



The Law of Digital Only Banks: Legal Challenges in Licensing, Supervision, and Consumer Protection

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Abstract

The digital transformation of the banking sector has accelerated the emergence of digital-only banks, which operate entirely online without physical branches. This study examines the legal challenges surrounding digital-only banks, focusing on licensing, supervision, and consumer protection, with a comparison between global frameworks and Indonesian regulations. Using a normative juridical method and comparative legal analysis, the study identifies major gaps in Indonesia's legal framework. Current licensing rules under POJK No. 12/2021 still mirror traditional banking models and may limit innovation. Supervision remains fragmented across regulatory bodies, with limited use of technology-based oversight. Consumer protection is guided by general statutes (Consumer Law, ITE Law, and PDP Law) that lack specific mechanisms for digital banking. The findings suggest the need for comprehensive reform through (1) adaptive and risk-based licensing, (2) digital supervisory technology (SupTech), and (3) stronger consumer protection policies focused on data rights and algorithmic fairness. This research contributes to the development of a technology-neutral legal model for digital banking, aligning innovation with legal certainty and financial stability.

Keywords: Digital Banking Law, Regulatory Technology, Financial Supervision, Consumer Protection, Indonesia.

Abstrak

Transformasi digital sektor perbankan telah mempercepat munculnya bank khusus digital, yang beroperasi sepenuhnya secara online tanpa cabang fisik. Studi ini mengkaji tantangan hukum seputar bank khusus digital, dengan fokus pada perizinan, pengawasan, dan perlindungan konsumen, dengan perbandingan antara kerangka kerja global dan peraturan Indonesia. Dengan menggunakan metode yuridis normatif dan analisis hukum komparatif, studi ini mengidentifikasi kesenjangan utama dalam kerangka hukum Indonesia. Aturan perizinan POJK No. 12/2021 saat ini masih mencerminkan model perbankan tradisional dan dapat membatasi inovasi. Pengawasan tetap terfragmentasi di seluruh badan pengatur, dengan penggunaan pengawasan berbasis teknologi yang terbatas. Perlindungan konsumen berpedoman pada undang-undang umum (UU Konsumen, UU ITE, dan UU PDP) yang tidak memiliki mekanisme khusus untuk perbankan digital. Temuan ini menunjukkan perlunya reformasi komprehensif melalui (1) perizinan adaptif dan berbasis risiko, (2) teknologi pengawasan digital (SupTech), dan (3) kebijakan perlindungan konsumen yang lebih kuat yang berfokus pada hak data dan keadilan algoritmik. Penelitian ini berkontribusi pada pengembangan model hukum yang netral teknologi untuk perbankan digital, menyelaraskan inovasi dengan kepastian hukum dan stabilitas keuangan.

Kata Kunci: Hukum Perbankan Digital, Teknologi Regulasi, Pengawasan Keuangan, Perlindungan Konsumen, Indonesia.



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INTRODUCTION

Digital transformation has reshaped the global banking landscape. Traditional banks now face competition from digital-only banks that operate entirely through online platforms without physical branches. These banks promise convenience, lower costs, and financial inclusion but create complex legal and regulatory challenges. Globally, institutions such as Revolut, Monzo (UK), and KakaoBank (South Korea) demonstrate the rise of branchless banking.¹ In Indonesia, Bank Jago, SeaBank, and Bank Neo Commerce represent similar innovation.² While digital-only banking enhances efficiency and inclusion, it also tests the adequacy of existing banking laws written for conventional institutions. Legal scholars note that many regulations still require physical presence or manual supervision.³ Consequently, regulators must reconcile innovation with prudential principles and consumer safety.⁴

Globally, many jurisdictions have begun adopting specialized licensing frameworks to accommodate the rise of digital-only banks. For instance, the Monetary Authority of Singapore (MAS) introduced a framework that allows both full and wholesale digital banks to operate under clear prudential and governance standards. Similarly, the United Kingdom's Prudential Regulation Authority (PRA) applies a "mobilization" model that enables new digital banks to operate on a limited basis while they strengthen capital and compliance systems.⁵ These frameworks emphasize risk management, cybersecurity, and data protection as the main pillars of digital banking regulation, ensuring both innovation and consumer trust.

In Indonesia, the Financial Services Authority (Otoritas Jasa Keuangan or OJK) issued POJK No. 12/POJK.03/2021 to provide the legal foundation for the establishment and operation of digital banks.⁶ This regulation marks a significant milestone, yet its provisions still reflect a conventional banking orientation, particularly in terms of capital requirements, governance structures, and risk management standards. While this ensures prudential safety, it may limit the flexibility and innovation that digital-only banks require to compete in a fast-evolving digital economy. A comparative perspective shows that countries employing advanced supervisory technologies (SupTech) are able to monitor

¹ Luiz Antonio Bueno et al., "Impacts of Digitization on Operational Efficiency in the Banking Sector: Thematic Analysis and Research Agenda Proposal," *International Journal of Information Management Data Insights* 4, no. 1 (April 2024): 100230, <https://doi.org/10.1016/j.ijime.2024.100230>.

² Muhammad Anif Afandi, "Drivers and Barriers to Use Digital Banking among Generations Y and Z in Indonesia," in *Proceedings of the 2024 15th International Conference on E-Business, Management and Economics* (New York, NY, USA: ACM, 2024), 155–60, <https://doi.org/10.1145/3691422.3691425>; Riska Wijayanti, "Legal Protection for Customers in Digital Banking Services in Indonesia at PT. Bank Jago, Tbk," *Advance in Islamic Economics, Business and Finance Research* 1, no. 2 (2024): 189–96, <https://e-journal.yaalmada.org/index.php/aiebf/article/view/50/35>.

³ Mathias Hanten et al., "Digital Banking and Banking as a Service— A Comparison of Turkish and European Law," *SSRN Electronic Journal*, 2022, <https://doi.org/10.2139/ssrn.4148485>; Emilia Fitriana Dewi and Subiakto Sukarno, *The Future Of Digital Finance In Southeast Asia: A Legal Perspective*, 1st ed. (Prenada Media, 2023).

⁴ Faraz Ahmed et al., "Digital Risk and Financial Inclusion: Balance between Auxiliary Innovation and Protecting Digital Banking Customers," *Risks* 12, no. 8 (August 22, 2024): 133, <https://doi.org/10.3390/risks12080133>.

⁵ Wanling Lee, "The Transformation of Chinese Fintech Firms to Southeast Asia," in *Examining Global Regulations During the Rise of Fintech* (IGI Global, 2024), 319–34, <https://doi.org/10.4018/979-8-3693-3803-2.ch013>.

⁶ Muhammad Raihan Hakim and Moody Rizqi Syailendra Putra, "Analysis of Digital Bank Customer Protection Against Loss of Funds in Accounts Reviewed According to Indonesian Positive Law," *Jurnal USM Law Review* 8, no. 2 (June 9, 2025): 813–24, <https://doi.org/10.26623/julr.v8i2.12073>.

digital banks more effectively and respond faster to emerging risks compared to those still dependent on manual oversight systems.⁷ This highlights the importance of technological adaptation not only in the banking industry but also within the regulatory and supervisory institutions that govern it.

Despite regulatory progress, several critical issues persist in Indonesia's digital banking framework. Licensing provisions still rely on requirements that assume the existence of physical branches, which is inconsistent with the fully online nature of digital-only banks. In addition, supervisory systems have not yet been optimized to oversee real-time, data-driven operations typical of digital platforms. The lack of integrated technological tools limits regulators' ability to detect and mitigate risks promptly. Furthermore, consumer protection remains weak, particularly against cyber threats such as phishing and hacking, which continue to target digital banking users and expose gaps in enforcement and customer redress mechanisms.⁸ So, we can identify the problem as follows:

- 1) Licensing provisions still depend on physical branch requirements.
- 2) Supervisory systems are not yet optimized for digital operations.
- 3) Consumer protection remains weak against phishing and hacking.

Existing research on digital financial services in Indonesia has largely concentrated on fintech platforms and mobile banking systems, focusing on their adoption, usability, and impact on customer behavior.⁹ However, relatively few studies have examined the legal identity and institutional status of digital-only banks as fully licensed financial entities.¹⁰ Most current discussions remain fragmented, addressing specific operational or technological issues rather than the broader regulatory architecture governing digital-only banking. For instance, studies by Budiarto and Pujiyono and Ivanca and Firmansyah analyzed consumer protection in mobile banking, while Afandi and Suparno et al. focused on user behavior and generational adoption trends.¹¹ These perspectives, though valuable,

⁷ Bueno et al., "Impacts of Digitization on Operational Efficiency in the Banking Sector: Thematic Analysis and Research Agenda Proposal."

⁸ Salsabila Chairunnisa, Tarsisius Murwadi, and Nun Harrieti, "Perlindungan Hukum Terhadap Nasabah Atas Kejahatan Phising Dan Hacking Pada Layanan Bank Digital Ditinjau Berdasarkan Hukum Positif Indonesia," *Hakim: Jurnal Ilmu Hukum Dan Sosial* 2, no. 1 (2023): 1–16, <https://doi.org/https://doi.org/10.51903/hakim.v2i1.1535>; Dewi and Sukarno, *The Future Of Digital Finance In Southeast Asia: A Legal Perspective*.

⁹ Mousa Ajouz and Fayez Abuamria, "Unveiling The Potential Of The Islamic Fintech Ecosystem In Emerging Markets," *Al Qasimia University Journal of Islamic Economics* 3, no. 1 (June 12, 2023): 115–48, <https://doi.org/10.52747/aqujie.3.1.219>; Lee, "The Transformation of Chinese Fintech Firms to Southeast Asia."

¹⁰ Nat Ofo, Rita Ngwoke, and Faith Kelechi Ekwe, "An Appraisal Of The Regulation Of Digital Banks In Nigeria," *Agora International Journal Of Juridical Sciences* 18, no. 1 (June 30, 2024): 62–74, <https://doi.org/10.15837/aijjs.v18i1.6743>.

¹¹ Agung Budiarto and Pujiyono Pujiyono, "Perlindungan Hukum Nasabah Pengguna Mobile Banking," *Jurnal Privat Law* 9, no. 2 (2021): 300–308, <https://doi.org/https://doi.org/10.20961/privat.v9i2.60038>; Eveline Ivanca and Hery Firmansyah, "Perlindungan Hukum Pengguna Mobile Banking Sebagai Korban Kejahatan Melalui Internet Ditinjau Dari Hukum Positif," *Unes Law Review* 6, no. 2 (2023): 6166–74, <https://doi.org/https://doi.org/10.31933/unesrev.v6i2.1423>; Darsita Suparno et al., "The Influence of Financial Literacy, Digital Literacy, Digital Marketing, Brand Image and Word of Mouth on the z Generation's Interest in Islamic Banks," *International Journal of Data and Network Science* 7 (2023): 1975–82, <https://doi.org/https://doi.org/10.5267/j.ijdns.2023.6.015>; Afandi, "Drivers and Barriers to Use Digital Banking among Generations Y and Z in Indonesia."

do not directly address the licensing, supervision, and governance dimensions that define the legal standing of digital-only banks as regulated institutions.

Therefore, this study aims to fill that gap by exploring the legal challenges of digital-only banking in a comprehensive manner. Specifically, it seeks to identify the regulatory obstacles in licensing digital-only banks under Indonesia's current legal framework, examine supervisory mechanisms in comparison with global best practices, and evaluate consumer protection issues arising in digital banking operations. Furthermore, the study will compare global and Indonesian frameworks to draw lessons and propose recommendations for a more adaptive, technology-neutral legal approach. Through this analysis, the research contributes to strengthening Indonesia's readiness for the next phase of digital financial regulation and enhancing public trust in fully digital banking systems.

The study contributes to banking-law literature by providing an integrated legal analysis linking licensing, supervision, and consumer protection. It also compares global best practices with Indonesia's evolving legal structure. Its novelty lies in proposing a technology-neutral, adaptive regulatory model for sustainable digital banking.¹²

RESEARCH METHODS

This study employs a normative juridical method, also referred to as doctrinal legal research, to examine the legal framework and regulatory mechanisms governing digital-only banking. This method focuses on the analysis of legal norms, statutory provisions, and legal doctrines embedded in laws and regulations relevant to digital banking governance. The research applies three complementary approaches: a statute approach, a conceptual approach, and a comparative approach. The statute approach analyzes binding legal instruments regulating digital banking, including Financial Services Authority Regulation (POJK) No. 12/POJK.03/2021 on commercial banks, Bank Indonesia regulations, and other related financial and electronic transaction laws. The conceptual approach examines key legal concepts such as the legal identity of digital banks, supervisory technology (SupTech), and consumer protection in digital finance, drawing upon established legal theories and scholarly works. Meanwhile, the comparative approach contrasts Indonesia's regulatory framework with those of selected jurisdictions particularly Singapore and the United Kingdom to identify regulatory gaps and best practices that may inform regulatory refinement.

The data used in this study consist of secondary legal materials, which are classified into primary and secondary legal sources. Primary legal sources include binding regulations and official legal documents, such as laws, government regulations, Financial Services Authority (Otoritas Jasa Keuangan/OJK) rules, Bank Indonesia guidelines, and international regulatory standards, including the Basel Committee's Principles for Effective Banking Supervision and relevant IMF publications. Where relevant, judicial decisions and authoritative legal opinions are also considered to illustrate regulatory interpretation. Secondary legal sources comprise scholarly books, peer-reviewed journal articles, policy papers, and expert analyses addressing digital banking regulation, financial technology risks, and consumer protection. Reports published by international financial institutions and regulatory authorities further support the legal and comparative analysis.

¹² Roxana Denisa Vidican and Raul Alexandru Hepeş, "Competition Law In The Digital Era: Legal And Jurisprudential Challenges In Digital Markets," *Agora International Journal Of Juridical Sciences* 19, no. 1 (June 30, 2025): 133–46, <https://doi.org/10.15837/aijjs.v19i1.7180>.

Data collection is conducted through systematic documentation and review of legal texts and academic literature. The data are analyzed using qualitative legal analysis through interpretative and comparative techniques. This process involves three stages: first, identifying and classifying relevant legal norms and regulatory provisions; second, interpreting and evaluating their coherence, adequacy, and effectiveness in regulating digital-only banks; and third, conducting a comparative synthesis to assess Indonesia's regulatory position relative to other jurisdictions. Through this analytical process, the study not only describes existing legal norms but also evaluates their implications for regulatory design, risk management, and consumer protection. Ultimately, the research aims to formulate a coherent regulatory perspective that balances technological innovation with legal certainty and consumer rights in Indonesia's digital banking ecosystem.

RESULTS AND DISCUSSION

Licensing of Digital-Only Banks

A digital-only bank is a fully licensed banking institution that operates exclusively through digital platforms without any physical branch presence. It provides the same core functions as traditional banks, including deposit collection, fund transfer, and credit intermediation, but entirely within a digital environment. This model is distinct from fintech payment firms, which generally provide limited financial services without full deposit-taking authority or prudential supervision under banking law.¹³ As the financial ecosystem increasingly integrates digital technology, defining and recognizing the legal identity of digital-only banks becomes essential to prevent regulatory ambiguity and ensure systemic trust.

Global regulatory authorities have progressively introduced specialized frameworks to address the emergence of digital-only banks. In Singapore, the Monetary Authority of Singapore (MAS) established two distinct licensing categories: digital full banks (DFBs), which serve retail customers, and digital wholesale banks (DWBs), which cater to corporate clients. Both types must meet specific requirements concerning capital adequacy, governance, data protection, and cybersecurity resilience.¹⁴ This dual-tier model allows differentiated entry conditions based on operational scale and risk exposure.

In the United Kingdom, the Prudential Regulation Authority (PRA) introduced the "mobilization phase," a transitional licensing stage that allows digital bank applicants to operate with restrictions while building their operational, governance, and risk management capabilities.¹⁵ This phased approach reduces entry barriers and ensures regulatory compliance before full authorization. Meanwhile, South Korea's regulatory framework emphasizes IT resilience, data protection, and customer-data governance as central licensing criteria.

These global models reflect a consistent risk-based and technology-neutral philosophy. Rather than imposing rigid institutional forms, regulators assess applicants based on operational soundness, digital infrastructure, and capacity to manage emerging

¹³ Ikram Ullah Khan, "How Does Culture Influence Digital Banking? A Comparative Study Based on the Unified Model," *Technology in Society* 68 (February 2022): 101822, <https://doi.org/10.1016/j.techsoc.2021.101822>.

¹⁴ Lee, "The Transformation of Chinese Fintech Firms to Southeast Asia."

¹⁵ Seraina Grünwald, "Sustainability and Prudential Banking Regulation," in *Comparative Financial Regulation* (Edward Elgar Publishing, 2025), 302–22, <https://doi.org/10.4337/9781035306473.00030>.

cyber and data risks.¹⁶ Such flexibility has encouraged innovation while maintaining prudential oversight, offering lessons for developing economies that seek to balance inclusion and stability.

Indonesia Licensing System

Indonesia's regulatory framework, under OJK Regulation (POJK) No. 12/POJK.03/2021, formally recognizes digital-only banks as legal entities within the national financial system.¹⁷ However, the regulation still borrows heavily from the traditional banking paradigm, particularly in governance and capital structure. It mandates a minimum paid-up capital of IDR 10 trillion and requires corporate governance similar to conventional banks. While these measures aim to secure depositor protection and financial stability, they inadvertently limit market access for smaller, innovative entrants.¹⁸

Furthermore, the current policy framework focuses more on structural compliance than on functional or technological readiness. This creates challenges for financial inclusion and market diversity. As Afandi highlights, Indonesia's younger generations increasingly prefer digital banking solutions, which calls for more inclusive and proportionate licensing models.¹⁹ Adjusting capital and governance requirements to reflect operational risk rather than institutional size could stimulate competition and innovation among digital-only providers.

Legal Challenges in Licensing

Despite formal recognition, several legal and regulatory challenges persist in Indonesia's licensing regime for digital-only banks.²⁰ First, there is an ambiguous legal definition that blurs the distinction between "digital banks" and "fintech-based financial services." This overlap creates uncertainty regarding applicable laws and supervisory jurisdiction. Second, the requirement for physical presence, inherited from traditional banking regulations, is inconsistent with the branchless nature of digital operations. Third, capital verification rules lack clarity on how digital or intangible assets (such as proprietary algorithms or digital infrastructure) are valued within capital adequacy assessments. Fourth, regulatory arbitrage remains a risk, as certain fintechs offer quasi-banking services (e.g., peer-to-peer lending or digital wallets) without full banking licenses, thereby bypassing prudential requirements.

Scholars such as Ofo et al. and Vidican and Hepeş argue that Indonesia's Banking Law requires amendment to explicitly recognize digital banks as a distinct category of financial institutions.²¹ Legal reforms should focus on functional criteria, emphasizing technological reliability, cybersecurity governance, and risk management capability rather than physical infrastructure or conventional ownership patterns. Such a shift would

¹⁶ Bueno et al., "Impacts of Digitization on Operational Efficiency in the Banking Sector: Thematic Analysis and Research Agenda Proposal."

¹⁷ Dona Budi Kharisma, "Urgency of Financial Technology (Fintech) Laws in Indonesia," *International Journal of Law and Management* 63, no. 3 (March 27, 2021): 320–31, <https://doi.org/10.1108/IJLMA-08-2020-0233>; Trisadini Usanti and Anindya Setiawati, "Customer Protection of Digital Services by Commercial Banks Concerning Consumer and Community Protection in the Financial Services Sector," *The International Journal of Politics and Sociology Research* 11, no. 4 (2024): 493–99, <https://doi.org/https://doi.org/10.35335/ijpsor.v11i4.223>.

¹⁸ Dewi and Sukarno, *The Future Of Digital Finance In Southeast Asia: A Legal Perspective*.

¹⁹ Afandi, "Drivers and Barriers to Use Digital Banking among Generations Y and Z in Indonesia."

²⁰ Kharisma, "Urgency of Financial Technology (Fintech) Laws in Indonesia."

²¹ Ofo, Ngwoke, and Ekwe, "An Appraisal Of The Regulation Of Digital Banks In Nigeria"; Vidican and Hepeş, "Competition Law In The Digital Era: Legal And Jurisprudential Challenges In Digital Markets."

align Indonesia’s regulatory approach with global best practices and strengthen its legal preparedness for the evolving digital financial ecosystem.

Thus, licensing reform is an important step toward building a resilient and inclusive digital banking ecosystem. A balanced framework should promote market entry for credible digital players while ensuring systemic safety and consumer trust. Indonesia can draw valuable lessons from Singapore’s flexible licensing tiers and the UK’s mobilization model, which combine innovation with prudential safeguards. Aligning local regulations with global standards, while incorporating domestic economic realities, will provide a stronger foundation for supervisory and consumer protection.

We can say that licensing digital-only banks is crucial to ensure legal certainty, innovation, and consumer trust in the digital financial ecosystem. Globally, countries such as Singapore, the UK, and South Korea have adopted flexible, risk-based licensing models emphasizing IT resilience, governance, and cybersecurity. In Indonesia, POJK No. 12/2021 formally recognizes digital banks but still reflects traditional banking structures, creating barriers for smaller entrants. Legal challenges persist, including unclear definitions, physical presence requirements, and valuation of digital assets. Reform is needed to adopt a more functional, technology-driven approach aligned with global best practices to balance innovation, inclusion, and prudential oversight, as explained in Table 1.

Table 1. Licensing Of Digital-Only Banks (Global And Indonesian Comparison)

Aspect	Global Models (Singapore, UK, South Korea)	Indonesia (POJK No. 12/2021)	Legal Challenges & Reform Directions
Licensing Approach	Risk-based, flexible, technology-neutral	Traditional structure-based framework	Need for functional criteria emphasizing digital readiness
Categories/Phases	Singapore: DFBs and DWBs; UK: mobilization phase	Single-tier licensing, conventional banks	Absence of tiered or phased licensing system
Capital Requirements	Proportionate to operational risk and scale	Fixed high capital (IDR 10 trillion)	Adjust capital to reflect operational scope and risk
Governance Focus	Digital governance, cybersecurity, resilience	Conventional IT corporate governance model	Update governance rules for digital operations
Regulatory Emphasis	Innovation with prudential safeguards	Compliance with structural norms	Shift toward outcome-based and tech-driven supervision
Key Legal Issues	Data protection and cross-border oversight	Ambiguous definitions, physical presence, valuation of assets	Amend Banking Law to define digital banks and recognize digital capital forms

Aspect	Global Models (Singapore, South Korea)	UK (12/2021)	Indonesia (POJK No. 12/2021)	Legal Challenges & Reform Directions
Reform Lessons	Flexible, proportionate, innovation-friendly	risk- limited access	Rigid, size-based, innovation	Adopt Singapore and UK models to improve inclusion and legal certainty

Supervision and Prudential Regulation

Across leading jurisdictions, supervisory authorities have transformed their oversight methods to match the complexity of digital banking. In the United Kingdom and the European Union, regulators apply a risk-based supervision model that emphasizes IT resilience, cybersecurity, and operational continuity. The UK Prudential Regulation Authority (PRA) and the European Banking Authority (EBA) both integrate cyber stress testing and digital risk mapping into regular supervisory reviews. These methods allow regulators to anticipate system vulnerabilities before they affect financial stability.

In Singapore, the Monetary Authority of Singapore (MAS) maintains one of the most advanced digital supervision models. MAS implements continuous monitoring mechanisms using digital reporting interfaces and requires all licensed institutions to comply with the Cybersecurity Act in 2018. Furthermore, Singapore’s regulatory sandbox encourages innovation by allowing controlled testing of new digital products under close regulatory observation. This approach balances prudential control with technological experimentation, reducing compliance risk while fostering innovation.²²

Collectively, these global frameworks demonstrate a transition from traditional compliance reviews to data-driven and technology-assisted supervision. They show that effective oversight in digital banking depends on real-time monitoring, integrated cybersecurity governance, and dynamic regulatory cooperation.²³

In Indonesia, supervisory authority is shared between the Financial Services Authority (OJK) and Bank Indonesia (BI). The OJK supervises the prudential and governance aspects of digital banks, while BI oversees payment systems and monetary stability. Together, they are responsible for ensuring that digital-only banks maintain liquidity, solvency, and operational resilience in a fully online environment.

However, several structural and technological challenges remain. First, supervisory technology (SupTech) infrastructure in Indonesia is still limited. Many oversight processes continue to rely on manual reporting and on-site inspection, which are less effective for monitoring digital transactions in real time.²⁴ Second, there are coordination gaps between OJK and BI regarding digital risk monitoring. For example, OJK’s focus on institutional stability and BI’s focus on payment integrity sometimes create overlapping jurisdictions in digital bank oversight. This fragmentation can delay risk detection and response.

²² Lee, “The Transformation of Chinese Fintech Firms to Southeast Asia.”

²³ Bueno et al., “Impacts of Digitization on Operational Efficiency in the Banking Sector: Thematic Analysis and Research Agenda Proposal.”

²⁴ Fotis Kitsios, Ioannis Giatsidis, and Maria Kamariotou, “Digital Transformation and Strategy in the Banking Sector: Evaluating the Acceptance Rate of E-Services,” *Journal of Open Innovation: Technology, Market, and Complexity* 7, no. 3 (September 2021): 204, <https://doi.org/10.3390/joitmc7030204>.

Furthermore, digital banks' increasing use of cloud computing, AI analytics, and cross-border digital platforms adds complexity to supervision. Current reporting systems do not yet fully capture algorithmic decision-making risks, cybersecurity incidents, or third-party service vulnerabilities. As noted by Chairunnisa et al., regulatory capacity building and inter-agency coordination are essential to strengthen Indonesia's supervisory readiness for digital banking.²⁵

Several legal challenges arise when applying prudential regulation to digital-only banking. First, traditional principles such as liquidity, solvency, and corporate governance must be adapted to the realities of digital operations. Digital banks rely heavily on algorithmic decision-making, cloud data storage, and external service providers, which may not fit neatly into conventional prudential categories. Second, cross-border supervision is increasingly problematic when digital banks have foreign ownership or operate through international digital infrastructures. Questions arise about which jurisdiction holds the supervisory mandate in the event of data breaches or operational failures.

Third, there is an urgent need for clear regulatory guidelines on digital audit and AI-based compliance tools. Automated systems can enhance compliance efficiency, but without legal clarity, their use may generate accountability issues. As Vidican and Hepeş argue, legal systems must evolve to define responsibility for algorithmic actions within supervised entities.²⁶ Indonesia's current regulatory instruments have not yet provided explicit standards on algorithmic auditing or AI compliance verification.

Future reform should focus on integrating digital supervision frameworks that combine prudential oversight with cybersecurity and data governance standards. This requires enhancing SupTech infrastructure for real-time monitoring, improving inter-agency coordination, and adopting data-driven supervisory analytics.²⁷ Indonesia can also benefit from implementing regulatory sandboxes and innovation hubs, modeled after Singapore's MAS, to test and evaluate emerging digital banking models under controlled conditions. These platforms would allow OJK and BI to observe digital operations, identify regulatory gaps, and refine risk-based supervision methods before formal licensing.

Finally, developing comprehensive digital governance guidelines (covering cybersecurity, AI ethics, data privacy, and algorithmic transparency) would ensure that Indonesia's digital banking system remains secure, accountable, and aligned with international standards. Strengthening legal and technological capacity in supervision will be key to maintaining financial stability and consumer confidence as the digital banking sector continues to expand. In the end, supervision of digital-only banks globally has shifted toward risk-based, technology-driven oversight emphasizing cybersecurity, data governance, and continuous monitoring. The UK, EU, and Singapore lead in adopting SupTech tools, cyber stress testing, and sandbox environments to balance innovation with prudential safety. In contrast, Indonesia's supervision—shared by OJK and Bank

²⁵ Chairunnisa, Murwadi, and Harrieti, "Perlindungan Hukum Terhadap Nasabah Atas Kejahatan Phising Dan Hacking Pada Layanan Bank Digital Ditinjau Berdasarkan Hukum Positif Indonesia."

²⁶ Vidican and Hepeş, "Competition Law In The Digital Era: Legal And Jurisprudential Challenges In Digital Markets."

²⁷ Hakim and Putra, "Analysis of Digital Bank Customer Protection Against Loss of Funds in Accounts Reviewed According to Indonesian Positive Law"; Narzieva Dilafiruz Mukhtorovna, Boltayeva Shaxnoza Bebudovna, and Kudratov Azizjon Dehqonboyevich, "The Importance Of Digitalization Of The Economy And Priorities In Uzbekistan," *World Economics and Finance Bulletin* 2 (2021): 9–13, *World Economics and Finance Bulletin*.

Indonesia—remains partly manual and fragmented. Limited digital infrastructure, overlapping jurisdictions, and the absence of clear rules for AI-based compliance and digital audits weaken its effectiveness. Strengthening coordination, adopting real-time SupTech, and integrating cybersecurity within prudential regulation are essential to align Indonesia with global supervisory standards.

Table 2. Supervision And Prudential Regulation Of Digital-Only Banks

Aspect	Global Models (UK, EU, Singapore)	Indonesia (OJK & BI Framework)	Legal Challenges & Reform Directions
Supervisory Approach	Risk-based, data-driven, continuous monitoring	Manual reporting, limited supervision	Need to adopt real-time and automated digital oversight tools
Regulatory Tools	Cyber stress testing, digital risk mapping, sandbox experimentation	Traditional inspection, compliance review	Develop adaptive static for AI and cloud-based banking operations
Institutional Coordination	Centralized supervision with cross-agency cooperation	Split roles (prudential, payments)	(OJK: Establish unified digital supervision framework causing or coordination protocol overlap)
Key Focus Areas	IT resilience, cybersecurity, operational continuity	Liquidity, solvency, institutional stability	Expand prudential focus to include cybersecurity and data governance
Technology Integration	Advanced SupTech systems for real-time data analysis	Early-stage SupTech limited infrastructure	Invest in digital reporting with digital interfaces
AI and Algorithmic Oversight	Defined accountability for automated systems	Lack of clear compliance audit standards	AI Create legal norms for and algorithmic governance and responsibility
Reform Directions	Continuous monitoring, sandboxes, data-driven prudence	Incremental adaptation traditional frameworks	Integrate SupTech, of enhance inter-agency coordination, and adopt MAS-style sandbox

Consumer Protection in Digital Banking

Globally, consumer protection in digital banking has become a fundamental regulatory priority as financial transactions increasingly shift to online platforms.²⁸ The European Union (EU) has established a comprehensive framework through the Payment

²⁸ Sonia Maan and Ankita Sharma, “Protecting Consumer Rights in the Age of Artificial Intelligence: Legal Implications and Challenges in Consumer Protection,” in *Proceedings of the National Seminar on Enhancing Privacy Protection in the Digital Age: Legal Challenges & Innovations (NSEPPDA 2025)* (Atlantis Press, 2025), 511–23, https://doi.org/10.2991/978-2-38476-426-6_24.

Services Directive 2 (PSD2) and the General Data Protection Regulation (GDPR). PSD2 promotes consumer rights in digital payments by requiring transparency, secure authentication, and the right to refund unauthorized transactions. Meanwhile, GDPR emphasizes data protection, informed consent, and privacy-by-design, ensuring that digital banks safeguard consumers' personal and financial data.²⁹

In the United States, the Consumer Financial Protection Bureau (CFPB) supervises online financial services, including digital banks and fintech firms. The CFPB enforces fair lending, disclosure, and privacy rules to protect consumers from deceptive or abusive digital financial practices.³⁰ Furthermore, the U.S. approach emphasizes accountability and dispute resolution, requiring digital banks to provide clear complaint mechanisms and timely redress for users affected by unauthorized activities.

Across advanced jurisdictions, best practices in consumer protection share several key principles: (1) transparency in data usage and service terms; (2) informed consent before processing personal information; (3) strong digital identity verification to prevent fraud; and (4) efficient dispute resolution systems, often supported by online ombudsman platforms or alternative dispute resolution (ADR) mechanisms. These principles reflect a global shift toward proactive digital governance, combining technology-driven oversight with human rights-based protection standards.³¹

In Indonesia, consumer protection in digital banking is governed by several existing legal instruments, including the Consumer Protection Law (UU No. 8/1999), the Electronic Information and Transactions Law (UU ITE), and the OJK Regulation on Consumer Protection in the Financial Services Sector (POJK No. 6/POJK.07/2022). These regulations collectively aim to ensure fair treatment, data privacy, and secure electronic transactions. However, their application to fully digital banking remains limited due to fragmented regulatory scopes and rapid technological evolution.

In Indonesia, cases involving digital banking services illustrate how consumer protection gaps overlap with competitive asymmetries. The BTPN Jenius case revealed vulnerabilities in digital fund security when customer accounts were breached through phishing schemes.³² Although existing regulations such as the Consumer Protection Act (UU No. 8/1999) and POJK No. 6/2022 provide a legal foundation, they remain inadequate in digital contexts that rely on third-party systems and algorithmic authentication. Chairunnisa et al. note that the lack of clarity in institutional liability allows large digital banks to manage losses internally, thereby reducing consumer leverage and accountability.³³ Such situations may indirectly strengthen dominant market players, as consumers become locked into established platforms that appear "safer" despite underlying systemic weaknesses.

Internet and mobile banking services further highlight the tension between technological innovation and legal adaptability. Studies by Sumarno and Agustin and Budiarto and Pujiyono show that legal protections for users remain reactive rather than

²⁹ Vidican and Hemiş, "Competition Law In The Digital Era: Legal And Jurisprudential Challenges In Digital Markets."

³⁰ Bueno et al., "Impacts of Digitization on Operational Efficiency in the Banking Sector: Thematic Analysis and Research Agenda Proposal."

³¹ Bossu et al., "Legal Aspects of Central Bank Digital Currency"; Xin wei Chen, "The Legal Protection of 'Silk Road E-Commerce': Challenges, Approaches, and Solutions," *International Journal of Law and Politics Studies* 7, no. 3 (May 16, 2025): 01–14, <https://doi.org/10.32996/ijlps.2025.7.3.1>.

³² Dewi and Sukarno, *The Future Of Digital Finance In Southeast Asia: A Legal Perspective*.

³³ Chairunnisa, Murwadji, and Harrieti, "Perlindungan Hukum Terhadap Nasabah Atas Kejahatan Phising Dan Hacking Pada Layanan Bank Digital Ditinjau Berdasarkan Hukum Positif Indonesia."

preventive.³⁴ Most legal remedies are applied after losses occur, with limited mechanisms for proactive oversight or compensation. Mobile banking, in particular, exposes consumers to third-party risks through devices, apps, and payment gateways that operate outside the traditional banking perimeter. As a result, fragmented regulation undermines both fair competition and consumer trust. Hakim and Putra argue that a more coherent legal structure is necessary—one that aligns the liability of financial institutions, fintech intermediaries, and technology providers within a unified digital banking framework.³⁵ Without such reform, smaller and newer entrants face compliance uncertainty, while established banks gain a regulatory advantage, unintentionally distorting market competition.

Three major issues persist. First, there are growing concerns about data misuse and weak cybersecurity infrastructure, which expose consumers to phishing, identity theft, and online fraud.³⁶ Many digital banks rely on third-party technology vendors, but existing rules do not clearly define liability in cases of data breaches. Second, digital literacy among consumers remains low.³⁷ Many users are unaware of their rights or the risks associated with online financial transactions, creating asymmetry between financial institutions and consumers. Third, Indonesia currently lacks a specific digital banking consumer protection law, making enforcement reactive and inconsistent.

The OJK has introduced educational initiatives such as *Sikapi Uangmu* and *Laku Pandai* to promote financial literacy and inclusion. While these efforts improve public awareness, they are not yet supported by comprehensive legal mechanisms to handle complaints or compensate victims of digital financial misconduct. Consumer protection in digital banking has become a global legal priority as financial transactions move online. The EU's PSD2 and GDPR and the U.S. CFPB model emphasize transparency, data privacy, consent, and secure dispute resolution. In Indonesia, protection is governed by the Consumer Protection Law, UU ITE, and POJK No. 6/2022, yet these remain fragmented and reactive. Cases like BTPN Jenius reveal weak cybersecurity, unclear liability, and low digital literacy. Current frameworks lack a specific law for digital banking consumers. Stronger coordination among regulators, clearer liability standards, and proactive oversight are essential to ensure equitable protection and trust. The customer protection in digital banking can be summarized in Table 3.

Table 3. Consumer Protection In Digital Banking

³⁴ Edy Sumarno and Rizku Intan Agustin, "Analisa Hukum Terhadap Perlindungan Bagi Nasabah Pengguna Internet Banking Di Tinjau Dari Hukum Positif Yang Berlaku Di Indonesia," *Journal of Innovation Research and Knowledge* 4, no. 3 (2024): 1323–38, <https://doi.org/https://doi.org/10.53625/jirk.v4i3.8267>; Budiarto and Pujiyono, "Perlindungan Hukum Nasabah Pengguna Mobile Banking."

³⁵ Hakim and Putra, "Analysis of Digital Bank Customer Protection Against Loss of Funds in Accounts Reviewed According to Indonesian Positive Law."

³⁶ Chairunnisa, Murwadi, and Harrieti, "Perlindungan Hukum Terhadap Nasabah Atas Kejahatan Phising Dan Hacking Pada Layanan Bank Digital Ditinjau Berdasarkan Hukum Positif Indonesia"; Dewi and Sukarno, *The Future Of Digital Finance In Southeast Asia: A Legal Perspective*.

³⁷ Kent Eriksson, Cecilia Hermansson, and Sara Jonsson, "The Performance Generating Limitations of the Relationship-Banking Model in the Digital Era – Effects of Customers' Trust, Satisfaction, and Loyalty on Client-Level Performance," *International Journal of Bank Marketing* 38, no. 4 (June 2, 2020): 889–916, <https://doi.org/10.1108/IJBM-08-2019-0282>.

Aspect	Global (EU, US)	Frameworks (Indonesia)	Context (Current)	Main Issues / Reform Directions
Legal Instruments	EU: PSD2 (digital payment protection); GDPR (data privacy); US: CFPB oversight	(digital protection), UU (1999), POJK No. 6/2022	UU Perlindungan Konsumen (1999), POJK No. 6/2022	Need a specific Digital Banking Consumer Protection Law
Core Principles	Transparency, informed consent, authentication, privacy	informed consent, secure data privacy	Fair treatment and secure data but limited in digital scope	Broaden protection to digital and algorithmic contexts
Supervision & Enforcement	Centralized financial (EBA, CFPB)	digital regulators	Split among Kominfo, BI	Strengthen authority OJK, coordination and harmonize jurisdiction
Cybersecurity & Data Risks	Strong IT governance and accountability for breaches	IT governance for and accountability for breaches	Weak cybersecurity and unclear liability	Define clear standards for data breaches and third-party risks
Dispute Resolution	Online ADR compensation mechanisms	ombudsman, systems, handling	Limited complaint-handling compensation channels	Introduce digital and ombudsman or fast-track settlement system
Consumer Awareness	Supported by digital campaigns	public literacy campaigns	Low literacy weak education	Integrate legal literacy with financial inclusion programs
Overall Challenge	Balancing innovation and consumer safety	innovation and consumer safety	Fragmented rules, reactive protection	Unified, technology-adaptive legal framework aligned with global best practices

Legal Challenges and Consumer Protection in Digital Banking

The rapid digitalization of financial services has transformed the competitive landscape and posed new legal and jurisprudential challenges. Digital banking platforms, mobile banking applications, and internet-based financial services have introduced efficiencies and broader access to banking, yet they also expose consumers to heightened risks, including data breaches, fraud, and financial mismanagement. At the same time, digital markets raise complex competition law issues, as dominant platforms may engage in practices that limit fair competition, reduce consumer choice, or leverage proprietary data in ways that create barriers to entry. Vidican and Hepeş argue that existing competition frameworks often lag behind technological developments, making it difficult to identify anti-competitive behavior in algorithm-driven marketplaces or digital ecosystems.³⁸

In Indonesia, consumer protection for digital banking users remains a pressing concern, especially in the context of mobile and internet banking. The case of BTPN

³⁸ Vidican and Hepeş, “Competition Law In The Digital Era: Legal And Jurisprudential Challenges In Digital Markets.”

Jenius, which involved the unauthorized withdrawal of customer funds, highlights both legal and regulatory gaps.³⁹ Despite existing protections under the UU Perlindungan Konsumen and OJK regulations, victims often face complex procedural hurdles in seeking restitution. The BTPN Jenius incident underscores the need for a legal framework that addresses data security breaches, phishing, and hacking in real time while clearly delineating institutional accountability. Chairunnisa et al. emphasize that without such frameworks, financial institutions may rely solely on internal remediation mechanisms, leaving consumers exposed to systemic risks.⁴⁰

Internet banking users similarly confront vulnerabilities. Sumarno and Agustin note that positive law in Indonesia provides general protections, but digital banking introduces operational modalities that traditional statutes cannot fully anticipate.⁴¹ These include automated financial processes, cross-border data flows, and algorithmic decision-making in credit allocation or fund transfers. Consequently, consumer rights such as transparency, informed consent, and dispute resolution often lack enforceable mechanisms specific to the digital context. This gap is particularly critical as younger generations increasingly adopt digital banking as their primary financial tool.⁴²

Mobile banking adds another layer of complexity. Mobile platforms operate on personal devices with varying degrees of security and rely on third-party vendors for cloud storage, authentication, and data analytics. Budiarto and Pujiyono highlight that mobile banking users frequently encounter cyberattacks, identity theft, and unauthorized transactions.⁴³ The legal challenge lies in adapting the existing consumer protection laws and OJK regulations to include mobile-specific risks, providing clarity on liability, remediation, and preventive obligations for service providers. Legal scholars argue that a specialized framework is necessary, combining statutory law, regulatory guidance, and jurisprudential interpretation to ensure that consumer protections keep pace with technological innovation.⁴⁴

Competition law intersects with these consumer protection concerns. Large digital banking platforms may leverage network effects, exclusive partnerships, or proprietary algorithms to consolidate market power. Such behavior can indirectly harm consumers by restricting access to alternative financial services or increasing fees. Enforcement is complicated by cross-border operations, algorithmic pricing, and opaque platform policies. Global experiences show that integrating competition oversight with digital consumer protection is essential to preserve market integrity. For example, the EU combines GDPR protections with competition law scrutiny to prevent dominant fintechs from exploiting consumer data unfairly, providing a model for Indonesia to consider.⁴⁵

³⁹ Dewi and Sukarno, *The Future Of Digital Finance In Southeast Asia: A Legal Perspective*.

⁴⁰ Chairunnisa, Murwadji, and Harrieti, "Perlindungan Hukum Terhadap Nasabah Atas Kejahatan Phising Dan Hacking Pada Layanan Bank Digital Ditinjau Berdasarkan Hukum Positif Indonesia."

⁴¹ Sumarno and Agustin, "Analisa Hukum Terhadap Perlindungan Bagi Nasabah Pengguna Internet Banking Di Tinjau Dari Hukum Positif Yang Berlaku Di Indonesia."

⁴² Afandi, "Drivers and Barriers to Use Digital Banking among Generations Y and Z in Indonesia."

⁴³ Budiarto and Pujiyono, "Perlindungan Hukum Nasabah Pengguna Mobile Banking."

⁴⁴ Ahmad Refi Dzuhriyan, Surya Indra Permana, and M. Khaidir Ali Gufon, "Consumer Legal Protection in Online Transactions: Challenges and Opportunities in Indonesia's Digital Economy," *Justice Voice* 3, no. 1 (February 18, 2025): 9–16, <https://doi.org/10.37893/jv.v3i1.1017>; Hakim and Putra, "Analysis of Digital Bank Customer Protection Against Loss of Funds in Accounts Reviewed According to Indonesian Positive Law."

⁴⁵ Vidican and Hepeş, "Competition Law In The Digital Era: Legal And Jurisprudential Challenges In Digital Markets."

The digital transformation of the financial sector has redefined the boundaries of competition and consumer protection. As banks migrate to online platforms and new digital-only institutions emerge, legal frameworks struggle to keep pace. Competition law, traditionally focused on price-fixing and market dominance, now faces challenges in addressing algorithmic behavior, platform concentration, and cross-sector integration in digital finance. Vidican and Hepeş highlight that in digital markets, anti-competitive practices often occur subtly through data control, platform exclusivity, or preferential algorithms.⁴⁶ These challenges intersect with consumer protection, as dominant players can manipulate information flows, limit user choice, or compromise transparency, leading to market inefficiencies and consumer harm.

So, the legal protection of digital banking consumers in Indonesia—including mobile banking, internet banking, and platforms such as BTPN Jenius—requires an integrated approach. Statutory law, regulatory frameworks, and jurisprudence must evolve together to address emerging risks, provide clear remedies, and ensure accountability for service providers. Simultaneously, competition law enforcement must adapt to the digital era, ensuring that market power does not undermine consumer welfare or inhibit innovation. Strengthening these legal and regulatory instruments is critical for building public trust, fostering sustainable digital finance, and positioning Indonesia competitively in the global digital economy.

The current legal framework shows several regulatory overlaps and weaknesses. First, the jurisdictional overlap between OJK and the Ministry of Communication and Informatics (Kominfo) complicates the enforcement of digital consumer rights. OJK focuses on financial service providers, while Kominfo regulates data protection and electronic transactions. The lack of a unified supervisory mechanism results in fragmented enforcement, especially when data privacy violations intersect with financial misconduct.

Second, enforcement remains weak in cases of cross-border digital fraud. When fraudulent transactions involve overseas servers or foreign-owned digital banks, Indonesia's jurisdictional reach becomes limited. Mutual legal assistance (MLA) procedures are often too slow to recover consumer losses. Third, remedy mechanisms for digital banking disputes are limited. Although consumers may file complaints to OJK, the process is often bureaucratic and lacks specialized mediation channels for online disputes. These gaps increase systemic risks and reduce public trust in digital banking. Without a robust and unified framework, consumers remain vulnerable to cyberattacks and financial exploitation, hindering the broader goal of inclusive and secure digital finance.⁴⁷

To address these challenges, this study proposes several legal and institutional reforms. First, Indonesia should establish a comprehensive Digital Banking Consumer Protection Act that consolidates existing provisions and introduces explicit rules for online banking transparency, digital identity security, and liability for data breaches. Such legislation would align Indonesia with the best practices of the EU's PSD2 and GDPR frameworks. Second, institutional cooperation among OJK, BI, and Kominfo must be strengthened. A formal inter-agency coordination board should be created to synchronize supervision, data protection, and financial consumer protection. This mechanism would prevent regulatory gaps and ensure coherent policy enforcement.

Third, Indonesia could introduce a digital ombudsman or fast-track dispute settlement mechanism for consumer complaints related to digital banking. This body

⁴⁶ Vidican and Hepeş.

⁴⁷ Ofo, Ngwoke, and Ekwe, "An Appraisal Of The Regulation Of Digital Banks In Nigeria."

would handle digital-related grievances efficiently through online mediation and arbitration systems. Such a structure has proven effective in countries like the UK and Australia, where digital financial dispute resolution operates in near-real-time. By adopting these reforms, Indonesia can enhance consumer trust, ensure fair digital financial practices, and align its legal infrastructure with international standards. Strengthening legal protection is not only a matter of compliance but also a strategic step toward sustainable digital banking growth and inclusive financial innovation.⁴⁸

Digital banking in Indonesia has improved accessibility but introduced new legal and consumer protection challenges. Data breaches, fraud, and algorithmic risks expose users to systemic vulnerabilities. Existing laws, such as OJK and consumer protection regulations, are fragmented and often lag behind technological change. Cases like BTPN Jenius reveal gaps in liability and redress. Overlapping jurisdictions between OJK and Kominfo, weak cross-border enforcement, and slow dispute resolution hinder effective protection. A unified Digital Banking Consumer Protection Act, stronger institutional coordination, and a digital ombudsman system are proposed to enhance accountability, data security, and consumer trust in Indonesia’s digital financial ecosystem. The legal gaps and proposed solutions in digital banking can be summarized in Table 4.

Table 4. Legal Gaps And Proposed Solutions In Digital Banking

Aspect	Key Gaps/Risks	Legal Proposed Solutions	Legal Intended Outcomes
Regulatory Framework	Fragmented under OJK, BI, and Kominfo; unclear accountability	laws Enact a Digital Banking Consumer Protection Act unclear integrating digital identity, liability rules	Unified legal basis for banking and clear governance
Supervision & Coordination	Overlapping jurisdiction between OJK and Kominfo	Establish inter-agency coordination board for financial and protection	Coherent supervision and data enforcement
Consumer Remedies	Bureaucratic complaint lack of digital-specific mediation	Create Ombudsman / dispute mechanism	Digital Fast-track settlement resolution for banking disputes
Cross-border Fraud	Limited and slow processes	Strengthen MLA cooperation and fraud protocols	Improved international digital and deterrence of cross-border fraud
Data Security & Accountability	Weak response to breaches and phishing	real-time Mandate reporting and mechanisms	real-time Stronger consumer liability protection and institutional accountability

⁴⁸ Dzuhriyan, Permana, and Gufron, “Consumer Legal Protection in Online Transactions: Challenges and Opportunities in Indonesia’s Digital Economy.”

This section connects the key components of Indonesia's digital banking framework in one integrated view. The figure links licensing, supervision, consumer protection, and legal reforms, showing how each element interacts to support a secure, transparent, and resilient digital banking ecosystem aligned with national and global regulatory standards (see Figure 1).

The figure illustrates the interconnected framework of digital banking regulation in Indonesia. It begins with the licensing of digital-only banks, which determines eligibility and entry into the financial system. This leads to supervision and prudential regulation, where OJK and Bank Indonesia ensure operational soundness and risk management. The next layer, consumer protection, focuses on data security, privacy, and dispute resolution to safeguard users. Finally, the legal gaps and proposed solutions highlight the need for a unified regulatory act, stronger institutional coordination, and a digital ombudsman. Together, these elements form an integrated legal ecosystem for secure and sustainable digital banking.

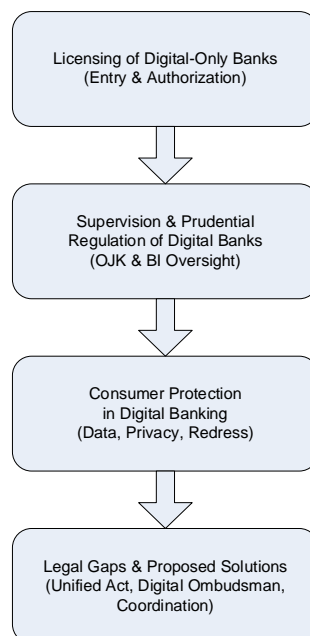


Figure 1. Legal And Regulatory System Of Digital Banking In Indonesia

In short, licensing sets the entry requirements for digital-only banks. Supervision and Prudential Regulation must ensure these banks operate safely and maintain stability. Consumer Protection should safeguard users against fraud, data breaches, and unfair practices. Legal Gaps and Solutions can identify weaknesses in the above three areas and proposes integrated reforms.

CONCLUSION

This study concludes that the rapid expansion of digital-only banking represents both a transformative opportunity and a regulatory challenge for Indonesia's financial system. Through a normative juridical and comparative analysis of licensing, supervision, and consumer protection frameworks, the findings reveal that Indonesia's current regulatory approach remains largely grounded in conventional banking paradigms. Although POJK No. 12/POJK.03/2021 emphasizes prudential stability through capital and governance requirements, it has not yet fully accommodated branchless, technology-

driven banking models. Compared with jurisdictions such as Singapore, the United Kingdom, and the European Union, Indonesia lacks a clear legal definition and adaptive licensing criteria for digital-only banks. This regulatory gap risks constraining innovation and limiting market entry, despite the growing demand for inclusive and technology-based financial services.

In terms of supervision, the study finds that advanced jurisdictions have successfully integrated risk-based supervision, continuous monitoring, and supervisory technology (SupTech) into their oversight of digital banks. Institutions such as the UK Prudential Regulation Authority and the Monetary Authority of Singapore demonstrate how data-driven supervision enhances early risk detection and regulatory responsiveness. By contrast, Indonesia's supervisory framework shared between OJK and Bank Indonesia still faces institutional, technological, and coordination challenges. Based on these findings, this study recommends strengthening inter-agency cooperation, expanding the use of regulatory sandboxes, and investing in SupTech tools, including artificial intelligence based risk assessment and real-time reporting systems, to improve supervisory effectiveness and resilience against digital risks.

With regard to consumer protection, the analysis shows that Indonesia's legal framework remains fragmented and insufficiently tailored to the specific risks of digital-only banking. Existing laws and regulations provide general consumer safeguards but do not comprehensively address issues such as data protection, cyber fraud, algorithmic decision-making, and digital dispute resolution. As a result, consumer vulnerability persists in the digital banking ecosystem. This study therefore recommends the formulation of a dedicated Digital Banking Consumer Protection Act, the establishment of a coordinated regulatory mechanism involving financial and data authorities, and the creation of a digital ombudsman for expedited dispute resolution. Overall, strengthening Indonesia's digital banking regulation requires a coherent legal strategy that balances innovation, regulatory accountability, and consumer trust, ensuring that financial digitalization remains inclusive, secure, and aligned with global standards.

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