



Protecting Islamic Users In E-Payment Transaction: The Islamic Perspective

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Abstract: Vulnerability of Islamic users in e-payment transactions, including risks related to fraud, privacy breaches, and ethical violations. These concerns arise due to the rapid digital transformation and the evolving landscape of financial technologies. In today's digital era, electronic payment (e-payment) systems play a pivotal role in facilitating transactions across global economies. However, alongside their convenience, e-payment systems present significant challenges related to security, privacy, and ethical considerations, particularly when viewed through the lens of Islamic finance. The objective of this study is to examine how Islamic principles can guide the development and implementation of e-payment systems to protect users effectively. It aims to identify key principles from Islamic finance that can enhance security, ensure fairness, and uphold ethical standards in e-payment transactions. This study adopts a qualitative research method, focusing on documentation and secondary sources, by examining and analyzing users protection in e-payment transactions from an Islamic perspective. Through an analysis of Islamic financial principles such as transparency, fairness, security, and ethical conduct, this paper finds that integrating these principles into e-payment systems can mitigate risks and enhance user confidence. Moreover, avoiding uncertainty (*gharar*) and gambling (*maysir*) in e-payment transactions underscores the importance of clear and non-speculative terms. The implications of this study are significant for stakeholders in the e-payment industry, including financial institutions, regulatory bodies, and policymakers. By aligning e-payment practices with Islamic ethical norms, stakeholders can foster trust among Islamic users, enhance regulatory compliance, and promote sustainable economic development. This paper underscores the importance of integrating Islamic ethical principles into e-payment systems to ensure the protection and welfare of Islamic users.

Keywords: E-payment transaction, user protection, ethical obligation

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Abstrak: Kerentanan pengguna Islam dalam transaksi pembayaran elektronik, termasuk risiko terkait penipuan, pelanggaran privasi, dan pelanggaran etika. Kekhawatiran ini muncul karena pesatnya transformasi digital dan perkembangan teknologi keuangan. Di era digital saat ini, sistem pembayaran elektronik (e-Payment) memainkan peran penting dalam memfasilitasi transaksi di seluruh perekonomian global. Namun, selain kemudahannya, sistem pembayaran elektronik menghadirkan tantangan signifikan terkait keamanan, privasi, dan pertimbangan etika, terutama jika dilihat dari kaca mata keuangan Islam. Tujuan dari penelitian ini adalah untuk mengkaji bagaimana prinsip-prinsip Islam dapat memandu pengembangan dan penerapan sistem pembayaran elektronik untuk melindungi pengguna secara efektif. Hal ini bertujuan untuk mengidentifikasi prinsip-prinsip utama dari keuangan Islam yang dapat meningkatkan keamanan, memastikan keadilan, dan menegakkan standar etika dalam transaksi pembayaran elektronik. Penelitian ini mengadopsi metode penelitian kualitatif, dengan fokus pada dokumentasi dan sumber-sumber sekunder, dengan mengkaji dan menganalisis perlindungan pengguna dalam transaksi pembayaran elektronik dari perspektif Islam. Melalui analisis prinsip-prinsip keuangan Islam seperti transparansi, keadilan, keamanan, dan perilaku etis, makalah ini menemukan bahwa mengintegrasikan prinsip-prinsip ini ke dalam sistem pembayaran elektronik dapat memitigasi risiko dan meningkatkan kepercayaan pengguna. Selain itu, menghindari ketidakpastian (*gharar*) dan perjudian (*maysir*) dalam transaksi pembayaran elektronik menggarisbawahi pentingnya ketentuan yang jelas dan tidak spekulatif. Implikasi dari penelitian ini sangat signifikan bagi para pemangku kepentingan dalam industri pembayaran elektronik, termasuk lembaga keuangan, badan pengatur, dan pembuat kebijakan. Dengan menyelaraskan praktik pembayaran elektronik dengan norma-norma etika Islam, para pemangku kepentingan dapat menumbuhkan kepercayaan di antara pengguna Islam, meningkatkan kepatuhan terhadap peraturan, dan mendorong pembangunan ekonomi berkelanjutan. Makalah ini menggarisbawahi pentingnya mengintegrasikan prinsip-prinsip etika Islam ke dalam sistem pembayaran elektronik untuk memastikan perlindungan dan kesejahteraan pengguna Islam.

Kata Kunci: Transaksi pembayaran elektronik, perlindungan pengguna, kewajiban etis

Introduction

In the fast-paced digital landscape of the 21st century, electronic payment (e-payment) systems have revolutionized the way individuals and businesses conduct financial transactions globally. These systems offer unprecedented convenience, speed, and accessibility, making them indispensable in facilitating economic activities across various sectors. However, alongside their numerous advantages, e-payment systems also bring forth significant challenges related to

security, privacy, and ethical considerations, particularly when viewed through the lens of Islamic finance.¹ Islamic finance operates on principles derived from Shariah (Islamic law), which emphasize fairness, transparency, ethical conduct, and the prohibition of activities deemed harmful or exploitative.² These principles are not only religious precepts but also ethical guidelines that govern economic and financial transactions in Islamic societies. In the context of e-payment systems, ensuring that these principles are adhered to becomes crucial to protect the rights and interests of Islamic users.

Islamic users of e-payment systems face several challenges that warrant attention. One of the primary concerns is the security of personal and financial information. With the rapid digitization of financial transactions, there is an increased risk of cyber threats, data breaches, and unauthorized access to sensitive information.³ Protecting this information aligns not only with ethical standards but also with legal and regulatory requirements aimed at safeguarding user privacy. Another challenge is the adherence to Islamic principles of fairness and transparency in e-payment transactions.⁴ Islamic finance prohibits transactions that involve excessive uncertainty (*gharar*) or gambling (*maysir*). Therefore, e-payment systems must ensure that terms and conditions are clear, comprehensible, and free from elements that could lead to disputes or exploitation of users.⁵ Moreover, the ethical conduct expected in Islamic finance extends to the conduct of financial institutions and service providers involved in e-payment systems. These entities are expected to operate with integrity, honesty, and accountability, ensuring that their practices uphold the trust and confidence of users.⁶

The objective of this study is to explore how principles derived from Islamic economics can guide the development and implementation of e-payment systems to protect Islamic users effectively. By examining these principles such as transparency, fairness, security, and ethical conduct this study aims to provide

¹ Hamsin, Muhammad Khaeruddin, Abdul Halim, Rizaldy Anggriawan, and Hilda Lutfiani. "Sharia E-Wallet: The Issue of Sharia Compliance and Data Protection." *Al-Manahij: Jurnal Kajian Hukum Islam* 17, no. 1 (2023), p. 53-68.

² Elmalki, A., & Mounira, B A., "Ethical Investment and The Social Responsibilities of The Islamic Banks," *International Business Research*, Vol 2(2), (2009), p. 123-130.

³ Ambore, S., Richardson, C A., Doğan, H., Apeh, E., & Osselton, D., "A Resilient Cybersecurity Framework for Mobile Financial Services (MFS)," *Journal of Cyber Security Technology*, Vol. 1(3-4) (2017), p. 202-204.

⁴ Al-Qawasmi, K., "Proposed E-Payment Process Model to Enhance Quality of Service Through Maintaining the Trust of Availability," *International Journal of Emerging Trends in Engineering Research*, Vol.8(6) (2020), p. 2296-2300.

⁵ Asriani, Asriani, and Prodip Kumar. "Sharia Economic Dispute Resolution During Covid-19 Pandemic." *Al-'Adalah* 18, no. 2 (2021), p. 363-382.

⁶ Al-Khawaja, H A., & Bardai, B., "Standard Quality Banking Services of Islamic Banks," *Journal of Public Administration and Governance*, Vol.8(1) (2018), p. 301-316.

insights into best practices that can enhance user protection and promote ethical standards within the e-payment ecosystem. This research utilizes a qualitative approach, assessed through descriptive analysis. Data collection involved an in-depth examination of various literature sources, such as journal articles, books, documents, and relevant references concerning users protection in e-payment transactions from an Islamic perspective. Islamic principles serve as the foundation for analyzing the protection concepts embedded within e-payment transactions. This study is structured as follows: it begins by outlining the foundational principles of Islamic finance relevant to e-payment transactions. It then discusses the specific challenges faced by Islamic users in e-payment systems, including security, transparency, and ethical considerations. This study proceeds to explore case studies and examples of successful implementations of these principles by financial institutions and e-payment providers. Finally, the study concludes with recommendations for stakeholders in the e-payment industry to enhance user protection, promote regulatory compliance, and foster sustainable economic development in accordance with Islamic ethical norms.

E-payment Transaction Concept

This concept of e-payment systems provides a comprehensive overview suitable for this study, highlighting their components, benefits, challenges, future trends, and their transformative impact on modern financial transactions. Payment (e-payment) systems represent the backbone of modern financial transactions, leveraging technology to facilitate the seamless exchange of monetary value between individuals, businesses, and organizations. These systems have evolved significantly from traditional cash-based transactions to digital platforms that enable transactions to occur anytime and anywhere, revolutionizing the way commerce is conducted globally.⁷

E-payment systems operate through various digital platforms such as websites, mobile applications, and online portals.⁸ These platforms serve as interfaces where users initiate, authorize, and manage transactions securely.⁹ They support a wide range of payment methods including credit/debit cards, bank transfers (ACH), mobile wallets, and emerging technologies like cryptocurrencies.¹⁰ Each method offers distinct advantages in terms of speed,

⁷ Brunnermeier, M K., James, H., & Landau, J., "The Digitalization of Money," National Bureau of Economic Research, (2019), p. 1-31.

⁸ Hidayati, Tri, Muhammad Syarif Hidayatullah, Parman Komarudin, and Atika Atika. "Digitalization of Islamic Finance: Epistemological Study of the National Sharia Board-Indonesian Council of Ulama's Fatwa." *Al-Ahkam* 33, no. 2 (2023), p. 255-278.

⁹ Aziz, Fathul Aminudin. "Menakar Kesyarahan Fintech Syariah di Indonesia." *Al-Manahij: Jurnal Kajian Hukum Islam* 14, no. 1 (2020), p. 1-18.

¹⁰ Wenner, G., Bram, J T., Marino, M., Obeysekare, E., & Mehta, K., "Organizational Models of Mobile Payment Systems in Low-Resource Environments," *Information Technology for Development*, Vol. 24(4) (2017), p. 681-705.

convenience, and accessibility. Transactions in e-payment systems typically involve initiation by the payer, secure authentication, processing by payment gateways or processors, and settlement where funds are transferred between accounts electronically.¹¹ Robust security measures such as encryption, tokenization, and multi-factor authentication are integral to protecting sensitive financial data and preventing fraud, ensuring user trust and compliance with regulatory standards. E-payment systems offer numerous benefits. Users can conduct transactions at their convenience, reducing dependency on physical banking location. Transaction are processed quickly, improving cash flow management for businesses and enhancing consumer convenience.¹² Lower transaction fees compared to traditional methods reduce costs for both consumers and business.¹³ E-payment systems promote financial inclusion by providing access to banking services for underserved populations.

Despite their advantages, e-payment systems face challenges such as cybersecurity risks, regulatory compliance, user adoption, and the need for continuous technological innovation to address evolving consumer needs and expectations.¹⁴ Looking ahead, e-payment systems are poised to evolve with advancements in mobile technology, blockchain for secure transactions, AI-driven customer service enhancements, and biometric authentication methods, shaping the future of digital payments worldwide.¹⁵ E-payment systems are pivotal in transforming financial transactions, enhancing global connectivity, and driving economic growth. As they continue to evolve, ensuring security, accessibility, and regulatory compliance will be critical to fostering trust and expanding their impact on global commerce.

User Protection In E-payment Transaction

User protection in e-payment transactions requires a comprehensive approach encompassing robust security measures, regulatory compliance, fraud

¹¹ Hassan, M A., Shukur, Z., Hasan, M K., & Al-Khaleefa, A S., "A Review on Electronic Payments Security," *Multidisciplinary Digital Publishing Institute*, Vol. 12(8) (2020), p. 1344-1344.

¹² Azizah, Wafiq. "Analisis Praktik Transaksi e-Wallet Dalam Perspektif Hukum Ekonomi Syariah (Studi Analisis Di Kabupaten Kudus Tahun 2021)." PhD diss., IAIN KUDUS, 2022.

¹³ Ebubedike, A H., Mohammed, T A., Nellikunnel, S., & Teck, T S., "Factors Influencing Consumer's Behavioural Intention Towards the Adoption of Mobile Payment In Kuala Lumpur," *International Journal of Professional Business Review*, Vol. 7(6) (2022), p. 1-20.

¹⁴ Rahman, M., Ismail, I., Bahri, S., & Rahman, M K., "An Empirical Analysis of Cashless Payment Systems for Business Transactions," *Journal of Open Innovation: Technology, Market and Complexity*, Vol. 8(4) (2022), p. 1-20.

¹⁵ Azmee, D S S., & Azami, N., "A Study of Factors Influencing Customers' Intention to Use Mobile Phones For E-Payment in Klang Valley, Malaysia," *International Journal of Academic Research in Economics & Management Sciences*, Vol. 13(1) (2023), p. 37-49.

prevention strategies, consumer rights protection, privacy safeguards, and continuous technological innovation.¹⁶ By prioritizing user protection, e-payment systems can enhance trust, mitigate risks, and foster a secure and reliable environment for electronic financial transaction.¹⁷ Ensuring robust user protection is essential in e-payment transactions to safeguard against various risks such as fraud, privacy breaches, and unauthorized access. This study delves into the critical measures, strategies, and considerations necessary to protect users engaging in electronic financial transactions. From the security measures, E-payment systems employ advanced encryption techniques to secure sensitive data transmitted over networks, including credit card details, personal information, and transactional data.¹⁸ Encryption ensures that data remains confidential and protected from unauthorized access during transmission and storage. Robust authentication mechanisms, such as passwords, PINs (Personal Identification Numbers), biometric verification (fingerprint or facial recognition), and two-factor authentication (2FA), verify the identity of users before granting access to initiate transactions.¹⁹ Secure authentication protocols mitigate the risk of unauthorized access and protect user accounts from compromise.

Moreover, from the legal framework e-payment systems must adhere to regulatory frameworks and standards set forth by financial regulatory authorities and governments. These regulations aim to protect consumer rights, ensure fair business practices, and mitigate risks related to fraud, money laundering, and financial crimes.²⁰ Compliance with PCI DSS is crucial for e-payment systems that handle credit card transactions PCI DSS mandates stringent security measures, including encryption of cardholder data, secure network architecture, regular vulnerability assessments, and compliance validation through audits.²¹ Besides that, for fraud prevention dan detection, e-payment systems employ real-time transaction monitoring and anomaly detection tools to identify unusual

¹⁶ Musarrofa, I., & Rohman, H, 'Urf of Cyberspace: Solutions to the Problems of Islamic Law in the Digital Age. *al-Ahkam*, 33(1), (2023), p. 63-88.

¹⁷ Fatonah, S., Yulandari, A., & Wibowo, F W., "A Review Of E-Payment System in E-Commerce," *Journal of Physics: Conference Series*, (2018), p. 1-7.

¹⁸ Hassan, M A., & Shukur, Z., "A Secure Multi-Factor User Authentication Framework for Electronic Payment System," *3rd International Cyber Resilience Conference (CRC)*, Langkawi Island, Malaysia, (2021), p. 1-6.

¹⁹ Grassi, P A., Fenton, J., Newton, E M., Perlner, R A., Regenscheid, A., Burr, W E., Richer, J., Lefkovitz, N., Danker, J M., Choong, Y., Greene, K., & Theofanos, M., "Digital Identity Guidelines: Authentication and Lifecycle Management," Special Publication (NIST SP), *National Institute of Standards and Technology, Gaithersburg, MD*, (2020).

²⁰ Fatonah, S., Yulandari, A., & Wibowo, F W., "A Review Of E-Payment System in E-Commerce," *Journal of Physics: Conference Series*, (2018), p. 1-7.

²¹ Azmee, D S S., & Azami, N., "A Study of Factors Influencing Customers' Intention to Use Mobile Phones For E-Payment in Klang Valley, Malaysia," *International Journal of Academic Research in Economics & Management Sciences*, (2023).

patterns or suspicious activities indicative of fraudulent transactions.²² Automated alerts and transaction blocking mechanisms help mitigate risks promptly and prevent financial losses. Advanced fraud detection systems analyze transaction data for indicators of fraudulent behavior, such as unusual transaction amounts, multiple failed authentication attempts, or irregular transaction locations. These systems enable proactive intervention to prevent unauthorized transactions and protect user accounts.

Furthermore, user protection also covered the consumer rights and dispute resolution such as transparency and disclosure.²³ E-payment providers are required to provide clear and transparent information regarding transaction fees, terms and conditions, privacy policies, and users' rights.²⁴ Transparent communication enables users to make informed decisions and understand their rights in relation to e-payment transactions.²⁵ The effective dispute resolution mechanisms allow users to report unauthorized transactions, billing errors, or disputes promptly. E-payment systems facilitate timely investigation, resolution, and restitution of disputes, ensuring fair treatment and protection against financial losses. Under the privacy protection and data security, e-payment needed compliance with data protection laws (e.g., GDPR, CCPA) ensures the responsible handling of users' personal information. E-payment systems must obtain user consent for data processing, implement data security measures, and provide users with rights to access, correct, or delete their personal data.²⁶ E-payment systems uphold strict confidentiality obligations regarding users' financial information and transactional data. Policies and safeguards prevent unauthorized access, disclosure, or misuse of sensitive information, maintaining user trust and compliance with privacy regulations.

Embracing technological innovations such as AI-driven fraud detection, biometric authentication, and blockchain technology enhances the security and resilience of e-payment systems. Continuous technological upgrades strengthen

²² Alkhateeb, Z K., & Malood, A T., "Machine Learning-Based Detection of Credit Card Fraud: A Comparative Study," *American Journal of Engineering and Applied Sciences*, (2019).

²³ Azmee, D S S., & Azami, N., "A Study of Factors Influencing Customers' Intention to Use Mobile Phones For E-Payment in Klang Valley, Malaysia," *International Journal of Academic Research in Economics & Management Sciences*, Vol. 13(1) (2023), p. 37-49.

²⁴ Sukardi, Didi, Jefik Zulfikar Hafizd, Afif Muamar, Fatin Hamamah, Esti Royani, and Babur Sobirov. "Digital Transformation of Cooperative Legal Entities in Indonesia." In *Al-Risalah: Forum Kajian Hukum dan Sosial Kemasyarakatan*, vol. 24, no. 2, (2024), p.68-86.

²⁵ Sinha, M., Majra, H., Hutchins, J., & Saxena, R., "Mobile Payments in India: The Privacy Factor," *International Journal of Bank Marketing*, Vol. 37(1) (2019), p. 192-209.

²⁶ Fatonah, S., Yulandari, A., & Wibowo, F W., "A Review Of E-Payment System in E-Commerce," *Journal of Physics: Conference Series*, (2018), p. 1-7.

defenses against evolving cyber threats and enhance user protection measures.²⁷ Collaboration among e-payment providers, financial institutions, regulatory authorities, and cybersecurity experts fosters a proactive approach to improving security practices, regulatory compliance, and user protection strategies. Stakeholder engagement promotes knowledge sharing, best practices, and collective efforts to safeguard users' interests.

User Protection in E-payment Transaction According to Islamic Perspective

Protecting Islamic users in e-payment transactions requires adherence to Islamic ethical principles, Shariah guidelines, and legal frameworks that prioritize fairness, transparency, security, and consumer rights. By integrating these principles into e-payment systems, providers can foster trust, enhance user confidence, and promote ethical conduct in the digital economy while upholding the values of Islamic finance.²⁸ Ensuring user protection in e-payment transactions from an Islamic perspective involves adhering to ethical principles, Shariah (Islamic law) guidelines, and moral values that emphasize fairness, transparency, and accountability. This subtopic explores how Islamic principles can guide the development and implementation of e-payment systems to protect users effectively.

1. Ethical Framework

Trustworthiness (*amanah*) is a fundamental principle in Islamic ethics and jurisprudence that holds significant importance in e-payment transactions.²⁹ It encompasses the obligation to uphold trust, honesty, and integrity in all dealings, including financial transactions conducted through electronic means.³⁰ In the context of e-payment systems, the principle of *amanah* plays a crucial role in ensuring user protection and fostering confidence among participants in the digital economy. The word of *amanah*, derived from the Arabic root word "*amana*,"³¹ denotes trustworthiness, reliability, and fidelity. In Islamic teachings,

²⁷ Moon, I T., Shamsuzzaman, M., Mridha, M M R., & Rahaman, A S M M., "Towards the Advancement of Cashless Transaction: A Security Analysis of Electronic Payment Systems," *Journal of Computer and Communications*, Vol. 10(7) (2022), p. 103-129.

²⁸ Haridan, N M., Hassan, A F S., & Alahmadi, H A., "Financial Technology Inclusion in Islamic Banks: Implication on Shariah Compliance Assurance," *International Journal of Academic Research in Business & Social Sciences*, Vol. 10(14) (2020), p. 38-48.

²⁹ Utami, Fitri, Dini Maulana Lestari, and Khaerusalikhin Khaerusalikhin. "Analisis Kritis Konsep Kepemilikan Harta Dalam Islam." *JURIS (Jurnal Ilmiah Syariah)* 19, no. 2 (2020), p. 133-145

³⁰ Al-Qawasmi, K., "Proposed E-Payment Process Model to Enhance Quality of Service Through Maintaining the Trust of Availability," *International Journal of Emerging Trends in Engineering Research*, Vol. 8(6) (2020), p. 2296-2300.

³¹ Islam, M M., "E-Commerce & E-Payments: Islamic Perspective," (2004). <http://www.sabah.gov.my/ust/rtmlecommercel.htm>

amanah refers to fulfilling responsibilities and obligations faithfully, safeguarding entrusted resources or information, and maintaining transparency in transactions.³² In e-payment transactions, users entrust sensitive financial information, such as credit card details or personal data, to service providers or platforms. Upholding the principle of *amanah* requires e-payment providers to handle this information securely, protect users' privacy, and ensure that transactions are conducted honestly and transparently.³³ *Amanah* obligates e-payment providers to implement robust data protection measures, including encryption, secure storage systems, and access controls, to prevent unauthorized access or breaches of users' personal and financial information.

Upholding *amanah* fosters user confidence in e-payment systems. When users trust that their information is secure and transactions are conducted honestly, they are more likely to engage actively in online transactions and adopt digital financial services.³⁴ E-payment providers that demonstrate a commitment to *amanah* build a reputation for reliability and integrity in the marketplace.³⁵ This reputation enhances customer loyalty, attracts new users, and strengthens the overall credibility of the e-payment platform. *Amanah* aligns with broader Islamic principles of justice, fairness, and ethical conduct in financial transactions.³⁶ E-payment systems must adhere to Shariah-compliant practices, avoiding activities prohibited by Islamic law such as usury (*riba*) and uncertainty (*gharar*).

Amanah emphasizes accountability and responsibility in managing users' funds and information. E-payment providers are accountable for safeguarding assets entrusted to them and must act responsibly to protect users' interests and rights.³⁷ Embracing technological innovations, such as blockchain for transparent transactions and biometric authentication for secure access, enhances the

³² Islam, M S., & Samsudin, S., "Interpretations of Al-Amanah Among Muslim Scholars and Its Role in Establishing Peace in Society," *Journal Indexing and Metrics*, Vol. 48(3) (2018), p. 437-450.

³³ Fikri, A A H S., "Tinjauan Maqashid Syariah Tentang E-Money," *Jurnal Ilmiah Ekonomi Islam*, Vol. 8(01) (2022), p. 140-145.

³⁴ Hafid, Abd, Syamsul Bahri, Sitti Nikmah Marzuki, Musrini Muis, and Rini Idayanti. "The Application of Khiyar Principles to E-Commerce Transaction: The Islamic Economy Perspective." *Samarah: Jurnal Hukum Keluarga dan Hukum Islam* 8, no. 1 (2024), p. 403-420.

³⁵ Sarkam, N A., Razi, N F M., Mohammad, N H., Jamil, N I., & Kurniawati, L., "Attitudes, Security, And Perceived Ease of Use Influence the Consumers' Decision to Use An E-Payment System," *International Journal of Academic Research in Business and Social Sciences*, Vol. 12(3) (2022), p. 357-368.

³⁶ Aman, A., "Islamic Marketing Ethics for Islamic Financial Institutions" *International Journal of Ethics and Systems*, Vol. 36(1) (2020), p. 1-11.

³⁷ Noor, M Z M., Naim, A M., Muhamed, N A., Mirza, A A I., Ahmad, A., Ali, S R S., & Shukor, A R A., "Legal Issues In E-Wallet Practices," *UUM Journal of Legal Studies*, Vol.12(2) (2021), p. 229-252.

implementation of *amanah* in e-payment systems.³⁸ Continuous improvement in security measures and user protection strategies strengthens trustworthiness. Collaboration among e-payment providers, regulatory authorities, Islamic scholars, and cybersecurity experts facilitates the development of guidelines and best practices that uphold the principle of *amanah* in e-payment transactions.³⁹ Stakeholder engagement ensures ongoing adherence to ethical standards and regulatory compliance.

Transparency (*al-Ishtirak*) is a foundational principle in Islamic finance and ethics that emphasizes openness, clarity, and honesty in all financial transactions.⁴⁰ In the context of e-payment transactions, transparency plays a crucial role in ensuring user protection, fostering trust, and upholding ethical standards according to Islamic economic principles. *Al-Ishtirak* refers to transparency, disclosure, and openness in financial dealings.⁴¹ It requires parties involved in transactions to provide clear and comprehensive information about terms, conditions, fees, risks, and the use of funds or resources.⁴² Transparency is essential in e-payment transactions to empower users with information necessary to make informed decisions.⁴³ It ensures that users understand how their financial transactions are processed, the security measures in place, and their rights and responsibilities within the e-payment system.

E-payment providers must disclose all relevant information clearly and in a language that users can understand.⁴⁴ This includes transaction fees, currency conversion rates, processing times, and any potential risks associated with using the e-payment platform. Transparent practices require e-payment platforms to outline terms and conditions governing user accounts, data privacy, dispute

³⁸ Ahmad, Azlin Alisa, Mat Noor Mat Zain, and Nur Diyana Amanina Zakaria. "The Position of Smart Contracts in the Light of Islamic Contract Theory." *Samarah: Jurnal Hukum Keluarga dan Hukum Islam* 8, no. 1 (2024), p. 144-171.

³⁹ Al-Qawasmi, K., "Proposed E-Payment Process Model to Enhance Quality of Service Through Maintaining the Trust of Availability," *International Journal of Emerging Trends in Engineering Research*, Vol. 8(6) (2020), p. 2296-2300.

⁴⁰ Aman, A., "Islamic Marketing Ethics for Islamic Financial Institutions" *International Journal of Ethics and Systems*, Vol. 36(1) (2020), p. 1-11.

⁴¹ Elmalki, A., & Mounira, B A., "Ethical Investment and The Social Responsibilities of The Islamic Banks," *International Business Research*, Vol. 2(2) (2009), p. 123-130.

⁴² Ahyani, Hisam, and Memet Slamet. "Building the values of Rahmatan Lil'Alamin for Indonesian economic development at 4.0 era from the perspective of philosophy and islamic economic law." *Al-Ihkam: Jurnal Hukum & Pranata Sosial* 16, no. 1 (2021), p. 111-136.

⁴³ Holijah, Holijah, and M. Rizal. "Islamic compensation concept: The consumer dispute settlement pattern in Indonesia." *Samarah: Jurnal Hukum Keluarga dan Hukum Islam* 6, no. 1 (2022), p.98-114.

⁴⁴ Ebubedike, A H., Mohammed, T A., Nellikunnel, S., & Teck, T S., "Factors Influencing Consumer's Behavioural Intention Towards the Adoption of Mobile Payment In Kuala Lumpur," *International Journal of Professional Business Review*, Vol. 7(6) (2022), p. 1-20.

resolution procedures, and liabilities in case of unauthorized transactions or breaches.⁴⁵ Transparency empowers users by providing them with the knowledge needed to assess the reliability and security of e-payment services. When users have access to clear and honest information, they can confidently engage in digital transactions and manage their financial activities online. Transparent practices hold e-payment providers accountable for their actions and decisions. By openly disclosing information and adhering to agreed-upon terms, providers demonstrate accountability to users, regulatory authorities, and stakeholders in the financial ecosystem.⁴⁶ Transparency helps mitigate *gharar* (uncertainty), a concept in Islamic finance that refers to ambiguity or uncertainty in contractual terms or outcomes.⁴⁷ E-payment systems should provide clear and predictable terms to avoid misunderstandings or disputes.

Fairness (*adl*) is a core principle in Islamic ethics and jurisprudence that emphasizes equity, justice, and impartiality in all aspects of life, including financial transactions.⁴⁸ In the context of e-payment transactions, fairness plays a crucial role in protecting user rights, ensuring ethical conduct, and upholding Shariah-compliant practices according to Islamic economic principles. *Adl* refers to fairness, justice, and balance in dealings and relationships.⁴⁹ It requires treating all parties equitably and impartially, without favouritism or discrimination. Fairness is essential in e-payment transactions to ensure that all users are treated fairly in terms of transaction fees, terms and conditions, dispute resolutions, and access to financial services. It prevents exploitation, ensures trust, and promotes a level playing field for all participants. E-payment providers must offer fair and transparent terms and conditions that do not disadvantage users. This includes disclosing all fees, charges, and conditions associated with transactions clearly and in advance. Fairness prohibits discriminatory practices based on gender, ethnicity, religion, or socioeconomic status.

⁴⁵ Sinha, M., Majra, H., Hutchins, J., & Saxena, R., "Mobile Payments in India: The Privacy Factor," *International Journal of Bank Marketing*, Vol. 37(1) (2019), p. 192-209.

⁴⁶ Nasir, N A M., Hashim, H A., Nawari, N C., Yusoff, M N H., & Aluwi, N A M., "Enhancing Financial Reporting Quality Through Corporate Ethics Commitment," *GATR Accounting and Finance Review*. Global Academy of Training & Research, Vol. 6(2) (2021), p. 84-94.

⁴⁷ Zafar, S H., & Siddiqui, D A., "Impact of Asymmetric Information in Islamic Financial Contract: An Empirical Analysis," *Journal of Applied Economic Sciences*, Vol. 14(3) (2019), p. 1-33.

⁴⁸ Laldin, M A., & Furqani, H., "Developing Islamic Finance in The Framework of Maqasid Al-Shari'ah," *International Journal of Islamic and Middle Eastern Finance and Management*, Vol. 6(4) (2013), p. 278-289).

⁴⁹ Hassan, A., & Mollah, S., "Just and Balanced: The Importance of Accounting in Islamic Finance," *Palgrave Macmillan, Cham*, (2018), p. 275-283.

E-payment systems should ensure equal access to services and fair treatment for all users, regardless of background.⁵⁰ Fairness requires e-payment providers to establish fair and efficient mechanisms for resolving disputes and addressing grievances. Users should have access to impartial mediation or arbitration processes to resolve conflicts fairly. *Adl* prohibits exploitation and unjust enrichment. E-payment systems should refrain from imposing unfair terms, hidden charges, or deceptive practices that exploit users' lack of knowledge or bargaining power.

2. Security Measures

Data protection is a critical aspect of user protection in e-payment transactions from an Islamic economy perspective. It encompasses principles of confidentiality, security, and ethical handling of personal and financial information entrusted to e-payment providers. In Islam, preserving privacy and safeguarding sensitive data are integral to upholding principles of trustworthiness (*amanah*) and fairness (*adl*) in financial transactions. Islamic teachings emphasize the sanctity of privacy and the confidentiality of personal information. E-payment systems must respect users' privacy rights by safeguarding their data against unauthorized access, breaches, or misuse.⁵¹ Protecting user data fosters trust between e-payment providers and users. When users trust that their information is secure and confidential, they are more likely to engage in online transactions and utilize digital financial services confidently.

E-payment providers have an ethical obligation to maintain the confidentiality of users' personal and financial data. This includes implementing robust encryption protocols, secure storage solutions, and access controls to prevent unauthorized disclosure or breaches. Users should have control over their data and provide informed consent for its collection, use, and disclosure. E-payment systems should clearly communicate how user data will be utilized and allow users to manage their privacy preferences.⁵²

Fraud prevention is a critical component of user protection in e-payment transactions within the Islamic economy perspective. It involves implementing measures to detect, mitigate, and deter fraudulent activities that could

⁵⁰ Lahilote, Hasyim Sofyan, Frangky Soleman, Faradila Hasan, Rusdaya Basri, and Azizah Lahilote. "Digitalisasi Peradilan di Indonesia Tengah: Studi Implementasi E-Court dan E-Litigasi di Pengadilan." *Syariah: Jurnal Hukum dan Pemikiran* 24, no. 2 (2024), p. 315-332.

⁵¹ Muhammad, M Z., Amboala, T., Salleh, M Z M., Abdullah, A., Tahrim, S N C., & Nawi, N C., "The Application of Shariah Principle in E-Commerce Transaction: A Model Development," *Research in World Economy*, Vol. 10(2) (2019), p. 84-87.

⁵² Karim, W., Haque, A K M A., Ulfy, M A., Hossain, M I., & Anis, M Z., "Factors Influencing the Use Of E-Wallet as A Payment Method Among Malaysian Young Adults," *Journal of International Business and Management*, Vol. 3(2) (2020), p. 01-12.

compromise the security and integrity of financial transactions.⁵³ Upholding ethical standards and Shariah principles, e-payment providers aim to safeguard users' funds and personal information from unauthorized access, deceptive practices, and fraudulent behaviour. Fraud prevention measures aim to protect users' assets and financial resources from unauthorized transactions, identity theft, and fraudulent schemes.⁵⁴ This ensures that users can engage in e-payment transactions securely and confidently.

Preventing fraud contributes to maintaining trust (*amanah*) between e-payment providers and users. When users trust that their transactions are secure and protected from fraud, they are more likely to use digital financial services and participate in online commerce. E-payment providers have an ethical obligation to disclose their fraud prevention practices and policies transparently to users. This includes informing users about security measures, fraud detection technologies, and steps taken to address fraudulent activities.

3. Regulatory Compliance

Shariah compliance is a fundamental principle in Islamic finance that governs all aspects of financial transactions, including e-payment systems. It ensures adherence to Islamic principles, ethical standards, and legal guidelines derived from the Quran (Islamic scripture) and the Sunnah (teachings and practices of Prophet Muhammad).⁵⁵ In the context of e-payment transactions, Shariah compliance plays a crucial role in protecting user rights, ensuring fairness, and upholding the integrity of financial transactions according to Islamic economic principles. Shariah compliance requires e-payment providers to operate in accordance with ethical standards outlined in Islamic teachings. This includes prohibiting *riba* (usury), *gharar* (uncertainty), and other practices deemed unethical or harmful in financial dealings.⁵⁶ Shariah principles prohibit *riba* (interest) and *gharar* (uncertainty) in financial transactions. E-payment systems must adopt interest-free models and transparent terms to comply with Islamic finance principles and protect users from exploitative practices.

⁵³ Ningsih, Ayup Suran, and Hari Sutra Disemadi. "Breach of contract: an Indonesian experience in credit akad of sharia banking." *Ijtihad: Jurnal Wacana Hukum Islam dan Kemanusiaan* 19, no. 1 (2019), p. 89-102.

⁵⁴ Abdillah, Masykuri. "Sharia and Politics in the Context of Globalization and Society 5.0." *Ahkam: Jurnal Ilmu Syariah* 22, no. 2 (2022).

⁵⁵ Ayedh, A M., Mahyudin, W A., Samat, M S A., & Isa, H H M., "The Integration of Shariah Compliance in Information System of Islamic Financial Institutions," *Qualitative Research in Financial Markets*, (2019).

⁵⁶ Muhammad, H., "Holistic Practice of Fiqh Al-Muamalat: Halal Accountability of Islamic Microfinance Institutions," *Nusantara Halal Journal (Halal awareness, opinion, research, and initiative)*, Vol. 1(1) (2020), p. 22-31.

How Regulatory Frameworks Can Support the Implementation of Islamic Principles In E-Payment Systems?

Malaysia and Indonesia, as two prominent countries in Southeast Asia with significant Islamic populations, have developed consumer protection acts to regulate e-payment transactions within the context of Islamic economic principles. Table below is a summary of the comparison acts between Malaysia and Indonesia.

Table 1: E-payment User Protection Acts

E-payment user protection acts: Comparison between Malaysia and Indonesia.		
Malaysia	Scope	Indonesia
<ul style="list-style-type: none"> - Financial Services Act 2013 - Islamic Financial Services Act 2013 	Regulatory Framework	<ul style="list-style-type: none"> - Bank Indonesia Act Electronic Transactions Law (UU ITE)
<ul style="list-style-type: none"> - Consumer Protection Act 1999 	Consumer Rights and Protections	<ul style="list-style-type: none"> - Indonesia's consumer protection framework under the Consumer Protection Law guarantees consumers' rights
<ul style="list-style-type: none"> - Malaysia's Personal Data Protection Act (PDPA) 2010 	Data Privacy and Security	<ul style="list-style-type: none"> - Indonesia's Electronic Information and Transactions Law (UU ITE)
<ul style="list-style-type: none"> - Malaysia's consumer protection laws, including those specific to e-payment transactions, provide accessible and efficient mechanisms for resolving disputes. Consumers can lodge complaints with BNM or relevant authorities for investigation and resolution. 	Dispute Resolution Mechanisms	<ul style="list-style-type: none"> - Through BI and the Financial Services Authority (OJK)

Source: Aulia Arifatu Diniyya.⁵⁷

⁵⁷ Diniyya, A. A., Aulia, M., & Wahyudi, R., . “Financial technology regulation in Malaysia and Indonesia: a comparative study,” *Ihtifaz: Journal of Islamic Economics, Finance, and Banking*, Vol. 3(2) (2020).

Based on the table below, Malaysia's e-payment transactions are primarily regulated under the Financial Services Act 2013 and the Islamic Financial Services Act 2013. These acts provide comprehensive regulatory frameworks covering various financial services, including e-payment systems. The Bank Negara Malaysia (BNM), the central bank of Malaysia, oversees the implementation and enforcement of these acts. BNM issues guidelines and standards to ensure the safety, reliability, and integrity of e-payment services. While in Indonesia, e-payment transactions are governed by the Bank Indonesia Act,⁵⁸ which empowers Bank Indonesia (BI), the central bank of Indonesia, to regulate and supervise all payment systems. The Electronic Transactions Law (UU ITE) and the Consumer Protection Law also play significant roles in safeguarding consumer rights and addressing issues related to e-payment transactions.

Malaysia's consumer protection laws emphasize transparency, fairness, and accountability in e-payment transactions.⁵⁹ Consumers are entitled to clear information on transaction terms, fees, and dispute resolution processes. The Consumer Protection Act 1999 provides additional safeguards against unfair practices and ensures that consumers have avenues for redress in case of disputes or grievances.⁶⁰ Moreover, Indonesia's consumer protection framework under the Consumer Protection Law guarantees consumers' rights to accurate information, fair treatment, and protection from deceptive practices in e-payment transactions.⁶¹ BI's regulations mandate e-payment providers to disclose terms and conditions clearly, protect consumer data, and establish effective complaint handling mechanisms.

For the data privacy and security acts, Malaysia's Personal Data Protection Act (PDPA) 2010 regulates the collection, processing, and storage of personal data, including in e-payment transactions. E-payment providers must adhere to stringent data protection standards to safeguard consumer privacy. While in Indonesia's Electronic Information and Transactions Law (UU ITE) and other regulations set forth requirements for data protection in e-payment transactions.

⁵⁸ Yakob, R., Redzuan, H., Janor, H., & Abdullah, M H S B., "Contract Comprehension: Prudent Takaful Claim Decision," *Asian Journal of Management Cases*, Vol. 7(1) (2020), p. 1-23.

⁵⁹ Ahmed, H., & Ibrahim, I R., "Financial Consumer Protection Regime in Malaysia: Assessment of the Legal and Regulatory Framework," *Journal of Consumer Policy*, vol. 41 (2018), p. 159-175.

⁶⁰ Talib, Y Y A., "The Current State of Social Commerce Fraud in Malaysia and the Mitigation Strategies," *International Journal of Advanced Trends in Computer Technology*, Vol. 9(2) (2020), p. 1533-1599.

⁶¹ Widia, Windi Pangestu, and Marius S. Sakmaf. "Consumer Protection Law In Electronic Transactions: Between Rights And Obligations In The Digital Era." *Mawaddah: Jurnal Hukum Keluarga Islam* 2, no. 2 (2024), p. 177-189.

Providers must implement robust security measures to prevent data breaches and unauthorized access.

Malaysia, as a predominantly Muslim country, incorporates Shariah principles into its financial regulations, including e-payment systems governed by the Islamic Financial Services Act 2013. Shariah compliance ensures that e-payment transactions adhere to ethical standards and avoid prohibited practices such as *riba* (usury) and *gharar* (uncertainty). Indonesia, with the world's largest Muslim population, integrates Islamic economic principles into its financial regulations. While not exclusively Shariah-based, consumer protection in e-payment transactions aligns with ethical norms and principles compatible with Islamic finance.

4. Consumer Rights and Dispute Resolution

Islamic ethics emphasize accountability (*mas'uliyah*) and responsibility in business transactions.⁶² E-payment providers should establish clear mechanisms for addressing user complaints, resolving disputes, and providing restitution in cases of unauthorized transactions or errors. Moreover, contracts in Islamic finance must be clear (*bayyinah*), unambiguous, and mutually agreed upon by all parties. E-payment systems should ensure that terms of service, transaction agreements, and user policies are transparent and comprehensible to users, preventing misunderstandings or disputes.

5. Education and Awareness

Promoting financial literacy and awareness of Islamic financial principles among users enhances their ability to make informed decisions and protect themselves from potential risks in e-payment transactions. E-payment providers should offer educational programs and resources that emphasize the ethical principles of Islamic finance, empowering users to uphold ethical standards in their financial dealings and transactions.

Conclusion

In conclusion, through an analysis of Islamic financial principles such as transparency, fairness, security, and ethical conduct, it becomes evident that integrating these principles into e-payment systems can significantly mitigate risks associated with fraud, privacy breaches, and ethical violations. Specifically, the avoidance of uncertainty (*gharar*) and gambling (*maysir*) underscores the importance of clear and non-speculative terms in transactional agreements, which is crucial for maintaining ethical integrity in e-payment practices. The findings of this study highlight the critical implications for stakeholders in the e-payment

⁶² Alziyadat, N., & Ahmed, H., "Ethical Decision-Making in Islamic Financial Institutions in Light of Maqasid Al-Sharia: A Conceptual Framework," (2018), p. 707-718.

industry, including financial institutions, regulatory bodies, and policymakers. By aligning e-payment practices with Islamic ethical norms, stakeholders not only foster trust and confidence among Islamic users but also enhance regulatory compliance and contribute to sustainable economic development. This alignment is essential not just for meeting regulatory requirements but also for creating a resilient financial ecosystem that respects the ethical considerations of Islamic finance. In essence, the integration of Islamic ethical principles into e-payment systems serves as a cornerstone for ensuring the protection and welfare of Islamic users in the rapidly evolving digital financial landscape. It sets a precedent for inclusive and ethical financial practices that prioritize user security, fairness, and trust, thereby promoting broader economic stability and ethical standards within the global e-payment industry.

References

Journals and Books

- Abdillah, Masykuri. "Sharia and Politics in the Context of Globalization and Society 5.0." *Ahkam: Jurnal Ilmu Syariah* 22, no. 2 (2022). <https://doi.org/10.15408/ajis.v22i2.28959>
- Ahmad, Azlin Alisa, Mat Noor Mat Zain, and Nur Diyana Amanina Zakaria. "The Position of Smart Contracts in the Light of Islamic Contract Theory." *Samarah: Jurnal Hukum Keluarga dan Hukum Islam* 8, no. 1 (2024). <https://dx.doi.org/10.22373/sjhc.v8i1.16372>
- Ahmed, H., & Ibrahim, I R., "Financial Consumer Protection Regime in Malaysia: Assessment of the Legal and Regulatory Framework," *Journal of Consumer Policy*, vol. 41 (2018). <https://doi.org/10.1007/s10603-018-9369-0>
- Ahyani, Hisam, and Memet Slamet. "Building the values of Rahmatan Lil'Alamin for Indonesian economic development at 4.0 era from the perspective of philosophy and islamic economic law." *Al-Ihkam: Jurnal Hukum & Pranata Sosial* 16, no. 1 (2021). <https://orcid.org/0000-0002-0835-5274>
- Al-Khawaja, H A., & Bardai, B., "Standard Quality Banking Services of Islamic Banks," *Journal of Public Administration and Governance*, Vol.8(1) (2018). <https://doi.org/10.5296/jpag.v8i1.12391>
- Al-Qawasmi, K., "Proposed E-Payment Process Model to Enhance Quality of Service Through Maintaining the Trust of Availability," *International Journal of Emerging Trends in Engineering Research*, Vol. 8(6) (2020). <https://doi.org/10.30534/ijeter/2020/16862020>
- Alkhateeb, Z K., & Malood, A T., "Machine Learning-Based Detection of Credit Card Fraud: A Comparative Study," *American Journal of Engineering and Applied Sciences*, Vol. 12(4) (2019). <https://doi.org/10.3844/ajeassp.2019.535.542>

- Alziyadat, N., & Ahmed, H., "Ethical Decision-Making in Islamic Financial Institutions in Light of Maqasid Al-Sharia: A Conceptual Framework," (2018). <https://doi.org/10.1002/tie.22025>
- Aman, A., "Islamic Marketing Ethics for Islamic Financial Institutions" *International Journal of Ethics and Systems*, Vol. 36(1) (2020). <https://doi.org/10.1108/IJOES-12-2018-0182>
- Ambore, S., Richardson, C A., Doğan, H., Apeh, E., & Osselton, D., "A Resilient Cybersecurity Framework for Mobile Financial Services (MFS)," *Journal of Cyber Security Technology*, Vol. 1(3-4) (2017). <https://doi.org/10.1080/23742917.2017.1386483>
- Asriani, Asriani, and Prodig Kumar. "Sharia Economic Dispute Resolution During Covid-19 Pandemic." *Al-'Adalah* 18, no. 2 (2021). <https://dx.doi.org/10.24042/adalah.v18i2.10112>
- Ayedh, A M., Mahyudin, W A., Samat, M S A., & Isa, H H M., "The Integration of Shariah Compliance in Information System of Islamic Financial Institutions," *Qualitative Research in Financial Markets*, (2019). <https://doi.org/10.1108/QRFM-05-2017-0042>
- Azizah, Wafiq. "Analisis Praktik Transaksi e-Wallet Dalam Perspektif Hukum Ekonomi Syariah (Studi Analisis Di Kabupaten Kudus Tahun 2021)." PhD diss., IAIN KUDUS, 2022. <http://repository.iainkudus.ac.id/id/eprint/7942>
- Aziz, Fathul Aminudin. "Menakar Kesyarahan Fintech Syariah di Indonesia." *Al-Manahij: Jurnal Kajian Hukum Islam* 14, no. 1 (2020). <https://doi.org/10.24090/mnh.v14i1.3567>
- Azme, D S S., & Azami, N., "A Study of Factors Influencing Customers' Intention to Use Mobile Phones For E-Payment in Klang Valley, Malaysia," *International Journal of Academic Research in Economics & Management Sciences*, Vol. 13(1) (2023).37-49. <https://doi.org/10.6007/IJAREMS/v12-i1/16287>
- Brunnermeier, M K., James, H., & Landau, J., "The Digitalization of Money," *National Bureau of Economic Research*, (2019). <https://doi.org/10.3386/w26300>
- Diniyya, A. A., Aulia, M., & Wahyudi, R., . "Financial technology regulation in Malaysia and Indonesia: a comparative study," *Ihtifaz: Journal of Islamic Economics, Finance, and Banking*, Vol. 3(2) (2020). <https://doi.org/10.12928/ijiefb.v3i2.2703>
- Ebubedike, A H., Mohammed, T A., Nellikunnel, S., & Teck, T S., "Factors Influencing Consumer's Behavioural Intention Towards the Adoption of Mobile Payment In Kuala Lumpur," *International Journal of Professional Business Review*, Vol. 7(6) (2022). <https://doi.org/10.26668/businessreview/2022.v7i6.e584>

- Elmalki, A., & Mounira, B A., "Ethical Investment and The Social Responsibilities of The Islamic Banks," *International Business Research*, Vol. 2(2) (2009). <http://dx.doi.org/10.5539/ibr.v2n2p123>
- Fatonah, S., Yulandari, A., & Wibowo, F W., "A Review Of E-Payment System in E-Commerce," *Journal of Physics: Conference Series*, (2018). <https://doi.org/10.1088/1742-6596/1140/1/012033>
- Fikri, A A H S., "Tinjauan Maqashid Syariah Tentang E-Money," *Jurnal Ilmiah Ekonomi Islam*, Vol. 8(01) (2022). <http://dx.doi.org/10.29040/jiei.v8i1.3946>
- Grassi, P A., Fenton, J., Newton, E M., Perlner, R A., Regenscheid, A., Burr, W E., Richer, J., Lefkovitz, N., Danker, J M., Choong, Y., Greene, K., & Theofanos, M., "Digital Identity Guidelines: Authentication and Lifecycle Management," Special Publication (NIST SP), *National Institute of Standards and Technology, Gaithersburg, MD*, (2020). <https://doi.org/10.6028/NIST.SP.800-63b>
- Hafid, Abd, Syamsul Bahri, Sitti Nikmah Marzuki, Musrini Muis, and Rini Idayanti. "The Application of Khiyar Principles to E-Commerce Transaction: The Islamic Economy Perspective." *Samarah: Jurnal Hukum Keluarga dan Hukum Islam* 8, no. 1 (2024). <https://dx.doi.org/10.22373/sjhc.v8i1.20890>
- Hamsin, Muhammad Khaeruddin, Abdul Halim, Rizaldy Anggriawan, and Hilda Lutfiani. "Sharia E-Wallet: The Issue of Sharia Compliance and Data Protection." *Al-Manahij: Jurnal Kajian Hukum Islam* 17, no. 1 (2023). <https://doi.org/10.24090/mnh.v17i1.7633>
- Haridan, N M., Hassan, A F S., & Alahmadi, H A., "Financial Technology Inclusion in Islamic Banks: Implication on Shariah Compliance Assurance," *International Journal of Academic Research in Business & Social Sciences*, Vol. 10(14) (2020). <https://doi.org/10.6007/IJARBS/v10-i14/7361>
- Hassan, A., & Mollah, S., "Just and Balanced: The Importance of Accounting in Islamic Finance," *Palgrave Macmillan, Cham*, (2018). https://doi.org/10.1007/978-3-319-91295-0_20
- Hassan, M A., & Shukur, Z., "A Secure Multi Factor User Authentication Framework for Electronic Payment System," *3rd International Cyber Resilience Conference (CRC)*, Langkawi Island, Malaysia, (2021). <https://doi.org/10.1109/CRC50527.2021.9392564>
- Hassan, M A., Shukur, Z., Hasan, M K., & Al-Khaleefa, A S., "A Review on Electronic Payments Security," *Multidisciplinary Digital Publishing Institute*, Vol. 12(8) (2020). <https://doi.org/10.3390/sym12081344>
- Hidayati, Tri, Muhammad Syarif Hidayatullah, Parman Komarudin, and Atika Atika. "Digitalization of Islamic Finance: Epistemological Study of the

- National Sharia Board-Indonesian Council of Ulama's Fatwa." *Al-Ahkam* 33, no. 2 (2023). <https://doi.org/10.21580/ahkam.2023.33.2.17324>
- Holijah, Holijah, and M. Rizal. "Islamic compensation concept: The consumer dispute settlement pattern in Indonesia." *Samarah: Jurnal Hukum Keluarga dan Hukum Islam* 6, no. 1 (2022). <https://dx.doi.org/10.22373/sjhk.v6i1.8951>
- Islam, M M., "E-Commerce & E-Payments: Islamic Perspective," (2004). <http://www.sabah.gov.my/ust/rtmlecommercel.htm>
- Islam, M S., & Samsudin, S., "Interpretations of Al-Amanah Among Muslim Scholars and Its Role in Establishing Peace in Society," *Journal Indexing and Metrics*, Vol. 48(3) (2018). <https://doi.org/10.1177/0049085718781689>
- Karim, W., Haque, A K M A., Ulfy, M A., Hossain, M I., & Anis, M Z., "Factors Influencing the Use Of E-Wallet as A Payment Method Among Malaysian Young Adults," *Journal of International Business and Management*, Vol. 3(2) (2020). <https://doi.org/10.37227/jibm-2020-2-21>
- Lahilote, Hasyim Sofyan, Frangky Soleman, Faradila Hasan, Rusdaya Basri, and Azizah Lahilote. "Digitalisasi Peradilan di Indonesia Tengah: Studi Implementasi E-Court dan E-Litigasi di Pengadilan." *Syariah: Jurnal Hukum dan Pemikiran* 24, no. 2 (2024). <https://doi.org/10.18592/sjhp.v24i2.13879>
- Laldin, M A., & Furqani, H., "Developing Islamic Finance in The Framework of Maqasid Al-Shari'ah," *International Journal of Islamic and Middle Eastern Finance and Management*, Vol. 6(4) (2013). <https://doi.org/10.1108/IMEFM-05-2013-0057>
- Moon, I T., Shamsuzzaman, M., Mridha, M M R., & Rahaman, A S M M., "Towards the Advancement of Cashless Transaction: A Security Analysis of Electronic Payment Systems," *Journal of Computer and Communications*, Vol. 10(7) (2022). <https://doi.org/10.4236/jcc.2022.107007>
- Muhammad, H., "Holistic Practice of Fiqh Al-Muamalat: Halal Accountability of Islamic Microfinance Institutions," *Nusantara Halal Journal (Halal awareness, opinion, research, and initiative)*, Vol. 1(1) (2020). <http://dx.doi.org/10.17977/um060.2020v1p022-031>
- Muhammad, M Z., Amboala, T., Salleh, M Z M., Abdullah, A., Tahrim, S N C., & Nawati, N C., "The Application of Shariah Principle in E-Commerce Transaction: A Model Development," *Research in World Economy*, Vol. 10(2) (2019). <https://doi.org/10.5430/rwe.v10n2p84>
- Musarrofa, I., & Rohman, H. (2023). 'Urf of Cyberspace: Solutions to the Problems of Islamic Law in the Digital Age. *al-Ahkam*, 33(1). <https://doi.org/10.21580/ahkam.2023.33.1.13236>

- Nasir, N A M., Hashim, H A., Nawati, N C., Yusoff, M N H., & Aluwi, N A M., "Enhancing Financial Reporting Quality Through Corporate Ethics Commitment," *GATR Accounting and Finance Review*. Global Academy of Training & Research, Vol. 6(2) (2021). http://gatrenterprise.com/GATRJournals/AFR/vol6_2021_issue2.html
- Ningsih, Ayup Suran, and Hari Sutra Disemadi. "Breach of contract: an Indonesian experience in credit akad of sharia banking." *Ijtihad: Jurnal Wacana Hukum Islam dan Kemanusiaan* 19, no. 1 (2019). <https://doi.org/10.18326/ijtihad.v19i1.89-102>
- Noor, M Z M., Naim, A M., Muhamed, N A., Mirza, A A I., Ahmad, A., Ali, S R S., & Shukor, A R A., "Legal Issues In E-Wallet Practices," *UUM Journal of Legal Studies*, Vol.12(2) (2021). <https://e-journal.uum.edu.my/index.php/uumjls/article/view/15597>
- Rahman, M., Ismail, I., Bahri, S., & Rahman, M K., "An Empirical Analysis of Cashless Payment Systems for Business Transactions," *Journal of Open Innovation: Technology, Market and Complexity*, Vol. 8(4) (2022).. <https://doi.org/10.3390/joitmc8040213>
- Sarkam, N A., Razi, N F M., Mohammad, N H., Jamil, N I., & Kurniawati, L., "Attitudes, Security, And Perceived Ease of Use Influence the Consumers' Decision to Use An E-Payment System," *International Journal of Academic Research in Business and Social Sciences*, Vol. 12(3) (2022). <https://doi.org/10.6007/ijarbss%2Fv12-i3%2F12884>
- Sinha, M., Majra, H., Hutchins, J., & Saxena, R., "Mobile Payments in India: The Privacy Factor," *International Journal of Bank Marketing*, Vol. 37(1) (2019). <https://doi.org/10.1108/IJBM-05-2017-0099>
- Sukardi, Didi, Jefik Zulfikar Hafizd, Afif Muamar, Fatin Hamamah, Esti Royani, and Babur Sobirov. "Digital Transformation of Cooperative Legal Entities in Indonesia." In *Al-Risalah: Forum Kajian Hukum dan Sosial Kemasyarakatan*, vol. 24, no. 2, 2024. <https://doi.org/10.30631/alrisalah.v24i2.1563>
- Talib, Y Y A., "The Current State of Social Commerce Fraud in Malaysia and the Mitigation Strategies," *International Journal of Advanced Trends in Computer Technology*, Vol. 9(2) (2020). <https://doi.org/10.30534/ijatcse/2020/105922020>
- Utami, Fitri, Dini Maulana Lestari, and Khaerusoalikhin Khaerusoalikhin. "Analisis Kritis Konsep Kepemilikan Harta Dalam Islam." *JURIS (Jurnal Ilmiah Syariah)* 19, no. 2 (2020): <https://dx.doi.org/10.31958/juris.v19i2.2330>
- Wenner, G., Bram, J T., Marino, M., Obeysekare, E., & Mehta, K., "Organizational Models of Mobile Payment Systems in Low-Resource Environments," *Information Technology for Development*, Vol. 24(4) (2017). <https://doi.org/10.1080/02681102.2017.1311830>

- Widia, Windi Pangestu, and Marius S. Sakmaf. "Consumer Protection Law in Electronic Transactions: Between Rights and Obligations in The Digital Era." *Mawaddah: Jurnal Hukum Keluarga Islam* 2, no. 2 (2024). <https://doi.org/10.52496/mjhki.v2i2.45>
- Yakob, R., Redzuan, H., Janor, H., & Abdullah, M H S B., "Contract Comprehension: Prudent Takaful Claim Decision," *Asian Journal of Management Cases*, Vol. 7(1) (2020). <https://doi.org/10.1177/0972820119884389>
- Zafar, S H., & Siddiqui, D A., "Impact of Asymmetric Information in Islamic Financial Contract: An Empirical Analysis," *Journal of Applied Economic Sciences*, Vol. 14(3) (2019). <http://dx.doi.org/10.2139/ssrn.3384228>