ISNU Nine-Star Multidisciplinary Journal (INS9MJ)
(eISSN: 3063-8984)
Volume 3, Number 2, September 2026 (164-179)

Digital Banks and Youth Financial Inclusion in Indonesia: Access, Literacy, Trust, and the Gap between Account Ownership and Financial Participation

Malik Ibrahim[1] Nanang Nurhakim[2] Rayyan Sakti Martuah Sihotang[3]
[123] Universitas Islam Negeri Sumatra Utara
E-mail: malikibrahim2996@gmail.com rayyansaktisihotang@gmail.com nanangnurhakim25@gmail.com

Info Articles

Article History
Received: 2026-07-18
Revised: 2026-09-15
Published: 2026-09-29

Keywords:
digital bank; financial inclusion; younger generation; financial literacy; QRIS

Abstract

Digital banks in Indonesia have grown quickly since OJK issued its digital banking regulations. National data, though, still point to low financial literacy among students and young adults. This study uses a narrative literature review to examine how digital banks have contributed to financial inclusion among Indonesia's younger generation, and what limits that contribution. The review draws on peer-reviewed articles from 2021–2026 indexed in Google Scholar, Garuda, SINTA, and DOAJ, together with statistics from OJK, Bank Indonesia, and BPS, analyzed through content analysis and thematic synthesis. Low-cost accounts, mobile services, QRIS payments, and digital savings or investment features are the main channels through which digital banks reach young users in the literature reviewed. Whether young people actually adopt these services depends on perceived ease of use, trust, and financial literacy. Where any of these is weak, adoption tends to stall. Cybersecurity risk, uneven digital literacy, infrastructure gaps between regions, and regulation that lags behind the technology all keep this access from turning into real inclusion. Access has improved. It is not the same thing as inclusion. Without stronger literacy programs, consumer protection, and risk governance, digital banking growth in Indonesia risks producing account ownership without much financial participation behind it. The behavioral, regulatory, and statistical literature on this topic has so far mostly been read separately; this review reads it together.

I. INTRODUCTION

Over the past decade, Indonesian banks have moved away from branch-based service toward fully digital business models. OJK formalized this shift through its digital banking regulatory framework, most recently consolidated in the Digital Services regulation that took effect on 22 December 2023 and replaced the earlier POJK No. 12/POJK.03/2018 on the Implementation of Digital Banking Services by Commercial Banks (OJK, 2023a). This framework defines a digital bank as an Indonesian legal-entity bank that conducts its principal business activities mainly through electronic channels, without relying on physical branches as its main point of customer interaction. Some incumbent banks converted their licenses and rebranded entirely as digital banks; other entrants built digital-native operations from the start. Regulators designed this transformation as a deliberate policy instrument, expecting the banking industry to reach population segments that conventional branch banking has historically struggled to serve.

Indonesia's financial inclusion performance shows why this transformation matters. OJK and BPS jointly conducted the 2024 National Survey of Financial Literacy and Inclusion (SNLIK) for the first time and recorded a national financial inclusion index of 75.02 percent and a financial literacy index of 65.43 percent (OJK & BPS, 2024). These figures improve on previous survey cycles, but the disaggregated data show a weakness that matters directly for this study: students (pelajar/mahasiswa) recorded one of the lowest financial literacy indices among all occupational groups, at only 56.42 percent (OJK & BPS, 2024). This is striking because the same group is also the most digitally connected and the most frequently targeted by digital financial product marketing. High digital exposure alongside comparatively

low financial literacy among young Indonesians forms the empirical tension this article addresses.

Indonesia's younger generation, usually grouped as late Millennials and Generation Z, relates to financial services differently from older cohorts. Smartphones shaped this generation's daily life from the start: mobile applications are their default interface for nearly every transaction, and they respond strongly to convenience, speed, and social validation in what they buy (Kurniawan et al., 2022; Annisa & Anggraini, 2024). Several Indonesian studies using the Technology Acceptance Model (TAM) and the Unified Theory of Acceptance and Use of Technology (UTAUT) consistently find that perceived ease of use, perceived usefulness, and social influence dominate young users' intention to adopt digital banking and digital payment instruments (Wijayanto et al., 2023; Rachma et al., 2024). Lifestyle pressures and instant gratification also shape this generation's financial behavior, though some segments show an emerging counter-trend toward frugal living and intentional saving enabled by digital access (Alim & Pratama, 2025). These behavioral characteristics need to be understood first, before any claim about how digital banks influence financial inclusion outcomes for this group, not just their intention to adopt.

Policymakers and industry actors often frame digital banks as a structural solution to financial exclusion, since they remove several classical barriers of conventional banking. Customers can open accounts remotely through electronic Know Your Customer (e-KYC) procedures, transaction costs run markedly lower than branch-based banking, and product interfaces are built for continuous engagement rather than periodic counter visits (Zefanya, 2025). These features suit a generation that is price-sensitive, time-constrained, and used to on-demand digital services. But access does not automatically produce inclusion: opening a digital banking application does not guarantee informed, sustained, and beneficial use of financial services. The international financial inclusion literature returns repeatedly to this gap between access and substantive inclusion, and the Indonesian youth context needs the same scrutiny rather than an assumption that access equals inclusion (Ozili, 2020; Pesque-Cela et al., 2021).

Empirical indicators of digital financial behavior in Indonesia confirm substantial adoption among young people, even where its depth stays uneven. Bank Indonesia reported that transactions through the Quick Response Code Indonesian Standard (QRIS) grew 226.54 percent year-on-year by mid-2024, reaching 50.50 million users and 32.71 million merchants nationwide (Bank Indonesia, 2024). By the first semester of 2025, these numbers rose further to 57 million users and 39.3 million merchants, with cumulative transaction volume reaching 6.05 billion transactions worth approximately Rp579 trillion (Bank Indonesia, 2025). More than 93 percent of QRIS merchants fall under micro, small, and medium enterprises, which ties the instrument to grassroots economic activity rather than only urban consumer spending (Bank Indonesia, 2025). Student-focused studies confirm this trend at a smaller scale: surveys among university students in Semarang, Banten, and Jambi report regular QRIS usage rates above the general population average, driven mainly by convenience and, to a lesser degree, cashback incentives (Amalia, 2025; Judijanto & Husnayetti, 2024). Together, these figures show that young Indonesians are not passive recipients of digital banking infrastructure; they are active early adopters whose behavior deserves dedicated scholarly attention.

At least eight recent Indonesian studies sit directly at the intersection of digital banking and youth financial inclusion. Annisa and Anggraini (2024) examined how financial literacy, digital literacy, and social capital shape digital bank financial inclusion among Generation Z customers in Bandung, and found that ease of use partially mediates these relationships. Kurniawan et al. (2022) reviewed the literature on digital banking's impact on Generation Z and concluded that lingering skepticism toward data security, more than usability concerns, constrains adoption. Kurniawan and Jesica (2024) surveyed university students separately and found that firm reputation and trust, not economic value or rewards, predicted digital banking adoption

intention most strongly. Natsir et al. (2023) used structural equation modeling among working adults in Jakarta and showed that financial literacy significantly mediates the relationship between financial knowledge and financial inclusion in digital banking contexts. Tatian et al. (2024) studied the payment domain and showed that attitudes, subjective norms, and perceived behavioral control significantly shape Millennials' intention to adopt QRIS in Eastern Indonesia, while infrastructural limitations remain the dominant external constraint. Rachma et al. (2024) applied the UTAUT framework to Generation Z QRIS users in Semarang and found that performance expectancy influenced financial risk tolerance and subsequent adoption most strongly. Ikmanila and Djastuti (2025) conducted a systematic literature review on digital banking's role in financial inclusion using comparative evidence from Kenya, India, and Peru, and identified limited infrastructure, low literacy, and cybersecurity risk as barriers shared across countries. Fitriyanti and Setiorini (2024) analyzed digital bank risk management from a legal perspective and linked the gap between Indonesia's high inclusion index and lower literacy index to elevated legal risk in digital banking.

These eight studies, together with the broader literature surveyed for this article, converge in some places and diverge in others. They converge on three points: nearly all empirical studies anchor their theory in technology-acceptance frameworks (TAM, UTAUT, TPB); nearly all confirm a positive, statistically significant relationship between some form of digital or financial literacy and adoption or inclusion outcomes; and nearly all, regardless of theoretical lens, flag data security and digital literacy gaps as the main barriers to deeper inclusion. They diverge just as clearly. Geographic scope ranges from single-campus surveys in Semarang or Jambi to broader urban samples in Jakarta and Bandung, which limits how far these findings generalize to the national youth population. Studies also differ in their unit of analysis: some treat digital banking and QRIS or digital payment as interchangeable, while others, such as Ikmanila and Djastuti (2025), separate digital banking institutions from broader fintech and payment instruments explicitly. Methodologically, single-site quantitative surveys using SEM-PLS dominate the literature; few studies adopt a literature review or systematic synthesis approach at the national scale, and fewer still integrate the regulatory and legal dimension alongside the behavioral adoption dimension in one analytical narrative.

This divergence marks a clear research gap. The existing Indonesian literature on digital banking and youth financial inclusion splits across three largely separate strands: behavioral-adoption studies grounded in technology acceptance theory, legal-regulatory studies examining OJK's supervisory framework, and macro-level studies relying on national survey statistics such as SNLIK and Bank Indonesia's payment system data. No study identified so far brings these three strands together into one literature-based account of how digital banks specifically advance financial inclusion among Indonesia's younger generation while also accounting for the structural challenges that condition this relationship. Most available reviews, including Ikmanila and Djastuti (2025), stay international in scope and treat Indonesia as one comparator case rather than the primary subject of analysis.

This article addresses that gap through an integrative narrative literature review focused explicitly on the Indonesian youth segment, drawing empirical adoption studies, regulatory-legal analysis, and official national statistics into a single coherent framework. Rather than test a new behavioral model, it maps where existing evidence converges, where it remains contested, and where future empirical inquiry is most needed. In doing so, it separates digital banking as a technological access channel from financial inclusion as a substantive, multidimensional outcome, a distinction that much of the existing Indonesian literature tends to blur.

Building on this background, this article aims to: (1) examine the developmental trajectory and regulatory architecture of digital banking in Indonesia; (2) analyze the conceptual dimensions of financial inclusion as applied to the youth

segment; (3) synthesize critically how digital banks contribute to expanding financial inclusion among young Indonesians; (4) identify the main challenges that constrain this contribution; and (5) draw policy and practical recommendations for regulators, industry actors, and future researchers from the patterns and gaps this literature synthesis identifies.

A. Theoretical Framework: From Access to Capability

This review is guided by a framework that distinguishes three layers of financial inclusion. The first is access: the availability of accounts and services at reasonable cost and convenience. The second is usage: the active and regular use of services for saving, paying, borrowing, and insuring. The third is quality and welfare: whether services are suitable, safe, and fairly priced, and whether their use improves financial well-being and resilience (Ozili, 2020; Pesque-Cela et al., 2021). Global evidence shows that digital payments and accounts have expanded access and usage rapidly in developing economies, but that gaps in financial health and resilience persist (Demirgüç-Kunt et al., 2022). Financial literacy, defined as the ability to understand and apply financial concepts in decisions, is associated with better saving, borrowing, and investment behaviour and is therefore a key mediator between usage and welfare (Lusardi & Mitchell, 2014).

The framework also draws on behavioural economics. Thaler and Sunstein (2008) show that the design of choices, or choice architecture, strongly influences decisions, so that defaults, reminders, and framing can encourage beneficial behaviours such as saving. Digital banks control the choice architecture of their applications and can therefore either support or undermine the financial well-being of young users through design. This insight connects the behavioural adoption literature with the welfare dimension of inclusion and informs the analysis of how digital banks might move from expanding access to deepening inclusion.

II. RESEARCH METHODS

This study employs a narrative literature review (kajian literatur naratif) as its research design, a qualitative-interpretive approach suited to synthesizing and critically evaluating a heterogeneous body of prior research rather than testing a single hypothesis through primary data collection. The narrative review approach was selected over a systematic literature review (SLR) or meta-analysis because the objective of this study is conceptual integration across methodologically diverse strands of literature, namely behavioral-adoption studies, legal-regulatory analyses, and macro-statistical reports, which a strictly protocol-driven SLR would treat as incommensurable evidence types.

The research adopts a qualitative descriptive-analytical approach. Data were collected through documentary search rather than fieldwork, focusing exclusively on secondary sources already published in academic and official channels. Four databases were systematically searched: Google Scholar, Garuda (Garba Rujukan Digital), the SINTA (Science and Technology Index) journal portal, and DOAJ (Directory of Open Access Journals). These were supplemented with official statistical and regulatory publications issued by OJK, Bank Indonesia, and BPS, which were treated as primary documentary evidence for quantitative claims regarding financial inclusion indices and digital payment growth.

Search keywords were constructed in both English and Indonesian to maximize retrieval across these databases, including combinations such as "digital bank" AND "financial inclusion" AND "Indonesia"; "bank digital" AND "inklusi keuangan" AND "generasi muda"; "QRIS adoption" AND "Generation Z"; "mobile banking" AND "youth" AND "Indonesia"; and "OJK" AND "digital banking regulation". Boolean operators and phrase matching were used where database functionality permitted.

Inclusion criteria were defined as follows: (1) articles published in peer-reviewed journals or indexed conference proceedings between 2021 and 2026; (2) studies whose empirical or conceptual focus directly addresses digital banking, digital payment instruments, or financial inclusion in the Indonesian context, or whose theoretical contribution on financial inclusion is foundational enough to inform the Indonesian

case; (3) studies involving or explicitly discussing the younger generation (Millennials and/or Generation Z) as a subject population or analytical focus; and (4) full-text accessibility in English or Indonesian. Exclusion criteria removed: (1) non-peer-reviewed sources such as opinion pieces, blog posts, and unverified online articles; (2) studies unrelated to the intersection of digital financial services and financial inclusion; (3) duplicate publications or near-identical conference-to-journal reprints, in which case the more complete version was retained; and (4) studies published before 2021 unless cited as foundational theoretical references (e.g., classical financial inclusion or technology-acceptance theory), in which case they were used strictly as supporting, non-empirical citations.

Following this screening process, a total of 27 sources were retained as the primary evidentiary basis for this review, comprising empirical quantitative studies (the majority, primarily employing SEM-PLS), normative-legal studies, systematic and narrative literature reviews, and official statistical publications. The data analysis technique applied was content analysis combined with thematic literature synthesis. Each retained source was coded according to five recurring themes that emerged inductively during the screening process: (1) digital bank adoption behavior among youth; (2) QRIS and digital payment adoption; (3) regulatory and cybersecurity challenges; (4) the conceptual and theoretical basis of financial inclusion; and (5) fintech-driven inclusion in Islamic and underserved-market contexts. Within each theme, findings were compared for convergence and divergence in methodology, sample characteristics, and substantive conclusions, following which the themes were synthesized into the integrated discussion presented in the following section.

The review has limitations that should be acknowledged at the outset. As a narrative rather than systematic review, it does not apply a fully reproducible protocol, and the selection of sources involves interpretive judgment. The reliance on accessible databases may under-represent studies published in journals not indexed in these databases. Many of the reviewed empirical studies use convenience samples and cross-sectional designs, which limits the strength of conclusions about causal effects. These limitations are mitigated by triangulation across behavioural, legal, and statistical sources, but they mean that the synthesis should be read as an integrative interpretation of the current evidence rather than as a definitive estimate of effects.

III. RESULTS

The literature search and screening process described above yielded 27 sources meeting the inclusion criteria, distributed across the five thematic categories as follows: nine sources addressed digital bank and mobile banking adoption behavior among youth; six sources focused specifically on QRIS and digital payment adoption; five sources addressed regulatory, legal, and cybersecurity dimensions of digital banking; four sources provided the conceptual and theoretical foundation of financial inclusion; and three sources examined fintech-driven inclusion in Islamic finance or underserved-market contexts. Chronologically, the literature shows a clear upward trend in publication volume from 2021 to 2025, consistent with the accelerating regulatory and market development of digital banking in Indonesia over the same period, with the highest concentration of empirical studies published in 2024.

Methodologically, 16 of the 27 sources employed quantitative survey-based designs, predominantly using Structural Equation Modeling with Partial Least Squares (SEM-PLS), most frequently anchored in the Technology Acceptance Model (TAM), the Unified Theory of Acceptance and Use of Technology (UTAUT), or the Theory of Planned Behavior (TPB). Six sources employed normative-juridical or legal-doctrinal methods, reflecting the strong regulatory dimension of this research area. Three sources were themselves literature reviews (systematic or narrative), and two sources combined qualitative description with participatory or case-study elements. This methodological profile confirms the pattern identified in the Introduction: the field is dominated by single-site behavioral surveys,

while integrative literature-based syntheses remain comparatively scarce.

To organize this body of evidence for critical discussion, Table 1 presents a structured synthesis of fourteen representative studies selected from the 27 retained sources, prioritized for their direct relevance to the digital bank-youth financial inclusion nexus. The table summarizes each study and its principal findings relevant to the present review.

Table 1. Synthesis of Selected Literature on Digital Banking and Youth Financial Inclusion

Study	Key findings
Annisa & Anggraini (2024)	Financial literacy, digital literacy, and social capital significantly affect digital bank financial inclusion among Generation Z in Bandung; ease of use is a significant mediator.
Kurniawan et al. (2022)	Generation Z adoption of digital banks is constrained mainly by scepticism about data security rather than usability; institutional trust is critical.
Kurniawan & Jesica (2024)	Reputation and trust predict digital bank adoption more strongly than economic value or rewards; habit, performance expectancy, and social influence shape intention.
Amalina et al. (2025)	Interactive flipbooks and contextual learning significantly improve financial inclusion knowledge and participation among senior high school students.
Alim & Pratama (2025)	Frugal living and digital financial inclusion jointly and positively influence Generation Z saving intention.
Nurkholik (2023)	Bibliometric mapping identifies growth and thematic gaps in research on millennial digital financial literacy; digital financial literacy is a key precondition for substantive inclusion.
Fadillah (2021)	Fintech accelerates financial inclusion of unbankable groups, including Generation Z in Greater Jakarta, supporting Islamic banking roadmap targets.
Natsir et al. (2023)	Financial literacy significantly mediates the effect of financial knowledge on financial inclusion in mobile banking.
Tatian et al. (2024)	Attitudes, subjective norms, and perceived behavioural control affect QRIS adoption intention among millennials in Eastern Indonesia; barriers stem mainly from infrastructure.
Rachma et al. (2024)	UTAUT factors increase financial risk tolerance, which mediates QRIS adoption among Generation Z in Semarang.
Judijanto & Husnayetti (2024)	Financial literacy, digital literacy, and information security positively affect QRIS adoption among students in Banten.
Ikmanila & Djastuti (2025)	Cases from Kenya, India, and Peru show digital banks expand inclusion through access, affordability, and convenience; common barriers are low digital literacy, infrastructure gaps, and cyber risk.
Fitriyanti & Setiorini (2024)	The gap between the inclusion index and the literacy index creates significant legal risk exposure in digital banking, requiring parallel strengthening of risk management and consumer protection.
Riska & Sulubara (2024)	OJK faces supervisory challenges from cyber risk, the digital divide, and dependence on third-party technology providers, alongside opportunities to expand inclusion.

IV. DISCUSSION

The following discussion is organized into five analytical strands corresponding to the themes identified during the literature synthesis: the development of digital banking in Indonesia, the conceptual basis of financial inclusion, the role of digital banks in advancing youth financial inclusion, the challenges constraining that role, and a critical cross-cutting synthesis of the reviewed literature.

A. Digital Banking Development in Indonesia

Digital banking in Indonesia has evolved through three overlapping phases: the introduction of internet and mobile banking as supplementary channels for conventional banks in the 2000s and 2010s; the emergence of digital-native bank licenses and large-scale incumbent transformations from approximately 2020 onward; and the current phase of regulatory consolidation, marked by OJK's Digital Services regulation that came into force in December 2023 and superseded the earlier 2018 framework (OJK, 2023a). This regulatory evolution reflects a shift in OJK's posture from merely permitting digital channels as an extension of traditional banking toward treating digital delivery as a bank's principal mode of operation, subject to its own risk-management, governance, and consumer-protection requirements (Zefanya, 2025; Riska & Sulubara, 2024).

The pace of this transformation has been substantial. Banking sector statistics indicate that growth in digital transaction channels has consistently outpaced growth in physical branch networks, with several incumbent banks actively converting branch infrastructure into so-called smart branches as transactional volume migrates to mobile applications. This trend is corroborated by national payment system data: Bank Indonesia recorded QRIS transaction growth of 226.54 percent year-on-year by mid-2024, reaching 57 million users and 39.3 million merchants by the first semester of 2025 (Bank Indonesia, 2024;

2025). While QRIS itself is a payment-system instrument rather than a digital bank per se, its growth trajectory is illustrative of the broader digital-financial-services ecosystem within which digital banks operate and from which they draw much of their customer engagement model.

Critically, however, the existing literature tends to describe this growth in primarily celebratory terms, emphasizing transaction volume and user counts as straightforward proxies for progress. Fitriyanti and Setiorini (2024) offer a necessary corrective by highlighting that rapid growth in digital banking transaction volume has occurred alongside a comparatively low financial literacy index, creating latent legal and operational risk that pure growth statistics obscure. This suggests that the developmental narrative of Indonesian digital banking cannot be assessed by adoption metrics alone; it must be read jointly against literacy, regulatory enforcement capacity, and consumer-protection infrastructure, a more cautious framing than much of the industry-oriented literature adopts.

B. The Concept of Financial Inclusion

Financial inclusion, as conceptualized in the international literature, is a multidimensional construct encompassing access, usage, quality, and welfare impact, rather than a single binary state of being banked or unbanked (Ozili, 2020). Pesque-Cela et al. (2021), through a systematic review and confirmatory factor analysis, demonstrate that most existing financial inclusion indices conflate the access and usage dimensions, producing measures that are biased toward supply-side and quantitative indicators while underrepresenting whether financially included individuals actually experience improved financial well-being. This conceptual caution is directly relevant to Indonesia's SNLIK indices: a national financial inclusion figure of 75.02 percent captures usage of formal financial products within the past twelve months, but does not by itself indicate whether that usage is informed, sustained, or beneficial (OJK & BPS, 2024).

Within this conceptual frame, financial literacy functions as a necessary, though insufficient, precondition for substantive inclusion. Khan et al. (2022), synthesizing more than ten thousand studies on the financial literacy-inclusion nexus, find that financial literacy's contribution to inclusion operates most strongly when paired with accessible product design and supportive regulatory environments, rather than as an independent driver. Applied to the Indonesian youth context, this implies that the comparatively low financial literacy index recorded among students (56.42 percent) does not necessarily predict equally low financial inclusion, since digital banks and payment instruments may lower the practical literacy threshold required for basic usage (OJK & BPS, 2024). This is consistent with several adoption studies reviewed in this article, in which ease of use was found to substitute, at least partially, for financial literacy as a driver of digital banking uptake (Annisa & Anggraini, 2024).

At the same time, indicators of inclusion specific to financial well-being and behavioral change, rather than mere transaction counts, remain underdeveloped in the Indonesian literature. Several reviewed studies measure adoption intention or usage frequency as their dependent variable (Tatian et al., 2024; Judijanto & Husnayetti, 2024), but few measure downstream outcomes such as savings accumulation, debt behavior, or financial resilience among young users. This represents a conceptual gap between how financial inclusion is theorized internationally and how it is operationalized in the Indonesian digital banking literature, a gap that the discussion below revisits when assessing the depth, rather than only the breadth, of digital banks' contribution to youth inclusion.

C. The Role of Digital Banks in Advancing Youth Financial Inclusion

Synthesizing the reviewed literature, digital banks appear to advance youth financial inclusion in Indonesia through at least six interrelated mechanisms. First, electronic account opening through e-KYC removes the geographic and administrative friction historically associated with branch visits, a feature repeatedly identified as a primary motivator for adoption among students and young professionals (Kurniawan & Jesica, 2024; Zefanya, 2025). Second, the cost structure of digital banks, characterized by

minimal or zero account-maintenance fees and lower transfer costs, aligns closely with the price sensitivity that characterizes youth financial behavior, reinforcing adoption beyond initial trial use (Natsir et al., 2023).

Third, application-based service design, built around continuous engagement features such as push notifications, goal-based savings pockets, and gamified budgeting tools, sustains usage in ways that traditional internet banking interfaces historically did not, a pattern consistent with the influence of habit, performance expectancy, and social influence identified in UTAUT-based studies of Generation Z (Kurniawan & Jesica, 2024). Fourth, the integration of digital banking with QRIS and similar instruments creates a seamless transaction ecosystem in which young users move fluidly between saving, paying, and transferring within a single application environment, a pattern visible in the rapid growth of QRIS usage among university students in Semarang, Banten, and Jambi (Rachma et al., 2024; Judijanto & Husnayetti, 2024).

Fifth, several digital banks have begun layering low-denomination digital investment and structured savings products onto their core offerings, lowering the entry threshold for youth participation in capital markets and longer-term savings instruments; while direct empirical evidence on this mechanism specific to Indonesian digital banks remains limited within the reviewed literature, the behavioral precondition for it, namely an emerging frugal-living and intentional-saving orientation among Gen Z, is documented by Alim and Pratama (2025). Sixth, and perhaps most consequentially, repeated exposure to well-designed digital banking interfaces appears to function as an informal literacy mechanism in itself: Amalina et al. (2025) show that combining digital tools with structured contextual learning produced measurable gains in financial knowledge and account-opening behavior among senior high school students, suggesting that digital banks can be literacy-generating rather than merely literacy-dependent.

Taken together, these mechanisms support the claim that digital banks meaningfully widen the breadth of financial inclusion among Indonesia's younger generation. However, the strength of the evidence varies by mechanism: the access and cost-efficiency mechanisms are well supported by multiple independent studies using different samples and methods, whereas the literacy-generation and investment-democratization mechanisms rest on comparatively thinner and more localized evidence. This asymmetry is an important qualification that the existing literature, taken individually, does not always make explicit, but which becomes visible once the studies are read together.

D. Regulatory Architecture for Consumer and Data Protection

The contribution of digital banks to inclusion is shaped by the regulatory framework for consumer and data protection. OJK Regulation No. 21 of 2023 sets requirements for digital services by commercial banks, including electronic onboarding, authentication, and risk management (OJK, 2023a). OJK Regulation No. 22 of 2023 establishes principles of consumer and public protection in the financial services sector, including adequate education, information transparency, fair treatment, protection of consumer assets and data, and effective complaint handling (OJK, 2023b). Law No. 27 of 2022 on Personal Data Protection classifies financial data as specific personal data and imposes obligations on controllers, including banks, to protect data and notify breaches (Republic of Indonesia, 2022). Together, these instruments provide a legal basis for the trust on which youth adoption depends, as the reviewed adoption studies consistently emphasise.

The literature suggests, however, that the effectiveness of these instruments depends on implementation. Hasanah et al. (2026) find that gaps persist between legal requirements for data protection and practice in mobile banking, particularly where banks rely on third-party technology providers. Fitriyanti and Setiorini (2024) emphasise that the gap between inclusion and literacy increases legal risk because consumers who do not understand products are more vulnerable to unsuitable services and fraud. For young users, who are often first-time customers, strong enforcement of disclosure,

suitability, and complaint-handling rules is therefore particularly important.

E. Islamic Digital Banking and Inclusion

Islamic digital banking is a further dimension of the Indonesian landscape. Islamic banks have launched digital services and applications, and digital channels are seen as a means of reaching Muslim youth who prefer sharia-compliant services but have limited access to branches. Fadillah (2021) finds that financial technology has accelerated the inclusion of unbankable groups, including young people, and contributed to the goals of the Islamic banking development roadmap. Fauzi (2024) analyses the impact and regulation of fintech on financial inclusion and argues that regulation must balance innovation with consumer protection. The 2023 cyber incident affecting a large Islamic bank showed, however, that operational resilience is critical to maintaining the trust of digitally engaged customers. For Islamic digital banking, inclusion also carries a values dimension: services should embody the principles of fairness, transparency, and avoidance of exploitation that underpin Islamic finance, which can strengthen trust among young Muslim users.

F. Business Models and Incentives of Digital Banks

Understanding the contribution of digital banks to inclusion also requires attention to their business models. Digital banks typically incur high customer acquisition costs and compete for users through promotions, high savings rates, cashback, and fee waivers. Their revenue depends on converting users into profitable customers, often through lending, including consumer credit and partnerships with platforms offering pay-later products. These incentives can align with inclusion when they encourage regular use and saving, but they can also encourage aggressive marketing of credit to young users who are profitable as borrowers. Zefanya (2025) documents rising non-performing loans and opaque pricing in parts of the digital lending ecosystem, which suggests that growth-oriented incentives have produced risks.

Regulation can shape these incentives. Requirements for responsible lending, transparent pricing, and fair marketing, together with supervisory attention to the credit quality and complaint profiles of young customers, can discourage business models that profit from consumer vulnerability. At the same time, digital banks that build long-term relationships with young customers have an interest in their financial health, since financially resilient customers are more valuable over a lifetime. Aligning commercial incentives with welfare is therefore possible, but it requires regulatory expectations and transparency.

G. Lessons from International Experience

International experience offers instructive comparisons. Ikmanila and Djastuti (2025) review cases from Kenya, India, and Peru, where digital financial services expanded inclusion through mobile money, low-cost accounts linked to national identification, and interoperable payment systems, while facing barriers of digital literacy, infrastructure, and cyber risk. Indonesia's QRIS and fast payment infrastructure resemble the interoperable public infrastructure that has supported inclusion elsewhere. Ozili (2018) cautions, however, that digital finance can expand inclusion while also creating risks to stability and consumer welfare, particularly where regulation does not keep pace. The international lesson is that public infrastructure and regulation shape outcomes as much as private innovation, and that the depth of inclusion depends on complementary investments in literacy and protection.

H. Savings, Investment, and Long-Term Inclusion

A further question concerns whether digital banks help young people build long-term financial assets. Digital banks offer goal-based savings pockets, automatic transfers, and access to low-denomination investment products, features that can lower the barriers to saving and investing. Alim and Pratama (2025) document a frugal-living orientation and saving intention among some Generation Z users, suggesting that a segment of young people actively seeks tools for saving. If digital banks design their products to support this orientation, for example through default savings rules, visible progress toward goals, and education about risk and return, they can contribute to long-

term inclusion. Evidence on actual savings accumulation among young digital bank users in Indonesia remains scarce, however, and the risk that investment features expose inexperienced users to speculative products requires attention to suitability and disclosure.

I. Implementation Challenges

The contribution of digital banks to youth financial inclusion is conditioned by at least five interrelated challenges identified across the reviewed literature. The most frequently cited is cybersecurity and data-protection risk. Hasanah et al. (2026) demonstrate that while Indonesia's legal framework, comprising the Personal Data Protection Law, the Electronic Information and Transactions Law, and OJK Regulation No. 11/POJK.03/2022, mandates explicit consent and technical safeguards, implementation gaps persist due to banks' reliance on third-party technology partnerships. High-profile incidents, such as the 2023 cyber attack and service disruption affecting a large Islamic bank, illustrate the real-world materialization of this risk and its capacity to undermine public trust precisely among the digitally engaged youth segment that digital banks most depend upon.

Second, uneven digital literacy continues to constrain optimal usage even where access is technically available. Riska and Sulubara (2024) identify digital literacy gaps, alongside the digital divide and dependence on third-party technology providers, as central challenges facing OJK's supervisory mandate in the digitalization era. This finding nuances the earlier discussion of literacy substitution: while ease-of-use design can lower the literacy threshold for basic transactions, it does not eliminate the literacy requirement for safe and informed use, particularly regarding fraud recognition, fee structures, and credit-product risk.

Third, infrastructural disparity remains a binding constraint outside Java's major urban centers. Tatian et al. (2024) note that even where individual behavioral intention to adopt QRIS is positive, inadequate digital infrastructure in Eastern Indonesia suppresses actual adoption, indicating that supply-side infrastructure gaps, rather than demand-side reluctance, are the dominant barrier in less-developed regions. Fourth, public trust remains fragile and unevenly distributed: studies consistently identify trust and institutional reputation as decisive adoption factors (Kurniawan & Jesica, 2024), implying that any erosion of trust through security incidents or service failures carries outsized consequences for continued usage among a generation with low switching costs between digital financial providers.

Fifth, regulatory adaptation continues to lag the pace of product innovation. Zefanya (2025) documents that while OJK's regulatory sandbox and e-KYC frameworks have improved credit accessibility, they have simultaneously produced rising non-performing loans, opaque interest-rate structures, and compliance gaps in anti-money laundering oversight, indicating that regulatory frameworks designed primarily to enable innovation have not yet fully matured into frameworks that also contain its risks. For the youth segment specifically, this regulatory lag is concerning because young, financially inexperienced users are disproportionately exposed to products whose risk characteristics are not yet fully transparent or well-supervised.

J. The Darker Side of Convenience

The literature also points to risks that accompany the convenience of digital banking for young users. Frictionless digital payments reduce the psychological cost of spending, and Dewi (2024) finds that digital payment use is associated with consumptive behaviour among Generation Z. The integration of digital banking with pay-later facilities and online credit products can extend this effect to borrowing, potentially leading to over-indebtedness among young users with limited income and financial experience. Cashback and discount incentives, which Amalia (2025) identifies as drivers of QRIS use among students, encourage transactions but may also encourage spending that users would not otherwise undertake.

These findings complicate the narrative of inclusion as an unqualified good. Inclusion that increases consumption financed by credit, without corresponding increases in saving or resilience, may harm rather than help young users. The

welfare dimension of inclusion therefore requires attention to how digital banks design incentives and credit offerings for young users. Behavioural tools can be used in either direction: defaults and nudges can encourage saving and budgeting, just as frictionless design and promotions encourage spending (Thaler & Sunstein, 2008). Regulatory and industry standards for responsible design, such as clear disclosure of credit costs, cooling-off periods, and default savings features, could help align digital banking with the welfare of young users.

K. A Breadth–Depth Framework for Evaluating Inclusion

The synthesis suggests a framework for evaluating digital banks' contribution to youth inclusion along two axes: breadth, the extent of access and usage, and depth, the extent to which usage is informed, safe, and welfare-enhancing. Current evidence indicates high and rising breadth, reflected in account ownership, QRIS adoption, and digital transactions, but uneven and under-measured depth.

Table 2. Breadth and Depth Indicators of Youth Financial Inclusion

Dimension	Breadth indicators	Depth indicators
Access and usage	Account ownership; active users; QRIS transactions	Regular saving; diversified product use
Literacy and capability	Awareness of products	Understanding of fees, risks, and credit costs; fraud recognition
Protection and trust	Adoption intention; trust measures	Complaint resolution; losses from fraud; data incidents
Welfare	Transaction frequency	Savings accumulation; sustainable debt; resilience to shocks

Table 2 proposes indicators for both dimensions. Measuring depth requires data that most adoption studies do not collect, such as savings balances, debt burdens, and experiences of fraud. Regulators and researchers could incorporate such indicators into national surveys and supervisory reporting, so that policy can track whether digital banking is improving the financial well-being of young people and not only their access.

L. Regional and Socioeconomic Disparities

The reviewed studies concentrate on urban students and young professionals in Java and a few other cities. This concentration obscures disparities that are likely to be significant. Young people in rural areas and in Eastern Indonesia face weaker connectivity, fewer merchants accepting digital payments, and lower incomes, while those outside formal education may have less exposure to financial education and digital services. Tatian et al. (2024) show that infrastructure, rather than attitudes, is the dominant barrier to QRIS adoption in Eastern Indonesia, suggesting that the behavioural determinants emphasised in urban studies may matter less where basic infrastructure is lacking. Socioeconomic status also shapes the value of inclusion: for low-income youth, access to low-cost accounts and payments may have significant welfare benefits, but exposure to credit and consumptive incentives may also carry greater risks.

Addressing these disparities requires both infrastructure investment and targeted programmes. Expanding connectivity and merchant acceptance outside major cities, supporting agents and assisted digital services, and designing products suited to irregular incomes would extend the benefits of digital banking to youth who are currently underserved. Research that samples beyond urban campuses is essential to understand these groups.

M. Gender Dimensions

Gender is another dimension largely absent from the reviewed literature. Global data show that gender gaps in account ownership have narrowed in many developing economies with the spread of digital finance, but differences remain in usage, borrowing, and financial resilience (Demirgüç-Kunt et al., 2022). Young women may face different constraints, including lower incomes, greater responsibilities for household spending, and different exposure to online risks. Digital banks can potentially reduce some barriers, for example by allowing account opening without travel, but design and marketing may also reproduce gendered patterns. Future Indonesian research should disaggregate findings by gender to identify whether digital banking narrows or widens gaps among young people.

N. Trust as the Bridge between Access and Depth

Across the reviewed studies, trust emerges as a central variable linking access and depth. Kurniawan et al. (2022) and Kurniawan and Jesica (2024) find that trust and institutional reputation are stronger predictors of adoption than economic incentives, and Judijanto and Husnayetti (2024) find that information security influences QRIS adoption among students. Trust matters not only for initial adoption but also for the depth of use: young users who trust a digital bank are more likely to keep savings in it, use a wider range of services, and rely on it for important transactions, while those who distrust it may limit use to small payments. Trust, in turn, depends on security, transparency, fair treatment, and effective redress when problems arise.

This observation connects the behavioural literature with the regulatory literature. Consumer protection and data protection rules are not merely constraints on digital banks; they are foundations of the trust that drives deeper inclusion. Incidents that undermine trust, such as data breaches and service disruptions, therefore have consequences beyond the immediate harm, since they can reduce the willingness of young users to deepen their engagement with digital finance. Investing in security and redress is thus an investment in the depth of inclusion.

O. Critical Synthesis of the Literature

Reading the fourteen synthesized studies in Table 1 alongside the broader reviewed literature reveals clear patterns of convergence, divergence, and developmental change over time. In terms of convergence, virtually all empirical studies confirm a positive association between some combination of literacy, trust, and ease of use on one hand, and digital banking or QRIS adoption on the other, regardless of which specific technology-acceptance framework is applied. There is also broad agreement that cybersecurity and digital-literacy gaps constitute the principal barriers to deeper inclusion, a conclusion reached independently by behavioral researchers, legal scholars, and systematic reviewers alike.

Divergence is most visible in scope and unit of analysis. Behavioral studies are overwhelmingly single-city or single-campus in scope (Bandung, Jakarta, Semarang, Banten, Jambi), which constrains generalizability to the national youth population and may overstate the role of urban-specific factors such as merchant density and 4G/5G coverage. Legal-regulatory studies, by contrast, operate at the national policy level but rarely incorporate primary behavioral data, producing a structural blind spot regarding how regulatory provisions are actually experienced by young users in practice. Comparative international reviews such as Ikmanila and Djastuti (2025) offer valuable cross-country benchmarking but treat Indonesia as one case among several rather than as a focal subject, limiting the depth of country-specific insight available from that strand alone.

Examined chronologically, the literature also shows clear developmental change: earlier studies (2021-2022) focused predominantly on fintech and peer-to-peer lending as the primary vehicles of inclusion, whereas studies from 2023 onward increasingly center on digital banks and QRIS as the dominant inclusion mechanisms, mirroring the regulatory consolidation that occurred over the same period. This shift suggests that the Indonesian digital financial inclusion literature is still in the process of catching up conceptually with a rapidly moving regulatory and market landscape, reinforcing the need for synthesis work of the kind undertaken in this article.

The research gap identified in the Introduction is thus substantiated by this synthesis: no single reviewed study integrates the behavioral, legal-regulatory, and macro-statistical strands into one coherent account focused specifically on Indonesian youth. The contribution of the present article is precisely this integration. By reading these three strands together, this review is able to make a claim that none of the individual strands fully supports on its own, namely that digital banks in Indonesia are succeeding in widening the breadth of youth financial inclusion considerably faster than they are deepening its substantive quality, and that closing this breadth-depth gap, rather than further expanding access alone, should become the central policy and research priority going forward.

V. CONCLUSION AND RECOMMENDATIONS

A. Conclusion

This narrative literature review set out to examine how digital banks contribute to financial inclusion among Indonesia's younger generation and what challenges condition that contribution. With respect to the first objective, the reviewed literature shows that digital banking in Indonesia has matured rapidly under an evolving OJK regulatory framework, moving from a supplementary channel within conventional banks toward an independent, digitally native banking model. With respect to the second and third objectives, this review finds that digital banks advance youth financial inclusion principally by lowering access costs and administrative friction, embedding services within continuously engaging mobile applications, integrating with QRIS and other payment instruments, and, in some documented cases, functioning as an informal literacy-generating mechanism rather than merely a literacy-dependent one.

With respect to the fourth objective, the review identifies five interrelated challenges, cybersecurity and data-protection risk, uneven digital literacy, infrastructural disparity, fragile public trust, and lagging regulatory maturity, that collectively constrain the depth, though not necessarily the breadth, of digital banks' contribution to inclusion. The central theoretical contribution of this review is the identification of a breadth-depth gap: digital banks have been considerably more successful at expanding access to financial services among Indonesian youth than at ensuring that this access translates into informed, safe, and welfare-enhancing financial behavior. This distinction extends the existing literature, which has tended to treat access and substantive inclusion as functionally equivalent.

Practically, this review contributes an integrated, Indonesia-focused synthesis that bridges the previously fragmented behavioral, legal-regulatory, and macro-statistical strands of the literature, offering a more complete evidentiary basis than any single strand provides on its own. The implications of these findings extend to financial education policy, digital bank product design, and regulatory supervision, each of which is addressed in the recommendations that follow.

The broader implication of this review is that Indonesia's financial inclusion strategy for young people should shift its emphasis from expanding access, which digital banks have largely achieved in urban areas, to deepening inclusion through literacy, protection, responsible design, and welfare-oriented measurement. Digital banks are well positioned to contribute to this shift because they control the interfaces through which young people experience finance. Whether they do so will depend on regulatory expectations, industry incentives, and the evidence available to hold them accountable.

B. Implications for Measuring Inclusion

The breadth–depth distinction has implications for how financial inclusion is measured in Indonesia. National surveys measure inclusion primarily by the use of formal financial products within a reference period, and literacy by knowledge, skills, confidence, attitudes, and behaviour (OJK & BPS, 2024). Adding indicators of financial health, such as the ability to cover an emergency expense, regular saving, and debt burden, would allow policymakers to assess whether inclusion translates into well-being. Supervisory data from digital banks, including complaint statistics, fraud losses, and the distribution of credit among young customers, could complement survey data. Such measurement would support evidence-based policy that targets the depth of inclusion rather than relying on access indicators alone.

C. The Role of Schools and Universities

Schools and universities occupy a strategic position for deepening youth inclusion because they reach young people before and during their first independent financial decisions. Amalina et al. (2025) show that contextual learning with interactive tools improves financial knowledge and participation among senior high school students, and Nurkholik (2023) identifies digital financial literacy as a key precondition for substantive inclusion. Integrating practical digital financial literacy into curricula, including budgeting with digital tools, understanding credit

costs, recognising fraud, and protecting personal data, would complement the access provided by digital banks. Universities can also serve as sites for partnerships with banks and regulators to pilot responsible products and evaluate their effects on students' financial well-being.

Industry self-regulation can complement public regulation. Associations of digital banks and payment providers could adopt codes of conduct on responsible marketing to young people, transparent pricing, and fraud prevention, and could share data on fraud patterns to protect users across institutions. Such codes would signal commitment to the welfare of young customers and could build the trust on which deeper inclusion depends.

D. Directions for an Integrated Policy Agenda

Bringing these strands together suggests an integrated policy agenda with four elements. The first is infrastructure and access beyond urban centres, so that the breadth of inclusion extends to all young people. The second is literacy and capability, delivered through schools, universities, and in-application tools, so that young users understand and manage the services they use. The third is protection and trust, through enforcement of data protection, consumer protection, and responsible lending rules, and through accessible redress. The fourth is measurement and accountability, through indicators of financial health and supervisory reporting that track the depth of inclusion. These elements are mutually reinforcing: access without capability risks harm, capability without protection leaves users exposed, and neither can be assessed without measurement.

E. Recommendations

Based on the findings synthesized in this review, several recommendations are proposed. For OJK, this review recommends accelerating the harmonization of digital banking risk-management regulations with parallel personal-data-protection and anti-money-laundering frameworks, alongside strengthening supervisory capacity specifically directed at smaller digital banks that may lack the technical resources of larger incumbents (Fitriyanti & Setiorini, 2024; Erlangga & Abdurrahman, 2025). For Bank Indonesia, continued investment in QRIS infrastructure expansion beyond Java, alongside targeted communication campaigns addressing literacy gaps identified in underserved regions, would help close the infrastructural divide highlighted by Tatian et al. (2024).

For the national government, this review recommends integrating digital financial literacy more formally into secondary and tertiary education curricula, building on the demonstrated effectiveness of structured contextual learning interventions such as that documented by Amalina et al. (2025), rather than relying solely on industry-led financial education campaigns. For the digital banking industry, product design should move beyond engagement-oriented features toward literacy-embedded design, such as in-application risk disclosures and behavioral nudges toward savings rather than consumption, to help convert breadth of access into depth of financial well-being.

For academics and future researchers, this review recommends three priority directions: first, multi-regional and longitudinal studies that move beyond single-campus or single-city samples to assess generalizability across Indonesia's diverse digital infrastructure landscape; second, research that operationalizes financial inclusion through welfare-oriented outcome measures, such as savings behavior, debt sustainability, and financial resilience, rather than adoption intention alone; and third, integrative studies that explicitly combine behavioral, legal-regulatory, and macro-statistical evidence, following the synthesis approach demonstrated in this review, to maintain pace with Indonesia's rapidly evolving digital banking landscape.

REFERENCES

Alim, A., & Pratama, R. (2025). Exploring the role of frugal living and digital financial inclusion to saving's intention within Indonesia's Gen Z. *Jurnal Manajemen, 29*(2).

Amalia, V. (2025). Cashback and discounts in promoting sustainable digital transactions among students: A QRIS case study. *Journal of Economic Education, 14*(1), 15–29.

Amalina, E. N., et al. (2025). Enhancing Gen Z's digital financial inclusion through interactive

flipbooks and contextual learning: A participatory action research. *International Journal of Research and Community Empowerment, 3*(2), 48–57.

Annisa, D. T., & Anggraini, B. F. (2024). The influence of financial literacy, digital literacy, and social capital on digital bank financial inclusion through ease of use as an intervening variable. *International Journal of Social Science and Human Research, 7*(10), 7841–7855.

Bank Indonesia. (2024). *Transaksi QRIS melonjak 226,54 persen, revolusi pembayaran digital di Indonesia*. Bank Indonesia.

Bank Indonesia. (2025). *QRIS Jelajah Indonesia 2025 dorong digitalisasi dengan wisata budaya*. Bank Indonesia.

Demirgüç-Kunt, A., Klapper, L., Singer, D., & Ansar, S. (2022). *The Global Findex Database 2021: Financial inclusion, digital payments, and resilience in the age of COVID-19*. World Bank. https://doi.org/10.1596/978-1-4648-1897-4

Dewi, A. A. (2024). The effect of digital payment on Generation Z's consumptive behaviour. *International Journal Administration, Business and Organization, 5*(3), 45–53.

Erlangga, F., & Abdurrahman, L. (2025). Evaluation of cybersecurity implementation in the master plan for information technology (RITI) of Indonesian banking in the digital era. *Jurnal Economic Resource, 8*(1), 446–458.

Fadillah, A. Z. (2021). Acceleration of financial technology growth towards inclusiveness of unbankable society in achieving the vision of the Islamic banking roadmap 2020–2025. *Airlangga International Journal of Islamic Economics and Finance, 2*(2), 112–128.

Fauzi, M. (2024). Dampak dan regulasi fintech terhadap inklusi keuangan di Indonesia. *SANTRI: Jurnal Ekonomi dan Keuangan Islam, 2*(1), 33–47.

Fitriyanti, F., & Setiorini, K. R. (2024). Legal aspects of digital bank risk management. *E3S Web of Conferences, 477*.

Hasanah, I. Z., et al. (2026). Perlindungan data pribadi nasabah pada layanan mobile banking di Indonesia. *Jurnal Cendekia Hukum Indonesia, 4*(1).

Ikmanila, R., & Djastuti, I. (2025). The role of digital banking in enhancing financial inclusion. *Economic and Business Horizon, 4*(3), 459–468.

Judijanto, L., & Husnayetti, H. (2024). The effect of financial literacy, digital literacy, and information security on QRIS adoption among students in Banten. *West Science Accounting and Finance, 2*(2), 310–320.

Khan, F., Siddiqui, M. A., & Imtiaz, S. (2022). Role of financial literacy in achieving financial inclusion: A review, synthesis and research agenda. *Cogent Business & Management, 9*(1). https://doi.org/10.1080/23311975.2022.2034236

Kurniawan, Y., Amory, F., Halim, E., & Bernando, C. (2022). The impact of using digital banks on Gen Z financial's. In *Proceedings of the 3rd Asia Pacific International Conference on Industrial Engineering and Operations Management*.

Kurniawan, Y., & Jesica. (2024). Unpacking the digital banking preferences of Generation Z students: Empirical evidence from Indonesia. *Journal of System and Management Sciences, 14*(11), 54–74.

Lusardi, A., & Mitchell, O. S. (2014). The economic importance of financial literacy: Theory and evidence. *Journal of Economic Literature, 52*(1), 5–44. https://doi.org/10.1257/jel.52.1.5

Natsir, K., Arifin, A. Z., & Ronald, R. (2023). Financial inclusion in the use of digital banking services in Jakarta. *International Journal of Application on Economics and Business, 1*(4), 2477–2493.

Nurkholik, A. (2023). Trends in digital financial literacy research on the Indonesian millennial generation: A systematic literature review. *RSF Conference Series: Business, Management and Social Sciences, 3*(2), 45–58.

OJK (Otoritas Jasa Keuangan). (2023a). *Peraturan Otoritas Jasa Keuangan Nomor 21 Tahun 2023 tentang Layanan Digital oleh Bank Umum*. Otoritas Jasa Keuangan.

OJK (Otoritas Jasa Keuangan). (2023b). *Peraturan Otoritas Jasa Keuangan Nomor 22 Tahun 2023 tentang Pelindungan Konsumen dan Masyarakat di Sektor Jasa Keuangan*. Otoritas Jasa Keuangan.

OJK, & BPS. (2024). *Survei Nasional Literasi dan*

Inklusi Keuangan (SNLIK) tahun 2024. OJK–BPS.

Ozili, P. K. (2018). Impact of digital finance on financial inclusion and stability. *Borsa Istanbul Review, 18*(4), 329–340. https://doi.org/10.1016/j.bir.2017.12.003

Ozili, P. K. (2020). Financial inclusion research around the world: A review. *Forum for Social Economics, 50*(4), 457–479. https://doi.org/10.1080/07360932.2020.1715238

Pesque-Cela, V., Tian, L., Luo, D., Tobin, D., & Kling, G. (2021). Defining and measuring financial inclusion: A systematic review and confirmatory factor analysis. *Journal of International Development, 33*(2), 316–341. https://doi.org/10.1002/jid.3524

Rachma, A. L., et al. (2024). Generation Z adoption of QRIS in Semarang City: Role of financial risk tolerance. *Neo Journal of Economy and Social Humanities, 3*(1), 22–34.

Republic of Indonesia. (2022). *Law No. 27 of 2022 on Personal Data Protection*.

Riska, R., & Sulubara, S. M. (2024). Tantangan dan peluang Otoritas Jasa Keuangan dalam era digitalisasi layanan keuangan. *Jurnal Riset Manajemen, 2*(4), 240–248.

Tatian, C. T., et al. (2024). From wallets to screens: Exploring the determinants of QRIS payment adoption among millennials in Eastern Indonesia. *JEMA: Jurnal Ilmiah Bidang Akuntansi dan Manajemen, 21*(1), 87–113.

Thaler, R. H., & Sunstein, C. R. (2008). *Nudge: Improving decisions about health, wealth, and happiness*. Yale University Press.

Wijayanto, E., et al. (2023). Application of the TAM model and financial literacy in QRIS digital payment decisions (Study on Semarang State Polytechnic students). *International Journal of Research – GRANTHAALAYAH, 11*(12), 149–156.

Zefanya, A. (2025). Innovation and regulation: Legal enablers and challenges in Indonesia's digital banking lending ecosystem. *Jurnal Akta, 12*(1), 1–18.