legality of cryptocurrency in Indonesia as a digital asset or commodity and explores ijtihadi opportunities.[12]

Therefore, the research gap lies in the lack of studies that specifically address the utilization of blockchain in the economic sector from the perspective of the Compilation of Islamic Economic Law (KHES). This study aims to fill that gap by offering a comprehensive analysis that considers KHES regulations, providing new insights crucial for the development of blockchain applications in the Islamic economy.

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[9] Dimas Agung Pangestu, "Penggunaan Teknologi Blockchain Dalam Transaksi Keuangan Syari'ah" (Universitas Islam Indonesia, 2023), https://dspace.uii.ac.id/handle/123456789/46344; Septianda, Fatimah Khairunnisaa, and Indrarini, "Blockchain Dalam Ekonomi Islam"; Muhammad Bahanan and Muhammad Wahyudi, "Analisis Pengaruh Penggunaan Teknologi Blockchain Dalam Transaksi Keuangan Pada Perbankan Syariah," *I'THISOM : Jurnal Ekonomi Syariah* 2, no. 1 (2023), https://ejournal.staialutsmani.ac.id/index.php/ithisom/article/view/42.

[10] Dimyati Dimyati, Moh. Imron Rosyadi, and Achmad Fageh, "Smart Sukuk Berbasis Blockchain Tinjauan Maqasid Syariah Al-Najjar," *Jurnal Ilmiah Ekonomi Islam* 9, no. 3 (2023): 4144, https://doi.org/10.29040/jiei.v9i3.10409.

[11] Lia Novita Sari, "Legalitas Penggunaan Cryptocurrency Sebagai Mahar Perkawinan Di Indonesia Perspektif Kompilasi Hukum Islam Dan Majelis Ulama Indonesia" (UIN Kiai Haji Achmad Siddiq Jember, 2023).

[12] Muhammad Syarief Hidayatullah et al., "Peluang Ijtihad Hukum Penggunaan Uang Digital Sebagai Aset Dan Alat Transaksi Di Indonesia," *Tadayun: Jurnal Hukum Ekonomi Syariah* 4, no. 2 (2023), https://doi.org/10.24239/tadayun.v4i2.213.

B. METHOD

This article aims to find out the point of view of the Compilation of Sharia Economic Law on the opportunity to use blockchain in the economic field, so this article is descriptive research. In extracting and collecting data, the method used is library research, to be able to examine library materials and documents which are the main sources of information. The approach used in this research is a juridical normative approach. The steps of library research that will be carried out in this study include: systematic identification, analysis of documents that contain information related to the study problem.

C. RESULTS AND DISCUSSION

1. Blockchain Concept

The concept of blockchain in cryptography refers to the underlying technology of digital currencies such as Bitcoin.[13] Blockchain offers a number of advantages that make it a revolutionary innovation in various fields. First, high security is one of the main advantages of blockchain. Using sophisticated cryptography, every transaction in the blockchain is encrypted and cryptographically linked to previous transactions, making it extremely difficult to manipulate or hack.[14] Second, decentralization is another important feature. Compared to traditional systems that rely on a central authority, blockchain has no single point of failure, making it more resistant to attacks and tampering. It also increases transparency and accountability, as information is stored across the network and accessible to all parties involved.[15] In addition, blockchain also offers efficiency and speed in the transaction process, especially in cross-border payment processing or digital asset delivery.[16] By eliminating

[13] Noorsanti, Yulianton, and Hadiono, "Blockchain - Teknologi Mata Uang Kripto (Crypto Currency)."

[14] Dita Marisa and Atika, "Peran Teknologi Blockchain Dalam Keamanan Dalam Privasi Data," *Jurnal Ilmu Komputer, Ekonomi Dan Manajemen (JIKEM)* 3, no. 1 (2022): 129–38.

[15] Agus Arwani and Unggul Priyadi, "Eksplorasi Peran Teknologi Blockchain Dalam Meningkatkan Transparansi Dan Akuntabilitas Dalam Keuangan Islam: Tinjauan Sistematis," *Jurnal Ekonomi Bisnis Dan Manajemen* 2, no. 2 (2024): 23–37, https://doi.org/10.59024/jise.v2i2.653.

[16] Ilham Noer Zahri, "Strategi Optimalisasi Dalam Analisis Big Data : Pendekatan Integratif Menggunakan Teknologi Semantik Dan Blockchain Pengantar Ulasan," no. December (2023): 1–5, https://doi.org/10.13140/RG.2.2.26750.56645.

intermediaries and high transaction fees, blockchain enables transactions to be faster, cheaper, and more trustworthy.[17] Other advantages include the opportunity to build innovative decentralized applications (dApps), as well as the potential to increase financial inclusion by providing access to those underserved by the conventional financial system.[18] As such, blockchain promises to profoundly transform many aspects of life, from finance and business to the public and social sectors. [19]

Hacking a blockchain has a very high degree of impossibility due to the various security factors inherent in blockchain design and operation. One of the main reasons is the use of very strong cryptography in blockchains. This makes it extremely difficult for any changes or manipulation of data in a blockchain to go undetected.[20] In addition, blockchains are distributed across a network consisting of many connected nodes or computers. This means that to successfully hack a blockchain, an attacker would have to control the majority of the network's computing power, which entails enormous costs and resources. Additionally, some blockchains use strong consensus mechanisms such as proof-of-work (PoW).[21] Overall, thanks to strong cryptography, wide distribution, and reliable consensus mechanisms, hacking a blockchain is considered a nearly impossible task and is rare.[22] Nonetheless, keep in

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[17] Iman Supriadi, "Transformasi Sistem Perpajakan Menggunakan Teknologi Blockchain Untuk Meningkatkan Transparansi Dan Mengurangi Penyimpangan," *MUC Tax Journal* 2, no. 1 (2024): 29–44, https://doi.org/10.61261/muctj.v2i1.

[18] Arbelaez-cruce Shell, "Perancangan Aplikasi E-Voting Dengan Sistem Smart Contract Berbasis Teknologi Blockchain," *Perancangan Aplikasi E-Voting Dengan Sistem Smart Contract Berbasis Teknologi Blockchain* 7, no. 2 (2016): 1–23.

[19] Liza Wikarsa, Thomas Suwanto, and Chrisdityra Lengkey, "Implementasi Algoritma Konsensus Proof-of-Work Dalam Blockchain Terhadap Rekam Medis," *Jurnal Pekommas* 7, no. 1 (2022): 41–52, https://doi.org/10.56873/jpkm.v7i1.4403.

[20] Tito Wira Eka Suryawijaya, "Memperkuat Keamanan Data Melalui Teknologi Blockchain: Mengeksplorasi Implementasi Sukses Dalam Transformasi Digital Di Indonesia," *Jurnal Studi Kebijakan Publik* 2, no. 1 (2023): 55–67, https://doi.org/https://doi.org/10.21787/jskp.2.2023.55-68.

[21] Mahdi H. Miraz, Peter S. Excell, and Khan Sobayel, "Evaluation of Green Alternatives for Blockchain Proof-of-Work (Pow) Approach," *Annals of Emerging Technologies in Computing* 5, no. 4 (2021): 54–59, https://doi.org/10.33166/AETIC.2021.04.005.

[22] Wasriyono, Dwi Apriliasari, and Bayu Ajie Putra Seno, "Inovasi Pemanfaatan Blockchain Dalam Meningkatkan Keamanan Kekayaan Intelektual Pendidikan," *Jurnal*

mind that blockchain security depends on many factors and still requires continuous monitoring and updates to address threats that may arise in the future.[23]

2. Blockchain in the Economy

In economics, Blockchain enables faster, cheaper, and more secure transactions than traditional systems that often involve multiple third parties. It also opens up new opportunities in smart contracts, automated agreements that self-execute when certain conditions are met.[24] It can reduce the risk of human error and increase efficiency in various sectors, including finance, international trade, and supply chain management. With the potential to overhaul the global financial infrastructure, Blockchain is considered a revolutionary innovation that can drive financial inclusion and more equitable and sustainable economic growth.[25]

Blockchain brings various economic benefits that can potentially overhaul the traditional way of doing business and transacting. Here are some of the key benefits of blockchain technology in the economic world, including transparency and security[26] , efficiency and speed[27] , lower

MENTARI: Manajemen, Pendidikan Dan Teknologi Informasi 1, no. 1 (2022): 68–76, https://doi.org/10.34306/mentari.v1i1.142.

[23] Andika Putra, "Penggunaan Teknologi Blockchain Dalam Upaya Meningkatkan Keamanan Data Di Massa Era Digital," no. April (2023): 1–11.

[24] Shafaq Naheed Khan et al., "Blockchain Smart Contracts: Applications, Challenges, and Future Trends," *Peer-to-Peer Networking and Applications* 14, no. 5 (2021): 2901–25, https://doi.org/10.1007/s12083-021-01127-0.

[25] Arwani and Priyadi, "Eksplorasi Peran Teknologi Blockchain Dalam Meningkatkan Transparansi Dan Akuntabilitas Dalam Keuangan Islam: Tinjauan Sistematis."

[26] Ariesto Hadi Sutopo, Blockchain Smart Contract Programming in Polygon, (Banteng: Topazart, 2023), 6.

[27] Yelza Diasca et al., "Tinjauan Teknologi Blockchain Dalam Audit Cryptocurrency," *Prosiding Industrial Research Workshop and National Seminar*, 2021, 1150–55.

transaction costs[28] , broader financial access[29] , *Smart Contracts*[30] , and reduced risk and fraud[31] Overall, Blockchain has the potential to bring significant innovation in various economic sectors, improving efficiency, security, and accessibility. With its growing adoption, Blockchain is expected to continue to play a vital role in the digital transformation of the global economy.

3. Compilation of Sharia Economic Law

The Compilation of Sharia Economic Law (KHES) became a Sharia economic guideline in Indonesia for several reasons related to regulation, legal certainty, and the development of the Sharia economy in the country. Here are the main reasons why KHES has become a sharia economic guideline in Indonesia. First, the Compilation of Islamic Economic Law (KHES) has legal certainty.[32] KHES provides a clear and definite legal basis for implementing Islamic economics in Indonesia. With this compilation, all parties involved in sharia economic transactions, including banks, financial institutions, and customers, have clear guidelines for carrying out economic activities under sharia principles.[33] Secondly, KHES is a regulatory standard governing various aspects of the Sharia economy, including banking, insurance, capital

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[28] Arwani and Priyadi, "Eksplorasi Peran Teknologi Blockchain Dalam Meningkatkan Transparansi Dan Akuntabilitas Dalam Keuangan Islam: Tinjauan Sistematis."

[29] Ira Ariati and Dudi Rudianto, "Dampak Blockchain Dalam Manajemen Keuangan Pada Perusahaan Fintech," *Journal of Economics and Business UBS* 13, no. 2 (2024): 566–76, https://doi.org/10.52644/joeb.v13i2.1558.

[30] Ariesto Hadi Sutopo, Blockchain Smart Contract Programming in Polygon, (Banteng: Topazart, 2023), 5.

[31] Achmad Muhtadibillah, Bhupesh Rawat, and Bambang Mardi Sentosa, "Motivasi Organisasi Dalam Mengadopsi Teknologi Blockchain : Suatu Tinjauan Literatur Dan Analisis Kualitatif," *Jurnal MENTARI: Manajemen Pendidikan Dan Teknologi Informasi* 2, no. 2 (2024): 188–96.

[32] Ahmad Badrut Tamam, "Konsep Subyek Hukum Dalam Hukum Islam, Hukum Positif Dan Kompilasi Hukum Ekonomi Syariah," *Journal of Sharia Economics* 1, no. 2 (2018): 107–17.

[33] Zelyn Faizatul Rohmah et al., "Peran Regulasi Sebagai Landasan Hukum Bagi Pertumbuhan Lembaga Keuangan Syariah Di Indonesia: Peluang Dan Tantangan," *Maro: Jurnal Ekonomi Syariah Dan Bisnis* 7, no. 1 (2024): 1–13, https://doi.org/10.31949/maro.v7i1.5792.

markets, and other financial institutions.[34] This standardization ensures that all Islamic financial institutions operate under-recognized Sharia principles.

Third, KHES encourages the development and growth of the Islamic economy in Indonesia by providing a legal framework that supports innovation and expansion in the sector.[35] With clear regulations, investors and businesses are more confident about participating in the Islamic economy. Fourth, KHES protects consumers by ensuring that products and services offered by Islamic financial institutions follow Sharia principles and Islamic business ethics.[36] It includes protection against unfair practices or exploitation. Fifth, KHES is structured to harmonize with Indonesia's national legal system, easing implementation and supervision by legal and financial authorities. This integration is essential to ensure the sharia economy can run synergistically with the existing legal system.

Furthermore, the Compilation of Sharia Economic Law (KHES) has also received support from the Financial Authority. The Indonesian Government and government institutions such as Bank Indonesia and the Financial Services Authority (OJK) support the implementation of KHES as part of efforts to strengthen the Islamic financial sector. Following the KHES guidelines, Islamic financial institutions can ensure that their operations are legally sound and under Islamic values.[37] And finally, KHES also plays a role in the education and socialization of sharia economic principles to the public. The public can better understand and adopt Sharia economic practices daily with clear guidelines.[38]

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[34] Elhas, "Kompilasi Hukum Ekonomi Syariah: Tinjauan Umum Hukum Islam."

[35] Mul Irawan, "Politik Hukum Ekonomi Syariah Dalam Perkembangan Lembaga Keuangan Syariah Di Indonesia," *Jurnal Media Hukum* 25, no. 1 (2018): 10–21, https://doi.org/10.18196/jmh.2018.0097.10-21.

[36] Sirmaneli Sirmaneli et al., "Perlindungan Hukum Terhadap Konsumen Dalam Kompilasi Hukum Ekonomi Syariah," *Jurnal Hukum Ekonomi Syariah : AICONOMIA* 1, no. 1 (2022): 40–49, https://doi.org/10.32939/acm.v1i1.2121.

[37] Irawan, "Politik Hukum Ekonomi Syariah Dalam Perkembangan Lembaga Keuangan Syariah Di Indonesia."

[38] Ika Atikah, "Eksistensi Kompilasi Hukum Ekonomi Syariah (KHES) Sebagai Pedoman Hakim Dalam Menyelesaikan Perkara Ekonomi Syariah Di Pengadilan Agama," *Muamalatuna, Jurnal Hukum Ekonomi Syariah* 9, no. 2 (2017): 143–62.

4. Blockchain Implementation Challenges

Blockchain has great potential to be applied in the Islamic financial system, but it must be examined and customized to align with Sharia principles. Here are some aspects to consider when evaluating the application of Blockchain in Islamic financial institutions. The first is the assessment of blockchain applications in terms of Shariah compliance principles and the need for a specific fatwa on Blockchain.[39] Before implementation, scholars and experts should assess any blockchain application to ensure its compliance with Sharia principles. A particular fatwa may be required to provide clear guidance on using Blockchain in Islamic finance.[40]

The second is regulation and standards. These are needed to ensure that Blockchain complies with the law in Indonesia and Islamic financial institutions. The Government and financial authorities need to work with Islamic financial institutions to develop a regulatory framework that supports innovation while continuing to ensure compliance with sharia principles.[41] The third is to increase education and awareness about the benefits and workings of Blockchain in Islamic financial institutions, which must be increased among the public, financial professionals, and scholars. It will help accelerate the adoption of this technology and ensure that all parties understand how to use it.[42]

5. Blockchain Utilization in the Perspective of the Compilation of Sharia Economic Law

Applying blockchain technology from the perspective of KHES is an

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[39] Djumadi, "Teknologi Blockchain Dalam Perspektif Ekonomi Islam / Keuangan Islam," *Al-Kharaj: Jurnal Ekonomi, Keuangan & Bisnis Syariah* 6, no. 4 (2024): 4335–51, https://doi.org/10.47467/alkharaj.v6i4.887.

[40] Nabila Azura Qothrunnada et al., "Transformasi Digital Lembaga Keuangan Syariah: Peluang Dan Implementasinya Di Era Industri 4.0," *Indonesian Journal of Humanities and Social Sciences* 4, no. 3 (2023): 741–56.

[41] Hidayatullah et al., "Peluang Ijtihad Hukum Penggunaan Uang Digital Sebagai Aset Dan Alat Transaksi Di Indonesia"; Zayyan Hadhari Bik, "Manajemen Resiko, Tantangan Dan Ketidakpastian Regulasi Investasi Cryptocurrency Dalam Pandangan Ekonomi Syariah," *Jurnal Kewarganegaraan* 6, no. 3 (2022): 6466–78.

[42] Ade Irawan et al., "Tantangan Dan Strategi Manajemen Keamanan Siber Di Indonesia Berbasis IoT," *Journal Zetroem* 6, no. 1 (2024): 114–19, https://doi.org/10.36526/ztr.v6i1.3376.

exciting topic because Blockchain has characteristics that can support the basic principles of Sharia, such as transparency, fairness, and honesty in transactions.[43] Here are some of the benefits of applying Blockchain in the economic field when connected to the Compilation of Sharia Economic Law (KHES):

a. Ensure transparency and honesty

Blockchain technology, which offers a system that is difficult to manipulate, guarantees transparency and honesty in every data.[44] Transparency and honesty are valued in Islam. They are two fundamental principles in the Islamic economic system. It is based on the Regulation of the Supreme Court of the Republic of Indonesia Number 02 of 2008 concerning the Compilation of Sharia Economic Law Chapter II Article 21 that contracts are carried out based on the principles of trust and transparency.[45]

> Chapter II, Article 21, point (b): 'Trustworthiness/keeping promises; every contract must be executed by the parties in accordance with the terms agreed upon by the parties involved and must simultaneously avoid breaking promises.' and Chapter II Article 21 point (g): 'Transparency': The parties carry out every contract with open accountability.

Honesty is one of the most upheld moral values in Islam. In an economic context, honesty ensures that all parties operate with integrity and do not engage in practices that harm others.[46] Companies and individuals known to be honest tend to have a good reputation and credibility. It can attract more business partners and customers and increase opportunities for profitable cooperation. Honesty in transactions reduces the potential for conflict and dispute. When all parties act honestly, misunderstandings and disputes are less likely, creating more

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[43] Marisa and Atika, "Peran Teknologi Blockchain Dalam Keamanan Dalam Privasi Data."

[44] Ariati and Rudianto, "Dampak Blockchain Dalam Manajemen Keuangan Pada Perusahaan Fintech."

[45] Mahkamah Agung Republik Indonesia, *Kompilasi Hukum Ekonomi Syariah Peraturan Mahkamah Agung RI No. 2 Tahun 2008*, 1st ed. (Jakarta: Ditjen Badilag Mahkamah Agung RI, 2013).

[46] Fitriah M Suud, "Kejujuran Dalam Perspektif Psikologi Islam: Kajian Konsep Dan Empiris," *Jurnal Psikologi Islam* 4, no. 2 (2017): 121–34.

harmonious business relationships.[47]

Blockchain provides a transparent and immutable record of transactions. Every transaction is recorded in a digital ledger that can be accessed by all parties involved, thereby reducing the possibility of fraud and increasing trust. It aligns with Shariah principles that emphasize transparency and honesty in transactions.[48]

b. Supporting non-usury contracts

Islam offers fair and shariah-compliant alternatives for financial transactions, including *mudarabah* and *musyarakah*.[49] Blockchain can support sharia-compliant business models such as *mudarabah* and *musyarakah*, where profits and losses are shared based on the contributions and risks borne by each party. With Blockchain, smart contracts can be set up to ensure that profits and losses are shared fairly and transparently.[50] They, of course, can help Islamic financial institutions to run their non-usury system more efficiently. It is in line with the principles of Islamic economics as stated in the Compilation of Sharia Economic Law Chapter II Article 21 point (k), which states: The contract can be made based on a lawful cause, not contrary to the law, not prohibited by law and not haram.[51]

Usury is considered a form of exploitation of borrowers, especially those in challenging economic conditions.[52] It creates injustice in the distribution of wealth. The practice of usury can also cause economic imbalance by enriching the few who have capital and worsening the

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[47] Fakhry Zamzam, Havis Aravik, Islamic Business Ethics The Art of Blessed Business, (Yogyakarta: CV Budi Utama, 2020), 5.

[48] Azhar Dzaky Muhammad HM and Siska Amalia Junianti, "Penerapan Teknologi Blockchain Dalam Sistem Informasi Akuntansi," *Jawara Sistem Informasi* 1, no. 1 (2023).

[49] Ela Chalifah and Amirus Sodiq, "Pengaruh Pendapatan Mudharabah Dan Musyarakah Terhadap Profitabilitas (ROA) Bank Syariah Mandiri Periode 2006-2014," *EQUILIBRIUM:Jurnal Ekonomi Syariah* 3, no. 1 (2015): 27–47.

[50] Wasriyono, Apriliasari, and Bayu Ajie Putra Seno, "Inovasi Pemanfaatan Blockchain Dalam Meningkatkan Keamanan Kekayaan Intelektual Pendidikan."

[51] Mahkamah Agung Republik Indonesia, *Kompilasi Hukum Ekonomi Syariah Peraturan Mahkamah Agung RI No. 2 Tahun 2008*.

[52] Mariam Khawar, "The Impact of Culture on Economic Growth and Development," *International Advances in Economic Research* 22, no. 2 (2016): 245–46, https://doi.org/10.1007/s11294-016-9579-7.

economic conditions of the less well-off. Usury encourages people to focus on financial gain without considering human values such as help and social solidarity. It encourages greedy behavior and ignores ethical principles in doing business.[53]

Every capital contribution and expenditure in a partnership contract can be recorded in a blockchain. It ensures all parties can access the same information and verify the contribution and use of funds.[54] Smart contracts can automate sharing profits and losses based on the agreed capital contributions. It reduces the potential for disputes and ensures all parties get their fair share.[55] Blockchain in Islamic investment platforms can enable investors and entrepreneurs to participate in *mudarabah* and *musyarakah* projects with complete transparency. All transactions and profit sharing can be automated and verified on the Blockchain. Also, in real estate projects financed through *musyarakah*, Blockchain can record capital contributions from various investors, manage project expenditures, and divide profits from the rental or sale of properties according to each investor's contribution.[56]

Using blockchain technology, the *mudarabah* and *musyarakah* systems can become more efficient, transparent, and secure under Sharia principles. It eliminates the element of usury in the contract and promotes fair and sustainable economic growth.

c. Avoiding *gharar* (uncertainty)

Blockchain has several features that can help avoid transactions that contain *gharar* (excessive uncertainty or speculation). Blockchain provides transaction records that are transparent and accessible to all

[53] Risanda Alirastra Budiantoro, Riesanda Najmi Sasmita, and Tika Widiastuti, "Sistem Ekonomi (Islam) Dan Pelarangan Riba Dalam Perspektif Historis," *Jurnal Ilmiah Ekonomi Islam* 4, no. 01 (2018): 1, https://doi.org/10.29040/jiei.v4i1.138.

[54] Desy Apriani et al., "Optimasi Transparansi Data Dalam Rantai Pasokan Melalui Integrasi Teknologi Blockchain," *Jurnal Mentari: Manajemen Pendidikan Dan Teknologi Informasi* 2, no. 1 (2023): 1–10.

[55] Maher Alharby and Aad Van Moorsel, "Blockchain Based Smart Contracts : A Systematic Mapping Study," 2017, 125–40, https://doi.org/10.5121/csit.2017.71011.

[56] Achmad Bahauddin, "Aplikasi Blockchain Dan Smart Contract Untuk Mendukung Supply Chain Finance Umkm Berbasis Crowdfunding Syariah," *Journal Industrial Servicess* 5, no. 1 (2019): 107–11, https://doi.org/10.36055/jiss.v5i1.6511.

authorized parties.[57] Each transaction is recorded in an immutable digital ledger and can be verified by all participants. This transparency reduces uncertainty as all information about the transaction is clearly and openly available.[58]

The impermissibility of *gharar* is mentioned in the Compilation of Sharia Economic Law Article 577 paragraph (1) and Article 21 points (c) and (d), which explain the principle of prudence in Islamic economics and the prohibition of *gharar* and *maisir*.[59]

> Article 577 paragraph (1) KHES: The implementation of transactions must be carried out according to the principle of prudence and is not allowed to speculate and manipulate which contains elements of *dharar*, *gharar*, *usury*, *maisir*, *rishwah*, sin and injustice.

Article 21 of the Compilation of Sharia Economic Law (KHES) states that contracts are carried out based on the following principles: *Ikhtiyati* (prudence), where every contract is executed with careful consideration and precision; *Luzum* (unchanging), ensuring that every contract is performed with clear objectives and meticulous calculations to avoid speculation or *maisir* (gambling) practices; and mutual benefit, which mandates that each contract is designed to fulfill the interests of the involved parties while preventing manipulation and harm to any party. [60]

Gharar is a term in Islamic law that refers to a transaction's uncertainty, speculation, or excessive risk.[61] *Gharar* covers any unclear, ambiguous, or uncertain transaction regarding its object, price, or terms. [62]Transactions that contain *gharar* are considered invalid in Sharia

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[57] Bahauddin.

[58] Arwani and Priyadi, "Eksplorasi Peran Teknologi Blockchain Dalam Meningkatkan Transparansi Dan Akuntabilitas Dalam Keuangan Islam: Tinjauan Sistematis."

[59] Mahkamah Agung Republik Indonesia, *Kompilasi Hukum Ekonomi Syariah Peraturan Mahkamah Agung RI No. 2 Tahun 2008*.

[60] Mahkamah Agung Republik Indonesia.

[61] Ar Royyan Ramly, "Konsep Gharar Dan Maysir Dan Aplikasinya Pada Lembaga Keuangan Islam," *Islam Universalia: International Journal of Islamic Studies and Social Sciences* 1, no. 1 (2019): 62–82, https://doi.org/10.56613/islam-universalia.v1i1.107.

[62] Agus Triyanta, "Gharar; Konsep Dan Penghindarannya Pada Regulasi Terkait Screening Criteria Di Jakarta Islamic Index," *Jurnal Hukum Ius Quia Iustum* 17, no. 4 (2010): 614–32, https://doi.org/10.20885/iustum.vol17.iss4.art6.

because they can lead to injustice, fraud, and conflict between the parties involved.[63]

Blockchain uses encryption and decentralization technology, which makes transaction data highly secure and cannot be manipulated.[64] This security ensures that the information recorded on the Blockchain is valid and reliable. Smart contracts run on the Blockchain and automatically execute agreements based on pre-defined conditions. Smart contracts ensure that all the terms and conditions of the transaction are met before the transaction is executed.[65]

With features such as transparency, security, smart contracts, real-time auditing, decentralization, and dispute resolution,[66] Blockchain can significantly reduce the element of *gharar* in transactions. This technology supports Sharia principles by creating a more fair, transparent, and uncertainty-free transaction environment. It enables Islamic economic actors to operate more efficiently and ethically under Islamic values.

d. Fairness in Transactions

Blockchain has decentralized principles that support fairness by ensuring that all parties involved in a transaction have equal access to information and that no party is disadvantaged.[67] Every change or transaction is recorded and cannot be altered, so all parties are assured that their rights are protected. Decentralization principles on Blockchain can support fairness in the economy in several ways relating to increased transparency, accountability, and broader participation.[68]

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[63] Abdul Ghofur Anshori, *Perbankan Syariah Di Indonesia* (Yogyakarta: Gadjah Mada University Press, 2018), 76.

[64] Leny Megawati, Cecep Wiharma, and Asep Hasanudin, "Peran Teknologi Blockchain Dalam Meningkatkan Keamanan Dan Kepastian Hukum Dalam Transaksi Kontrak Di Indonesia," *Jurnal Hukum Mimbar Justitia* 9, no. 2 (2023): 410, https://doi.org/10.35194/jhmj.v9i2.3856.

[65] Khan et al., "Blockchain Smart Contracts: Applications, Challenges, and Future Trends."

[66] Bahauddin, "Aplikasi Blockchain Dan Smart Contract Untuk Mendukung Supply Chain Finance Umkm Berbasis Crowdfunding Syariah."

[67] Arwani and Priyadi, "Eksplorasi Peran Teknologi Blockchain Dalam Meningkatkan Transparansi Dan Akuntabilitas Dalam Keuangan Islam: Tinjauan Sistematis."

[68] Nishant Sapra, Imlak Shaikh, and Ashutosh Dash, "Impact of Proof of Work (PoW)-Based Blockchain Applications on the Environment: A Systematic Review and

Decentralization ensures that all transactions are recorded in a ledger accessible to all authorized parties. No single entity has exclusive control over the data, so all information is openly available.[69]

Justice is one of the main pillars of Islamic teachings, including in the Islamic economic system. Fairness in economic transactions prevents exploitation and fraud, protecting the weak from unfair practices by the stronger. A just economic system encourages cooperation and solidarity among members of society, creating an environment conducive to sustainable and inclusive economic growth.[70]

Article 21 KHES point (f), the contract is carried out based on the principle: *taswiyah*/equality; the parties in every contract are equal, and have equal rights and obligations.[71] Likewise, the *musyarakah*/ cooperation contract in Sharia's economic principles demands justice and equality between the parties to the contract.[72] It is stated in the Compilation of Sharia Economic Law articles 179 and 180 regarding the proportional distribution of profits and losses.[73]

> Article 179 KHES: (1) The sharing of profits and or losses in capital cooperation is assessed proportionally; (2) If the parties do not agree on sharing profits and losses, then profits and losses are shared equally, with those who only contribute their expertise getting the same share as the lowest financier. Article 180 KHES: In capital cooperation that is accompanied by work cooperation, the work is assessed based on the portion of responsibility and achievement.

Research Agenda," *Journal of Risk and Financial Management* 16, no. 4 (2023), https://doi.org/10.3390/jrfm16040218.

[69] Manovri Yeni and Devi Kumala, "Teknologi Blockchain Untuk Transparansi Dan Keamanan Pada Era Digital," *Academia*, 2020, https://www.academia.edu/73911635/Teknologi_Blockchain_untuk_Transparansi_dan_Keamanan_pada_Era_Digital.

[70] Harisah, Kutsiyatur Rahmah, and Yenny Susilawati, "Konsep Islam Tentang Keadilan Dalam Muamalah," *Syar'Ie* 3, no. 2 (2020): 172–85.

[71] Mahkamah Agung Republik Indonesia, *Kompilasi Hukum Ekonomi Syariah Peraturan Mahkamah Agung RI No. 2 Tahun 2008*.

[72] Indra Sholeh Husni, "Konsep Keadilan Ekonomi Islam Dalam Sistem Ekonomi: Sebuah Kajian Konsepsional," *Islamic Economics Journal* 6, no. 1 (2020): 57, https://doi.org/10.21111/iej.v6i1.4522.

[73] Mahkamah Agung Republik Indonesia, *Kompilasi Hukum Ekonomi Syariah Peraturan Mahkamah Agung RI No. 2 Tahun 2008*.

With decentralized blockchains, every transaction or change in the Blockchain must be verified by multiple nodes (computers) in the network. It makes it difficult for a single party to commit fraudulent acts without detection.[74] It also allows many parties to participate in management and decision-making, not just a handful of elites or specific parties. No single point of failure can be exploited for unfair or harmful purposes. Decentralized systems are more resistant to manipulation and attacks.[75]

The decentralization principle of Blockchain supports fairness in the economy through increased transparency, accountability, distribution of ownership, reduction of central control risks, equitable distribution of profits, fair dispute resolution, and economic inclusiveness.[76] By removing centralized power and giving greater control to all participants in the network, Blockchain creates a fairer and more ethical system for all parties involved.[77]

e. Security

Blockchain offers a high level of security through encryption and decentralization mechanisms. Transaction data is protected from manipulation and theft, crucial in ensuring trust and integrity in the Islamic financial system.[78] Blockchain guarantees security in economic activities through various technical and structural mechanisms that ensure the system's integrity, transparency, and resilience. Blockchain operates on a distributed network where multiple nodes (computers)

[74] Noorsanti, Yulianton, and Hadiono, "Blockchain - Teknologi Mata Uang Kripto (Crypto Currency)."

[75] Po Abas Sunarya, "Penerapan Sertifikat Pada Sistem Keamanan Menggunakan Teknologi Blockchain," *Jurnal MENTARI: Manajemen, Pendidikan Dan Teknologi Informasi* 1, no. 1 (2022): 58–67, https://doi.org/10.34306/mentari.v1i1.139.

[76] Joan Marthin Simanjuntak, "Peranan Teknologi Blockchain Dalam Meningkatkan Efisiensi Sistem Pembayaran," n.d., 1–13.

[77] Isma Elan Maulani et al., "Penerapan Teknologi Blockchain Pada Sistem Keamanan Informasi," *Jurnal Sosial Teknologi* 3, no. 2 (2023): 99–102, https://doi.org/10.59188/jurnalsostech.v3i2.634.

[78] Muhammad Ali Anhar and Teguh Agum Pratama, "Analisis Implementasi Keamanan Data Melalui Teknologi Blockchain," no. 120 (2024).

store copies of the same data.[79] No single entity has complete control over the entire network. It reduces the risk of centralization attacks, where if one node fails or is attacked, the system as a whole remains operational.[80]

It aligns with the principle of transparency as the principle of Sharia economic contracts in Article 21 point (g) of the Compilation of Sharia Economic Law. Contracts are carried out based on the following principles: transparency; every contract is carried out with open accountability of the parties.[81] If Blockchain is applied to Islamic financial institutions, it can support security in transactions and increase customer confidence in Islamic economic contracts, including the *wadi'ah* contract. The *wadi'ah* concept, a customer entrusts his money to an Islamic institution to be stored and kept safe.[82] This security concept is explained in the *wadi'ah* Chapter of the Compilation of Sharia Economic Law, where other parties, including the LKS, cannot use the customer's money without his consent.

> Article 413 KHES: (1) The *wadi'ah* contract consists of a *wadi'ah amanah* contract and a *wadi'ah dhamanah* contract; (2) In a *wadi'ah amanah* contract, *mustaudi'* cannot use the *wadi'ah* object, except with the permission of *muwaddi*; (3) In a *wadi'ah dhamanah* contract, the *mustaudi'* can use the *wadi'ah* object without the permission of the *muwaddi*.[83]

The decentralized system of the Blockchain can also be applied to *musyarakah* contracts, which prioritize the security of joint property.[84] It

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[79] Zainudin Hasan, "Regulasi Penggunaan Teknologi Blockchain Dan Mata Uang Kripto Sebagai Tantangan Di Masa Depan Dalam Hukum Siber," *Jurnal Ilmu Hukum Dan Tata Negara* 2, no. 2 (2024): 1–15, https://doi.org/https://doi.org/10.55606/birokrasi.v2i2.1163.

[80] Yeni and Kumala, "Teknologi Blockchain Untuk Transparansi Dan Keamanan Pada Era Digital."

[81] Mahkamah Agung Republik Indonesia, *Kompilasi Hukum Ekonomi Syariah Peraturan Mahkamah Agung RI No. 2 Tahun 2008*.

[82] Saep Saepudin et al., "Akad Wadi'Ah Dalam Perspektif Ulama Madzhab," *Jurnal Hukum Ekonomi Syariah (JHESY)* 1, no. 1 (2022): 60–69, https://doi.org/10.37968/jhesy.v1i1.139.

[83] Mahkamah Agung Republik Indonesia, *Kompilasi Hukum Ekonomi Syariah Peraturan Mahkamah Agung RI No. 2 Tahun 2008*.

[84] Mila Fursiana Salma Musfiroh, "Musyârakah Dalam Ekonomi Islam," *Syariati; Jurnal Studi Al-Qur'an Dan Hukum* 1, no. 3 (2016): 6–19.

is under the following article 200 KHES: If one of the co-owners is entrusted with joint property, then he is responsible for the security of the joint property.[85]

The security principle in Islamic economic law is fundamental because it protects property, prevents fraud, ensures fairness and transparency, maintains economic stability, ensures compliance with Sharia, facilitates efficient dispute resolution, and increases public trust. Thus, security is essential for creating a fair, transparent, and sustainable economic system under Islamic values. [86]

Every transaction on the Blockchain is encrypted using complex cryptographic algorithms.[87] Transactions can only be added to the Blockchain if they are verified and approved by the majority of nodes in the network. It can ensure that data cannot be altered or falsified without detection.[88] It protects against data theft and manipulation. As for a transaction in the Blockchain, it cannot be changed or deleted. It is known as the principle of immutability.[89]

Blockchain also guarantees its level of security as it uses various consensus algorithms such as Proof of Work (PoW) or Proof of Stake (PoS) to validate and approve transactions.[90] Essentially, in blockchain, all nodes must reach consensus before a transaction can be recorded. This consensus ensures that only valid transactions are included in the blockchain, preventing fraud and errors. The technology also utilizes

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[85] Mahkamah Agung Republik Indonesia, *Kompilasi Hukum Ekonomi Syariah Peraturan Mahkamah Agung RI No. 2 Tahun 2008*.

[86] Muhammad Alwi et al., "Konsep Maqasid As Syariah Dalam Perbankan Syariah," *Al-Amwal : Journal of Islamic Economic Law* 7, no. 2 (2022): 56–80, https://doi.org/10.24256/alw.v7i2.3549.

[87] Prayitno Wiriyo Susanto and Wahid Miftahul Ashari, "Penerapan Teknologi Blockchain Pada Transaksi Online Shop," *Al Qalam: Jurnal Ilmiah Keagamaan Dan Kemasyarakatan* 18, no. 1 (2024): 654, https://doi.org/10.35931/aq.v18i1.2778.

[88] Anhar and Pratama, "Analisis Implementasi Keamanan Data Melalui Teknologi Blockchain."

[89] Farikhul Muafiq, "The Impact of Blockchain Technology on Administrative Processes: Enhancing Transparency, Efficiency, and Trust," *Education Studies and Teaching Journal* 1, no. 1 (2024): 179–87.

[90] Miraz, Excell, and Sobayel, "Evaluation of Green Alternatives for Blockchain Proof-of-Work (Pow) Approach."

hashing for additional security, making it difficult for anyone to alter data without being detected. Moreover, blockchain stores data redundantly across multiple nodes, so if one node experiences issues, the data remains safe elsewhere. This redundancy enhances overall system security and availability.

D. CONCLUSION

Looking from the perspective of the Compilation of Sharia Economic Law, there are articles related to the characteristics of the blockchain system, some of which are: article 21 on the Principles of the Contract, which emphasizes the principles of honesty, transparency, equality, prudence, and convenience; articles 179 and 180 on *Syirkah Mutsyarakah* which emphasize the principle of justice in Islamic economic contracts; Article 413 on the *Wadi'ah* contract on the principle of security; Article 200 on the Utilization of *Syirkah Milk* which emphasizes the importance of a sense of responsibility; Article 577 on Securities Transactions which are in accordance with the principle of prudence in transactions. In particular, blockchain is considered to be compatible with the principles contained in the Compilation of Sharia Economic Law. Blockchain has great potential to support and strengthen the Islamic financial system through transparency, efficiency, and security. However, the implementation of this technology must be done carefully and in accordance with sharia principles. A more in-depth analysis of sharia compliance principles and a special fatwa on blockchain are needed. In addition, there needs to be clear regulations by the government and financial authorities regarding the use of blockhcain technology. With proper regulation, adequate education, and judgment from sharia experts, blockchain can be a very useful tool in developing a fairer and more transparent Islamic economy.

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