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Integration of Financial Technology in Strategic Financing Planning of Private Islamic Higher Education Institutions in the Society 5.0 Era

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Abstract
Private Islamic Higher Education Institutions (*Perguruan Tinggi Islam Swasta*/PTIS) in Indonesia confront structural vulnerabilities in strategic financing planning, notably heavy reliance on student tuition fees, fragmented financial information systems, and partial adoption of Financial Technology (FinTech). This study analyzes FinTech integration patterns in PTIS financing, identifies multi-level implementation barriers, and formulates a proposed conceptual governance framework aligned with the cyber–physical paradigm of Society 5.0. Employing a PRISMA 2020-guided Systematic Literature Review (SLR) and policy document analysis across five academic databases and official regulatory repositories (2015-2024), 312 initial records were screened down to 38 verified sources (26 peer-reviewed studies, 6 national regulations, and 6 institutional reports). Inductive thematic coding generated 47 open codes, 12 axial categories, and four core themes. Literature findings indicate that PTIS FinTech adoption remains concentrated in transactional payment gateways and campus accounting systems, whereas transformative instruments-digital cash waqf/endowments, crowdfunding, Sharia peer-to-peer financing, permissioned blockchain auditing, and AI-assisted budget analytics-remain nascent due to digital human-resource gaps, infrastructure disparities, regulatory fragmentation, foundation-level cultural resistance, and Shariah screening complexities. Separating empirical findings from abductive theorizing, this study proposes the *Islamic FinTech Governance Framework (IFGF)*, an unvalidated conceptual model integrating four pillars (Value Foundation, Resource Mobilization, Data-Driven Governance, and Institutional Sustainability) within a Society 5.0 cyber–physical loop linking digital financial intelligence with human-in-the-loop *shura* deliberation and equitable educational access. Indicative regulatory-anchored KPIs, four testable propositions, and a future empirical validation agenda are outlined.

Keywords:
Financial Technology; Strategic Financing Planning; Private Islamic Higher Education (PTIS); Conceptual Governance Framework; Society 5.0

A. INTRODUCTION

The emergence of the Society 5.0 paradigm compels higher education institutions -including Private Islamic Higher Education Institutions (*Perguruan Tinggi Islam Swasta*/PTIS, formally administered as *Perguruan Tinggi Keagamaan Islam Swasta*/PTKIS

under the Ministry of Religious Affairs) - to undertake systemic transformation across institutional governance and strategic financial management. Introduced by the Government of Japan as a human-centered "super-smart society," Society 5.0 is defined by the high-degree convergence of cyberspace (virtual data processing, artificial intelligence, cloud computing, and distributed ledgers) and physical space (real-world social institutions and human communities) to balance economic advancement with the resolution of structural social problems (Cabinet Office Japan, 2019). Unlike Industry 4.0, which centers primarily on industrial automation and technical productivity, Society 5.0 subordinates digital intelligence to human well-being, social inclusion, and ethical stewardship (Lundeto et al., 2024). Within Islamic higher education, this cyber–physical logic demands shifting from manual, reactive bookkeeping toward data-informed, Shariah-compliant, and socially inclusive strategic financing planning.

In Indonesia, PTIS play an indispensable role in democratizing tertiary education across socio-economically diverse and geographically dispersed communities. Official Education Management Information System (EMIS) statistics from the Ministry of Religious Affairs record more than 800 private Islamic higher education institutions distributed across the archipelago-far outnumbering the 58 state Islamic higher education institutions (PTKIN) - and serving predominantly lower-to-middle-income and rural Muslim learners (Kementerian Agama Republik Indonesia, 2023; World Bank, 2021). Despite this vital public mission, PTIS operate under private foundations (*yayasan*) with minimal direct state operational subsidies compared to PTKIN and Public Service Agency (*Badan Layanan Umum*/BLU) state campuses (Suharto, 2024; World Bank, 2021). Consequently, PTIS remain structurally dependent on student tuition fees (*Sumbangan Pembinaan Pendidikan*/SPP or *Uang Kuliah Tunggal*/UKT) as their primary operational lifeline, leaving institutional budgets highly vulnerable to enrollment fluctuations, demographic shifts, and household economic shocks (Suyadi et al., 2022; OECD, 2021).

Concurrently, the global and Indonesian Islamic Financial Technology (FinTech) ecosystem has expanded rapidly. According to the *Global Islamic Fintech Report 2023/24*, Indonesia ranks among the world's top three Islamic FinTech jurisdictions by transaction volume and ecosystem maturity, reinforced by national payment interoperability initiatives such as the Quick Response Code Indonesian Standard (QRIS), Open Banking Application Programming Interfaces (APIs), licensed Sharia peer-to-peer (*Layanan Pendanaan Bersama Berbasis Teknologi Informasi*/LPBBTI) platforms, and digitized Islamic social finance channels (Bank Indonesia, 2019; DinarStandard & Elipses, 2023; Otoritas Jasa Keuangan, 2023). Across the broader higher education and Islamic finance sectors, instruments spanning Virtual Account gateways, donation and waqf crowdfunding, Cash Waqf Linked Deposits and Sukuk (CWLD/CWLS), digital zakat portals, integrated financial information systems (SIMKEU/ERP), permissioned blockchain ledgers, and big-data/AI budget analytics demonstrate substantial potential to diversify revenue, compress administrative costs, and strengthen auditability (Grech & Camilleri, 2017; Kurniawan et al., 2024; Rabbani et al., 2020; Tapscott & Tapscott, 2016; Zhu, 2024).

From the epistemological standpoint of Islamic educational management, strategic financing planning transcends technocratic accounting; it constitutes an institutional enactment of *amanah* - sacred trusteeship over public and philanthropic resources (Mujib & Mudzakkir, 2017). Core ethico-legal principles grounded in *maqāṣid al-sharīʿah*, including *shura* (evidence-informed consultative deliberation), *'adalah* (distributive justice in tuition and student aid), *mashlahah* (public welfare), and *istimrariyyah* (intergenerational institutional continuity), require that digital financial innovation safeguard both contractual Shariah compliance-freedom from *riba* (usury), *gharar* (excessive uncertainty), and *maysir* (speculation)-and substantive educational equity (Dewan Syariah Nasional–Majelis Ulama Indonesia, 2018; Hendratmoko et al., 2024).

Nevertheless, extant scholarship exhibits a pronounced fragmentation. Prior studies predominantly examine Islamic FinTech within commercial banking, micro-enterprises, or

standalone philanthropic institutions (Affandi et al., 2024; Firmansyah & Anwar, 2019; Rusydiana, 2018), or investigate isolated campus information systems and single-institution cash waqf initiatives without integrating them into a coherent strategic financing and Society 5.0 governance architecture tailored to PTIS (Abdullah & Razali, 2024; Arifin et al., 2023; Rani & Pratolo, 2024). Moreover, global digital finance and IT governance frameworks-such as COBIT 2019 (ISACA, 2018), World Bank Digital Financial Services (Pazarbasioglu et al., 2020), and OECD higher education resourcing models (OECD, 2021)-lack embedded Shariah governance and *zakat–infaq–waqf* (ZISWAF) endowment mechanisms, whereas classical Shariah governance standards such as IFSB-10 (Islamic Financial Services Board, 2009) are designed for commercial financial intermediaries rather than resource-constrained private Islamic universities.

Addressing these scholarly and practical gaps, this article pursues three interconnected objectives: (1) to systematically map the maturity and strategic functions of FinTech instruments relevant to PTIS financing in Indonesia based on verified literature and policy evidence; (2) to synthesize the structural, cultural, and Shariah-regulatory barriers impeding FinTech integration in PTIS; and (3) to formulate the *Islamic FinTech Governance Framework (IFGF)* as a proposed conceptual framework - explicitly distinguished from an empirically validated model - that operationalizes Society 5.0 cyber–physical convergence, regulatory-anchored indicative key performance indicators (KPIs), and testable propositions to guide future empirical research and institutional reform.

B. METHODS

1. Research Design, Search Strategy, and PRISMA 2020 Protocol

This study employs a qualitative research design grounded in a Systematic Literature Review (SLR) and official policy document analysis. Methodological execution follows the structured SLR guidance of Xiao and Watson (2019) and adheres strictly to the updated *Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA 2020)* reporting statement (Page et al., 2021) to ensure transparency, auditability, and replicability. To capture the intersection of FinTech innovation, higher education financing, Islamic social finance, and regulatory governance, evidence was retrieved across two complementary streams covering the ten-year publication window from January 2015 to December 2024: (a) five indexed international and Indonesian academic databases-*Scopus, Web of Science (WoS), Directory of Open Access Journals (DOAJ), Garuda (Garba Rujukan Digital)*, and *Google Scholar* (restricted to top relevance-ranked peer-reviewed scholarly records)-and (b) purposive retrieval of authoritative regulatory and multilateral policy documents from *Kementerian Agama RI, Otoritas Jasa Keuangan (OJK), Bank Indonesia (BI), Badan Wakaf Indonesia (BWI), DSN-MUI, the World Bank, OECD, the European Commission Joint Research Centre, Cabinet Office Japan*, and *DinarStandard/Elipses*. Standardized Boolean search strings, eligibility rules, and quality appraisal criteria are detailed in Table 1.

Table 1. SLR Search Protocol, Database Queries, Eligibility Criteria, and Quality Appraisal Rubric

Protocol Component	Operational Specification in This Review
Review Window & Languages	Publications issued between January 2015 and December 2024 in English or Indonesian. (Foundational methodological and comparative benchmark standards—e.g., Braun & Clarke, 2006; IFSB, 2009; Avolio et al., 2014; Tapscott & Tapscott, 2016; ISACA, 2018; Xiao & Watson, 2019; Pazarbasioglu et al., 2020; Page et al., 2021; Suharto, 2024—are cited strictly as analytical/comparative references outside the 38-source SLR corpus.)
Academic Databases & Yield (n = 293)	Scopus (n = 52); Web of Science Core Collection (n = 36); DOAJ (n = 58); Garuda Kemendikbudristek (n = 69); Google Scholar top-ranked scholarly records (n = 78).

Policy & Institutional Repositories (n = 19)	National statutory/regulatory bodies: Kemenag RI/EMIS, OJK, Bank Indonesia, BWI, DSN-MUI (n = 11); Multilateral & global research bodies: World Bank, OECD, Cabinet Office Japan, European Commission JRC, DinarStandard/Elipses (n = 8).
Core Boolean Search Strings	EN: ("FinTech" OR "financial technology" OR "digital payment" OR "crowdfunding" OR "cash waqf" OR "digital zakat" OR "blockchain" OR "accounting information system" OR "artificial intelligence") AND ("Islamic higher education" OR "private university" OR "higher education financing" OR "Islamic finance governance") AND ("Indonesia" OR "Society 5.0"). ID: ("teknologi finansial" OR "fintech syariah" OR "wakaf uang" OR "zakat digital" OR "sistem informasi keuangan") AND ("perguruan tinggi Islam swasta" OR "PTKIS" OR "PTIS" OR "pembiayaan pendidikan tinggi").
Inclusion Criteria (IC1–IC4)	IC1: Published within 2015–2024; IC2: Substantively addresses FinTech instruments, Islamic social/commercial digital finance, campus financial information systems, or higher-education financing governance relevant to PTIS; IC3: Full text accessible in English or Indonesian; IC4: Peer-reviewed journal article, academic book/proceedings with verifiable metadata/DOI, enacted statutory regulation/fatwa, or official multilateral report.
Exclusion Criteria (EC1–EC4)	EC1: Purely macroeconomic, retail banking, or speculative crypto-asset papers lacking institutional financial governance or educational financing relevance; EC2: Classroom/pedagogical EdTech studies without financial planning implications; EC3: Non-refereed commentary, unverifiable bibliographic metadata/broken DOIs, or low methodological rigor; EC4: Draft or revoked regulations superseded by newer statutory instruments.
4-Item Quality Appraisal Rubric	Each full-text candidate (n = 86) was scored (0 = inadequate, 1 = partial, 2 = strong; minimum threshold $\geq$ 5/8) across: (Q1) clarity of research aim or statutory mandate; (Q2) transparency of research design/data or authoritative institutional provenance; (Q3) bibliographic/DOI verifiability and internal consistency of reported figures; and (Q4) analytical relevance to PTIS strategic financing governance.

Source / Note: *Protocol adapted from PRISMA 2020 guidelines (Page et al., 2021) and Xiao & Watson (2019).*

Following the PRISMA 2020 flow (Figure 1), initial identification yielded N = 312 records (293 from academic databases and 19 from policy/institutional repositories). Automated and manual deduplication removed 68 duplicate records, leaving 244 unique records for title and abstract screening. At the screening stage, 158 records were excluded (94 focused purely on commercial banking or cryptocurrency speculation without governance/education relevance; 41 were non-refereed commentaries or unindexed abstracts; and 23 fell outside the 2015-2024 window or language criteria). Subsequently, 86 full-text documents were retrieved and evaluated against IC1–IC4, EC1–EC4, and the four-item quality appraisal rubric. Forty-eight full-text documents were excluded with documented reasons: absence of strategic financing or FinTech governance mechanisms (EC1, *n* = 21), exclusive focus on classroom pedagogical technology (EC2, *n* = 14), failure to pass methodological or bibliographic/DOI verification (EC3, *n* = 9), and superseded policy drafts (EC4, *n* = 4). Exactly 38 verified sources were retained for final synthesis, comprising 26 peer-reviewed academic studies [S01–S26], 6 national regulatory and fatwa documents [S27–S32], and 6 institutional/multilateral benchmark reports [S33–S38].

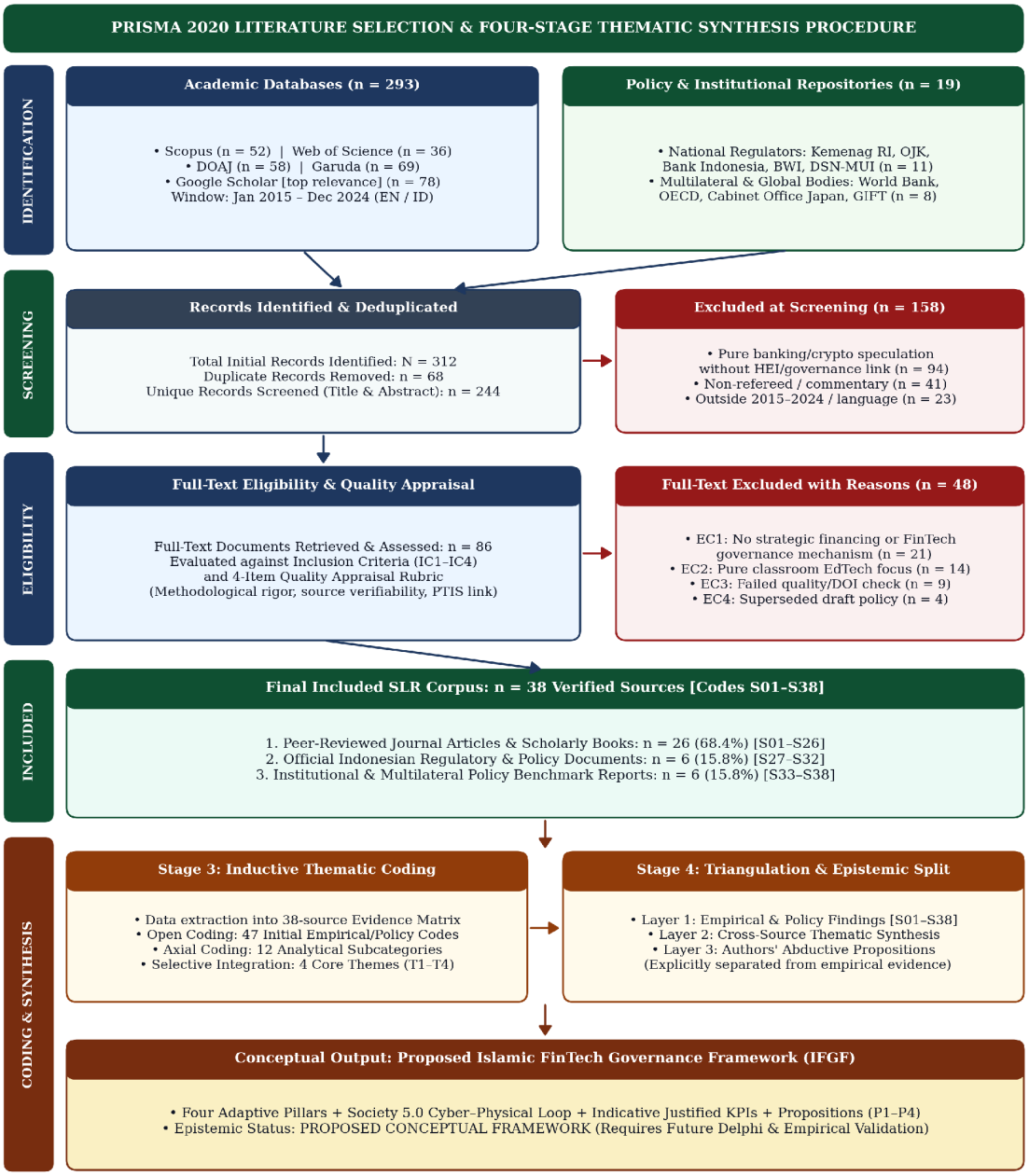


Figure 1. PRISMA 2020 Literature Selection Flow and Four-Stage Thematic Synthesis Procedure
(Source: Authors' elaboration following Page et al., 2021; Xiao & Watson, 2019; Braun & Clarke, 2006)

2. Thematic Coding Procedure, Origin of the 47 Codes, and Epistemic Separation

Data analysis followed an integrated inductive–abductive procedure combining reflexive thematic analysis (Braun & Clarke, 2006) with constant-comparative open and axial coding. First, during familiarization and structured extraction, every retained source [S01–S38] was cataloged into a standardized *Evidence Matrix* capturing bibliographic identity, research design or statutory type, FinTech/governance focus, empirical or normative findings, and PTIS relevance (presented in full in Table 2). Second, line-by-line open coding of extracted empirical findings, statutory clauses, and institutional diagnostics generated 47 initial open codes (OC01–OC47). Each open code represented a recurrent semantic unit - such as *virtual account tuition collection* (OC01), *Cash Waqf Linked Deposit yield generation* (OC18), *financial staff digital-analytics skill gap* (OC26), or *human-in-the-loop shura deliberation* (OC42) - grounded in at least two reviewed sources.

Third, through axial coding, the 47 initial open codes were compared for conceptual similarity, functional relationships, and institutional level of analysis, condensing them into 12 axial subcategories (AC1.1–AC4.3). Fourth, selective thematic integration organized these 12 subcategories into four overarching themes (T1–T4): (T1) Transactional Dominance and Asymmetric FinTech Maturity in PTIS (12 open codes); (T2) Strategic Financing Functions and Islamic Social Finance Mobilization (13 open codes); (T3) Multi-Level Structural, Cultural, and Shariah-Regulatory Barriers (11 open codes); and (T4) Value-Driven Cyber–Physical Governance in Society 5.0 (11 open codes). Complete traceability from all 47 open codes to the 12 axial categories and four themes is documented in Table 3.

Crucially, to ensure analytical transparency and avoid conflating secondary empirical evidence with normative model-building, Section C explicitly separates three epistemic layers: (1) Literature Findings (Subsections C.1–C.3, reporting strictly what the 38 reviewed sources document), (2) Cross-Source Synthesis (Subsection C.4, triangulating systemic patterns and governance tensions across academic, regulatory, and multilateral texts), and (3) Authors' Conceptual Propositions (Subsections C.5–C.7, advancing the proposed IFGF conceptual architecture, Society 5.0 operational mechanisms, justified indicative KPIs, and four testable propositions for future empirical validation).

C. RESULT & DISCUSSION

[Epistemic Layer I: Empirical and Normative Literature Findings - Derived from Reviewed Corpus S01–S38]

1. Evidence Matrix of the 38 Sources and Asymmetric FinTech Maturity in PTIS (Theme T1)

Table 2 presents the complete **Evidence Matrix of all 38 sources [S01–S38]** retained through the PRISMA 2020 protocol, establishing direct traceability between individual studies, statutory instruments, multilateral reports, and the four analytical themes (T1–T4). Across the academic subset (S01–S26), empirical designs encompass quantitative surveys using UTAUT/TAM/PLS-SEM (S04, S11, S13, S17, S22), econometric micro-panel and P2P loan analyses (S03, S25), institutional R&D and case studies in Indonesian universities and PTIS (S01, S07, S14, S19, S20), and systematic, architectural, or structural analyses of Islamic FinTech, waqf digitalization, AI/big-data budgeting, and Society 5.0 governance (S02, S05, S06, S08, S09, S10, S12, S15, S16, S18, S21, S23, S24, S26). These academic findings are triangulated against six Indonesian regulatory benchmarks (S27–S32) and six global/national institutional reports (S33–S38).

Table 2. Evidence Matrix of the 38 Included Sources [S01–S38] in the Systematic Literature Review (2015–2024)

Code	Author(s) & Year	Type & Method	FinTech / Governance Focus	Key Documented Findings	Themes
S01	Abdullah & Razali (2024)	Journal; Multi-case qualitative (3 Aceh PTIS)	Cash waqf models in dayah-based PTIS	Accredited dayah-based PTIS possess strong community trust for cash waqf modernization but lack digital nazhir governance and structured endowment vehicles.	T1, T2, T3
S02	Adinugraha et al. (2024)	Journal; Qualitative content analysis	Digitalization of cash waqf in Indonesia	Three-stage BWI waqf digitization (QRIS, e-nazhir, Satu Wakaf) accelerates asset growth; constrained by low nazhir professionalism and fragmented national data.	T1, T2, T3

S03	Affandi et al. (2024)	Journal; Quantitative national survey	Digital financial adoption & literacy	Digital payment/finance adoption significantly improves organizational performance when paired with financial literacy and broadband readiness.	T1, T3, T4
S04	Ahimsa et al. (2023)	Journal; Quantitative survey	Digital zakat payment adoption	Perceived ease of use, platform credibility, and transparent reporting drive muzakki adoption of digital zakat channels in Indonesia.	T1, T2
S05	Alaeddin et al. (2021)	Journal; Qualitative institutional analysis	Blockchain in Islamic financial institutions	Smart contracts and immutable ledgers strengthen Shariah auditability and transparency, though technical complexity and regulatory ambiguity persist.	T1, T2, T3
S06	Anoraga (2024)	Journal; Qualitative case & observation	Charitable crowdfundin g (Kitabisa) & philanthropy	Digital crowdfunding democratizes grassroots Islamic philanthropy for education/social aid, but governance scandals underscore urgent audit accountability needs.	T2, T3, T4
S07	Arifin et al. (2023)	Journal; Case study (UM Ponorogo)	Integrated Campus Financial System (SIMKEU)	Integrated SIMKEU–SIAKAD in a private Islamic university enhances monthly reporting accuracy, prevents duplicate/unprogrammed budgets, and eases student payments.	T1, T2
S08	Zhu (2024)	Proceedings (ACM); System architecture	Big data & intelligent finance in universities	Integrating campus operational and financial big data shifts university finance from manual bookkeeping toward predictive budget execution and evaluation.	T1, T2, T4
S09	Bouchetara et al. (2024)	Journal; Analytical review	AI in institutional financial risk & budgeting	AI improves anomaly detection, expenditure forecasting, and internal control in public-interest entities, subject to data quality and human oversight.	T1, T2, T4
S10	Firmansyah & Anwar (2019)	Proceedings; Comparative qualitative	Islamic FinTech firms (Indonesia & Singapore)	Islamic FinTech expands ethical financing access; growth is bottlenecked by talent shortages, regulatory gaps, and low public Islamic FinTech literacy.	T1, T3
S11	Hamidah et al. (2024)	Journal; Quantitative PLS-SEM (n = 155)	UTAUT, transparency & trust in crowdfundin g	Performance/effort expectancy, facilitating conditions, institutional transparency, and donor trust significantly drive Muslim online donation behavior.	T2, T3, T4
S12	Hendratmi et al. (2020)	Journal; Qualitative platform design	Islamic crowdfundin g website model	Shariah-compliant crowdfunding platforms offer viable non-usurious capital mobilization when supported by clear mudharabah/donation screening.	T2, T4
S13	Hendratmoko et al. (2024)	Journal; Quantitative SEM	Sharia compliance in Islamic	Perceived Sharia compliance exerts a direct, statistically significant positive effect on stakeholder	T2, T3, T4

			crowdfundin g	perception and intention to use crowdfunding.	
S14	Kurniawan et al. (2024)	Journal; Qualitative case (IPB–BSI-01)	Cash Waqf Linked Deposit (CWLD) for HEIs	University–Islamic bank CWLD partnership mobilized >IDR 19.5 billion in temporary/perpetual waqf deposits to fund student scholarships and academic programs.	T1, T2, T4
S15	Lundeto et al. (2024)	Journal; Policy & conceptual analysis	Adapting Islamic education to Society 5.0	Society 5.0 in Islamic education requires pairing AI/digital infrastructure with Islamic ethical literacy to prevent technocratic dehumanization.	T3, T4
S16	Mahmudin Nst (2024)	Journal; Systematic content analysis	Cash waqf & CWLS for Islamic education	Linking cash waqf with sovereign CWLS and digital ecosystems builds sustainable educational endowments that reduce chronic institutional financing gaps.	T2, T4
S17	Mohd Thas Thaker (2018)	Journal; Quantitative PLS-SEM	Crowdfundin g-Waqf Model (CWM) adoption	Perceived usefulness and ease of use strongly validate donor willingness to finance waqf asset development via digital crowdfunding platforms.	T2, T4
S18	Mujib & Mudzakkir (2017)	Scholarly Book; Normative Islamic edu.	Axiological foundations of Islamic education	Establishes amanah, shura, 'adalah, and mashlahah as non-negotiable ethical pillars governing institutional stewardship in Islamic education.	T4
S19	Napitupulu et al. (2021)	Journal; Case study (IAIN Padangsidim puan)	Campus cash waqf potential & waqf board	Identifies IDR 4.42 billion/year campus cash waqf potential and recommends establishing dedicated university nazhir boards for scholarships and facilities.	T2, T4
S20	Permatasari et al. (2024)	Journal; R&D (ADDIE model)	Education Accounting Information System	Tailored educational AIS automates ledger posting and produces timely, standardized financial statements supporting institutional accountability.	T1, T2
S21	Rabbani et al. (2020)	Journal; Systematic review (133 studies)	FinTech, blockchain & Islamic finance	Maps Islamic FinTech into payment/social finance opportunities, smart-contract Shariah compliance challenges, and strategic bank–FinTech partnerships.	T1, T3, T4
S22	Rani & Pratolo (2024)	Journal; Quantitative UTAUT survey	Blockchain readiness in Indonesian Private HEIs	Survey of accredited Indonesian private HEI finance heads shows blockchain AIS remains at pre-adoption readiness; trust and information quality drive intention.	T1, T2, T3
S23	Rohim (2019)	Journal; Qualitative descriptive	Digital zakat fundraising optimization	E-wallets, QR codes, and online portals broaden muzakki participation and lower collection costs for zakat institutions supporting social/educational welfare.	T1, T2

S24	Rusydiana (2018)	Journal; Interpretive Structural Modeling	Islamic FinTech ecosystem in Indonesia	Identifies human-resource deficits, regulatory clarity, and multi-stakeholder coordination (OJK, BI, DSN-MUI, academia) as foundational ecosystem drivers.	T3, T4
S25	Santoso et al. (2020)	Journal; Econometric P2P dataset	Indonesian FinTech P2P lending & risk	Large-scale Indonesian P2P data reveal significant borrower default sensitivity to loan size/pricing and highlight post-POJK regulatory dynamics.	T1, T3
S26	Suyadi et al. (2022)	Journal; Qualitative policy analysis	Sustainability of Indonesian Islamic HEIs	Demonstrates acute institutional and financial sustainability pressures in Indonesian Islamic higher education, necessitating governance and funding reform.	T2, T3, T4
S27	Badan Wakaf Indonesia (2020)	Regulation (Peraturan BWI No. 1/2020)	Cash waqf & productive waqf governance	Mandates corpus preservation, licensed LKS-PWU channels, independent 2-year audits, and strict mauquf 'alaih accountability for cash waqf nazhirs.	T2, T3, T4
S28	Bank Indonesia (2019)	Policy Blueprint (IPS Blueprint 2025)	QRIS, Open Banking API & retail payments	Establishes national QRIS interoperability and Open Banking API standards linking banks and FinTechs under strict KYC/cyber-risk governance.	T1, T3, T4
S29	DSN-MUI (2018)	Fatwa No. 117/DSN-MUI/II/2018	Sharia IT-based financing services	Prohibits riba, gharar, maysir, and dharar in FinTech financing; defines valid wakalah bi al-ujrah, musyarakah, and mudharabah digital contracts.	T1, T3, T4
S30	Kemenag RI (2022)	Regulation (PMA No. 15 Tahun 2022)	PTKIS establishment & transformation	Requires PTKIS to demonstrate sustainable funding sources, accountable financial management status, and 3-year audited program-budget performance.	T2, T3, T4
S31	Kemenag RI (2023)	Official Statistics (EMIS PTKI 2022/2023)	National PTKIS institutional profile	Documents >800 private Islamic HEIs (PTKIS) nationwide under MoRA oversight, predominantly small-to-medium colleges/institutes serving regional learners.	T1, T3
S32	Otoritas Jasa Keuangan (2022)	Regulation (POJK No. 10/POJK.05/2022)	IT-based collaborative funding (LPBBTI)	Replaces POJK 77/2016; tightens capital, IT security, Sharia Supervisory Board (DPS) mandates, and risk governance for P2P/collaborative FinTech platforms.	T1, T3, T4
S33	Cabinet Office Japan (2019)	Policy Framework (Society 5.0)	Cyber–physical human-centered society	Conceptualizes Society 5.0 as cyber–physical data-AI feedback resolving social disparities while placing human dignity and inclusion at the center.	T4
S34	DinarStandard & Elipses (2023)	Global Industry	Global & Indonesian	Ranks Indonesia top-3 globally in Islamic FinTech; notes social finance and back-office enterprise tech	T1, T2

		Report (GIFT 2023/24)	Islamic FinTech	remain underpenetrated relative to payments.	
S35	Grech & Camilleri (2017)	EU JRC Policy Report (EUR 28778 EN)	Blockchain applications in education	Demonstrates how distributed ledgers enable tamper-evident educational records, voucher/grant tracking, and verifiable institutional accountability.	T1, T2
S36	OECD (2021)	Multilateral Report (Higher Education)	Pandemic fiscal shocks & digital shift	Highlights vulnerability of tuition-reliant higher education institutions and calls for resilient diversified financing and digital governance.	T2, T3, T4
S37	Otoritas Jasa Keuangan (2023)	Official Report (LPKSI 2023)	Indonesian Islamic finance & FinTech	Reports expansion of Sharia FinTech, CWLS, and Islamic social-commercial finance synergy alongside persistent Sharia digital literacy gaps.	T1, T2, T3
S38	World Bank (2021)	Multilateral Sector Report (MoRA HEIs)	Governance & finance of Indonesian PTKI	Contrasts multi-source state funding in PTKIN with private fee-dependent PTKIS and underscores quality-assurance, data, and financing disparities.	T1, T2, T3

Source / Note: *Compiled by the authors from the 38 verified SLR sources (2015–2024). T1 = Maturity Landscape; T2 = Strategic Financing Functions; T3 = Structural Barriers; T4 = Value-Driven Society 5.0 Governance.*

To clarify how the analytical structure emerged from Table 2, Table 3 documents the full coding hierarchy linking all 47 initial open codes (OC01–OC47) to the 12 axial subcategories and four principal themes (T1–T4).

Table 3. Traceability of Inductive Thematic Coding: From 47 Initial Open Codes to 12 Axial Categories and 4 Core Themes

Core Theme (Code Count)	Axial Subcategory	Constituent Initial Open Codes (Total = 47 Codes: OC01–OC47)	Supporting Sources
T1. Transactional Dominance & Asymmetric FinTech Maturity (12 codes)	AC1.1 Retail Payment & Tuition Digitization (4)	OC01 Virtual account tuition collection; OC02 QRIS cashless campus transactions; OC03 Automated bank–campus payment reconciliation; OC04 Transaction fee & connectivity friction.	S02, S03, S04, S07, S23, S28, S34
T1 (cont.)	AC1.2 Campus Financial Information Systems (4)	OC05 Integrated campus SIMKEU/AIS adoption; OC06 SIAKAD–finance database synchronization; OC07 Prevention of duplicate/unprogrammed budget entries; OC08 Legacy manual spreadsheet accounting.	S07, S08, S20, S30, S38
T1 (cont.)	AC1.3 Nascent Frontier Financial Technologies (4)	OC09 Pre-adoption readiness for blockchain AIS; OC10 Early-stage big-data/AI budget forecasting; OC11 Cautious uptake of Sharia P2P working capital; OC12 Transactional–strategic planning decoupling.	S05, S08, S09, S21, S22, S25, S34, S35
T2. Strategic Financing Functions & Islamic Social Finance (13 codes)	AC2.1 Revenue Diversification Beyond SPP (4)	OC13 Vulnerability of single-source SPP dependence; OC14 Donation-based educational crowdfunding; OC15 Alumni & community micro-philanthropy; OC16 Sharia-compliant working-capital financing.	S06, S11, S12, S13, S26, S29, S36, S38

T2 (cont.)	AC2.2 Digital Waqf & Endowment Modernization (5)	OC17 Campus e-waqf portals; OC18 Cash Waqf Linked Deposit (CWLD) & CWLS returns; OC19 University institutional nazhir professionalization; OC20 Waqf corpus preservation vs. surplus distribution; OC21 Endowment funding for scholarships & facilities.	S01, S02, S14, S16, S17, S19, S27, S37
T2 (cont.)	AC2.3 Digital Zakat, Efficiency & Predictive Planning (4)	OC22 Digital zakat/infaq collection for fisabilillah student aid; OC23 Administrative cost & closing-time compression; OC24 Immutable audit trails strengthening donor trust; OC25 Predictive enrollment–budget scenario modeling.	S04, S05, S07, S08, S09, S20, S22, S23, S35
T3. Multi-Level Structural, Cultural & Shariah Barriers (11 codes)	AC3.1 Human Capital & Infrastructure Deficits (4)	OC26 Financial staff digital-analytics skill gap; OC27 Regional broadband/cloud disparity outside metro areas; OC28 High ERP/analytics licensing & maintenance cost; OC29 Scarcity of dual-competent Shariah–IT talent.	S03, S08, S10, S15, S22, S24, S31, S38
T3 (cont.)	AC3.2 Regulatory Fragmentation & Asymmetry (4)	OC30 Absence of PTIS-specific FinTech technical guidelines under MoRA; OC31 Multi-regulator coordination complexity (Kemenag–OJK–BI–BWI); OC32 State PTKIN/BLU vs. private foundation PTIS fiscal gap; OC33 Default & compliance risk in online P2P financing.	S10, S24, S25, S27, S30, S32, S37, S38
T3 (cont.)	AC3.3 Organizational Culture & Shariah Assurance (3)	OC34 Centralized yayasan resistance to transparent data sharing; OC35 Riba, gharar, and maysir screening risks in third-party platforms; OC36 Donor trust fragility after philanthropic governance failures.	S05, S06, S11, S13, S21, S26, S29
T4. Value-Driven Cyber–Physical Governance in Society 5.0 (11 codes)	AC4.1 Axiological Islamic Stewardship (4)	OC37 Amanah as accountable financial trusteeship; OC38 'Adalah in equitable tuition & scholarship allocation; OC39 Mashlahah & maqasid al-shari'ah orientation; OC40 Istimrariyyah (intergenerational continuity).	S13, S16, S18, S26, S27, S29
T4 (cont.)	AC4.2 Society 5.0 Cyber–Physical Convergence (4)	OC41 Cyberspace analytics linked to physical social problem-solving; OC42 Human-in-the-loop shura deliberation over AI outputs; OC43 Prevention of technocratic dehumanization; OC44 Financial inclusion for underserved Muslim students.	S08, S09, S15, S18, S33, S36
T4 (cont.)	AC4.3 Digital Leadership & Ecosystem Synergy (3)	OC45 Islamic e-leadership driving digital change management; OC46 Open Banking API & LKS-PWU/LAZ institutional alliances; OC47 Consortium resource-sharing for small-to-medium PTIS.	S02, S14, S21, S24, S28, S32, S37

Source / Note: *Authors' inductive thematic coding following Braun & Clarke (2006) across the 38 SLR sources.*

A critical methodological finding emerging from Theme T1 concerns the verification of adoption rates. Cross-checking Kementerian Agama RI's EMIS database [S31], OJK's Islamic finance reports [S37], and the World Bank's sector assessment [S38] confirms that no official national census currently measures exact percentage adoption rates of specific FinTech instruments across all >800 Indonesian PTIS. Reporting unverified nationwide

percentages would therefore misrepresent secondary literature. Accordingly, Table 4 replaces unverified percentage estimates with rigorously verified qualitative maturity tiers-*Established-Transactional, Moderate–Institutionalizing, Emerging–Selective,* and *Nascent–Conceptual/Pilot*-anchored in SLR source frequency (*n*/38) and documented empirical/regulatory benchmarks.

Table 4. Verified Qualitative Maturity Mapping of FinTech Instruments Relevant to Indonesian PTIS Financing

No	FinTech Instrument	Strategic Function in PTIS Financing	Verified Maturity Tier & SLR Evidence Base	Documented Empirical / Ecosystem Benchmarks	Primary Implementation Challenges
1	Digital Payment Gateways (Virtual Account & QRIS)	Real-time collection & reconciliation of SPP/UKT, registration fees, and micro-donations	Established–Transactional (8/38 sources: S02, S03, S04, S07, S23, S28, S34, S37)	National QRIS & bank Virtual Account interoperability standardized under BI IPS Blueprint 2025 [S28]; payments dominate Indonesian Islamic FinTech volume [S34].	Per-transaction MDR/admin fees; intermittent rural connectivity [S03, S28].
2	Integrated Financial AIS / Cloud SIMKEU–ERP	Cross-unit accounting, SIAKAD–finance synchronization, budget control	Moderate–Institutionalizing (6/38 sources: S07, S08, S20, S30, S36, S38)	Established private Islamic universities deploy integrated SIMKEU–SIAKAD eliminating double-budgeting [S07, S20], whereas smaller PTKIS rely on manual spreadsheets [S38].	Vendor/cloud migration cost; staff adaptation & legacy data silos [S07, S20].
3	Digital Zakat & Infaq Management Portals	Mobilization and targeted disbursement of fisabilillah student scholarships	Moderate–Institutionalizing (6/38 sources: S04, S10, S21, S23, S34, S37)	Widespread LAZ/BAZNAS & campus UPZ digital channels via QRIS/e-wallets [S04, S23]; requires formal amil coordination and strict asnaf/fisabilillah accounting [S37].	Fragmented campus–LAZ data integration; muzakki trust maintenance [S04, S23].
4	Digital Cash Waqf (E-Waqf, CWLD & CWLS)	Perpetual/temporary endowment mobilization for scholarships, labs, and capex	Emerging–Selective (8/38 sources: S01, S02, S14, S16, S17, S19, S27, S37)	BWI e-waqf & bank-linked instruments validated by IPB–BSI-01 CWLD raising >IDR 19.5 billion [S14] and IDR 4.42 billion/yr campus potential [S19]; still nascent in smaller PTIS [S01].	Nazhir licensing & professionalism; corpus-preservation audit rules [S01, S02, S27].
5	Donation & Sharia Crowdfunding Platforms	Campaign-based funding for scholarships, facilities, and community projects	Emerging–Selective (6/38 sources: S06, S11, S12, S13, S17, S29)	Strong Indonesian Muslim donor propensity on platforms such as Kitabisa and Sharia crowdfunding [S06, S11], contingent on explicit Sharia compliance and audit transparency [S13].	Reputational sensitivity to NGO governance failures; campaign sustainability [S06, S11].
6	Sharia FinTech Lending / Collaborative LPBBTI	Short-term working capital and asset-backed	Nascent–Selective (5/38 sources: S10, S21, S25, S29, S32)	Regulated under POJK No. 10/POJK.05/2022 [S32] and Fatwa DSN-MUI No. 117/2018 [S29]; Sharia LPBBTI represents a small specialized	Repayment/default risk; strict wakalah/mudharabah structuring for

		bridging finance		niche relative to conventional P2P [S25, S37].	non-profits [S25, S29].
7	Permissioned Blockchain Financial Reporting	Tamper-evident audit trails for tuition, grants, and ZISWAF disbursements	Nascent–Conceptual/Pilot (5/38 sources: S05, S21, S22, S34, S35)	Survey of accredited Indonesian private HEIs confirms blockchain AIS remains at the pre-adoption readiness/intention stage rather than routine deployment [S22].	Technical architecture complexity; lack of regulatory standards & IT talent [S05, S22].
8	AI & Big-Data Budget Analytics	Enrollment-driven revenue forecasting, anomaly detection, multi-year scenarios	Nascent–Conceptual/Pilot (4/38 sources: S08, S09, S15, S33)	Demonstrated in university intelligent-finance architectures and public-sector risk oversight [S08, S09], but largely unimplemented across Indonesian PTIS [S15, S38].	Analytics licensing cost; unstandardized historical data; HR data deficit [S08, S09, S15].

Source / Note: *Maturity tiers reflect synthesized evidence across S01–S38 rather than unverified national PTIS percentages, as neither EMIS PTKI [S31] nor OJK [S37] publishes a nationwide census of FinTech adoption across PTIS.*

2. Strategic Financing Functions and Islamic Social Finance Mobilization (Theme T2)

Across the 38 reviewed sources, empirical and regulatory evidence identifies four strategic financing functions through which FinTech instruments address PTIS fiscal vulnerabilities: *First*, diversification of revenue through digitized Islamic social finance. Because private Islamic HEIs lack routine state operational block grants comparable to PTKIN [S38], mobilizing non-tuition funding is existential [S26, S36]. Reviewed empirical studies demonstrate that pairing cash waqf with Islamic banking and digital platforms unlocks substantial endowment capital: Kurniawan et al. (2024) [S14] document that the Cash Waqf Linked Deposit (CWLD Series IPB–BSI-01) mobilized over IDR 19.5 billion for higher education scholarships and academic facilities, while Napitupulu et al. (2021) [S19] estimate an annual campus cash waqf potential of IDR 4.42 billion when managed by a dedicated institutional waqf board. Similarly, donation-based crowdfunding and digital zakat portals expand outreach to alumni, urban millennials, and public *muzakki/wakif* networks [S04, S06, S11, S16, S17, S23].

Second, operational efficiency and internal budget control. Empirical case evidence from Universitas Muhammadiyah Ponorogo [S07] and educational AIS development studies [S20] demonstrates that synchronizing student academic portals (SIAKAD) with integrated financial management systems (SIMKEU) and Virtual Account/QRIS payment rails [S28] automates tuition posting, eliminates duplicate or unprogrammed budget disbursements, and compresses monthly financial reporting cycles.

Third, verifiable transparency and donor trust restoration. Quantitative PLS-SEM studies on Indonesian Muslim donors confirm that platform transparency, accounting information quality, and explicit Shariah compliance directly determine willingness to contribute funds online [S11, S13, S22]. Following high-profile governance controversies in charitable crowdfunding [S06], immutable audit mechanisms—ranging from real-time digital dashboards to permissioned blockchain ledgers [S05, S35]—provide critical assurance that tuition, research grants, and *mauquf 'alaih* surplus distributions adhere strictly to donor mandates and BWI audit rules [S27].

Fourth, predictive and risk-aware multi-year budgeting. Studies on intelligent university financial construction [S08] and AI-enabled public financial risk management [S09] show that integrating enrollment cohorts, payment histories, and unit-cost data enables leadership to detect expenditure anomalies early and simulate multi-year cash-flow scenarios rather than relying on incremental historical budgeting.

3. Structural, Cultural, and Shariah-Regulatory Barriers in PTIS (Theme T3)

Despite these documented potentials, the reviewed literature converges on five mutually reinforcing barriers that constrain FinTech adoption in PTIS:

(1) Human-resource digital and Shariah-tech competency deficits: Both Islamic FinTech ecosystem analyses [S10, S24] and university readiness studies [S15, S22, S38] identify a shortage of financial administrators equipped simultaneously with data-analytics proficiency, enterprise accounting skills, and *fiqh muamalah* literacy. (2) Infrastructure and cost asymmetries: Small-to-medium PTIS outside major Javanese metropolitan centers face uneven broadband reliability, limited cloud server capacity, and prohibitive commercial ERP/analytics licensing costs relative to modest tuition budgets [S03, S31, S38]. (3) Cross-sectoral regulatory fragmentation: While PMA No. 15 Tahun 2022 [S30] mandates accountable three-year financial performance for PTKIS, no technical regulation from Kementerian Agama explicitly guides PTIS on structuring digital crowdfunding, campus *nazhir* units, or FinTech partnerships across overlapping OJK [S32], Bank Indonesia [S28], BWI [S27], and DSN-MUI [S29] jurisdictions. (4) Foundation (*yayasan*) cultural resistance: Paternalistic, centralized financial authority within traditional private foundations frequently resists the real-time budget transparency and decentralized unit accountability inherent to integrated digital systems [S01, S26]. (5) Shariah compliance and counterparty risk: Utilizing uncertified commercial payment/lending platforms exposes PTIS to *riba* penalties, *gharar* fee structures, or default risks [S21, S25, S29], while many campuses lack an internal Shariah review mechanism capable of auditing digital financial contracts [S13].

[Epistemic Layer II: Cross-Source Thematic Synthesis - Triangulating Academic, Regulatory, and Multilateral Evidence]

4. Synthesizing the Governance Gap: Transactional–Strategic Decoupling and Society 5.0 Imperatives (Theme T4)

Triangulating the empirical findings (S01–S26) with statutory mandates (S27–S32) and multilateral reports (S33–S38) yields two overarching synthetic insights that explain why partial digitization has failed to resolve PTIS fiscal vulnerability.

First, Indonesian PTIS exhibit transactional–strategic decoupling. Most digital initiatives in PTIS stop at digitizing front-end tuition collection (Virtual Accounts, QRIS) and basic ledger recording [S07, S28, S34]. Because these payment tools are not connected upstream to digital Islamic endowment mobilization (e-waqf, CWLD/CWLS, crowdfunding [S14, S16]) or downstream to predictive AI/BI resource allocation [S08, S09], digitization merely accelerates the collection of SPP without reducing structural tuition dependency [S26, S38].

Second, bridging this decoupling requires operationalizing Society 5.0 not merely as contextual background, but as an explicit cyber–physical governance mechanism [S15, S33]. In Cabinet Office Japan's (2019) [S33] formulation, Society 5.0 creates value when raw physical-world activities are translated into cyberspace data, analyzed by AI/digital systems, and fed back into physical society under human ethical stewardship to resolve social inequities. Applied to PTIS financing, a purely technocratic Industry 4.0 approach risks automating tuition collection and credit scoring in ways that exclude economically disadvantaged students [S15, S36]. Conversely, synthesizing Society 5.0 with Islamic axiology (*amanah, 'adalah, mashlahah, shura, istimrariyyah* [S18]) establishes a cyber–physical solidarity loop: cyberspace FinTech tools capture real-time campus cash flows, mobilize global/national ZISWAF philanthropy, and forecast student financial need, while human-in-the-loop *shura* governance channels those surpluses back into physical campus society via targeted scholarships, cross-subsidized tuition, and sustainable academic infrastructure.

[Epistemic Layer III: Authors' Conceptual Propositions — Unvalidated Framework Formulated from Literature Synthesis]

5. Proposed Conceptual Model: The Islamic FinTech Governance Framework (IFGF) in the Society 5.0 Era

Building abductively upon the preceding synthesis, the authors formulate the Islamic FinTech Governance Framework (IFGF). It must be explicitly emphasized that the IFGF is a proposed conceptual framework derived from systematic literature synthesis, NOT an empirically tested or statistically validated model. Its purpose is to provide an integrative theoretical architecture, operational Society 5.0 mechanisms, regulatory-anchored indicative benchmarks, and testable propositions to guide institutional piloting and future empirical verification.

As illustrated in Figure 2, the proposed IFGF embeds four mutually reinforcing governance pillars within a continuous Society 5.0 cyber–physical loop. At the top (*Cyberspace Layer*), interoperable FinTech rails (QRIS/Virtual Accounts, e-waqf/CWLD, digital zakat, Sharia crowdfunding, cloud SIMKEU–SIAKAD, permissioned blockchain audit trails, and AI/BI forecasting) aggregate and analyze institutional financial data. At the center (*Axiological & Human-Centric Core*), *maqāṣid al-sharīʿah* values (*hifz al-māl* and *hifz al-'aql*), consultative *shura*, and Islamic e-leadership (Avolio et al., 2014) ensure that algorithmic insights inform-rather than override-human moral judgment. At the base (*Physical-Space Layer*), financial efficiencies and philanthropic yields translate directly into inclusive student access, tuition stabilization, and institutional resilience across diverse PTIS.

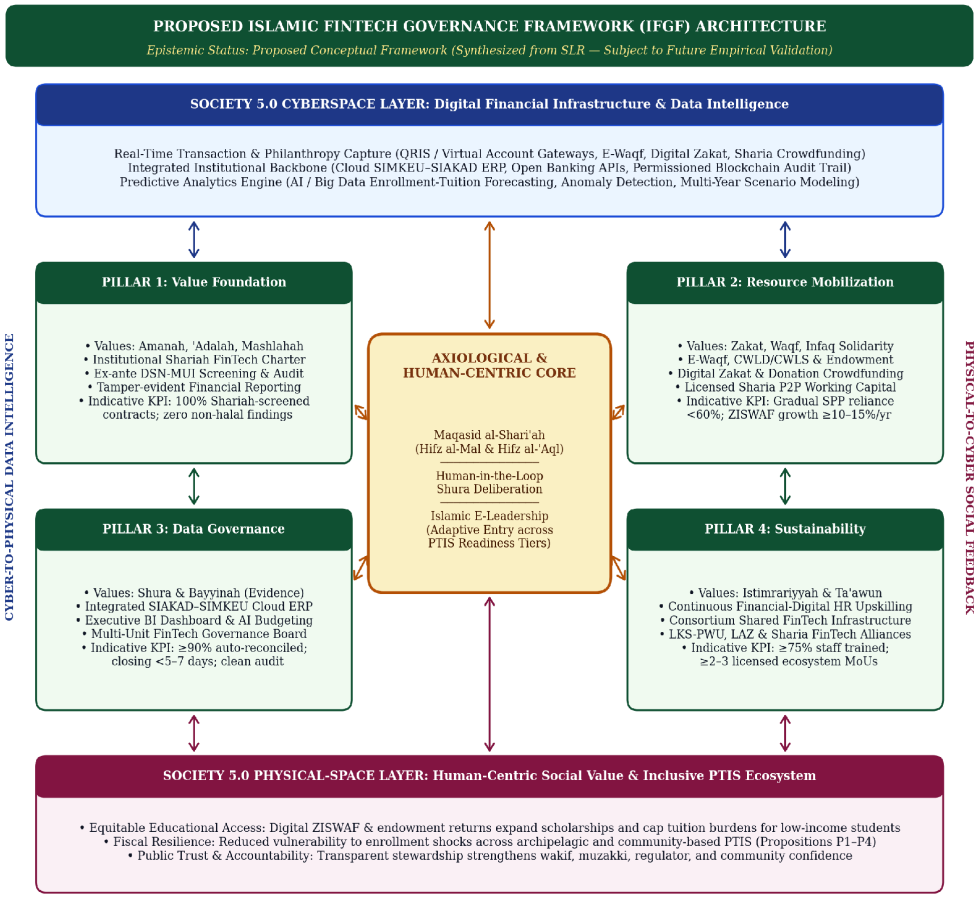


Figure 2. Proposed Conceptual Architecture of the Islamic FinTech Governance Framework (IFGF) in the Society 5.0 Cyber–Physical Loop

(Source: Authors' conceptual proposition based on SLR synthesis; unvalidated model requiring future empirical testing)

Table 5 details the four IFGF pillars, specifying each pillar's Islamic axiological foundation, Society 5.0 cyber–physical mechanism, FinTech instruments, proposed

indicative KPIs, and the explicit theoretical, regulatory, and empirical justification anchoring each KPI. Rather than rigid universal quotas, these KPIs function as adaptable reference targets calibrated to a PTIS's institutional readiness tier.

Table 5. Proposed Islamic FinTech Governance Framework (IFGF): Pillars, Society 5.0 Mechanisms, Indicative KPIs, and Explicit Justifications

Proposed Pillar & Islamic Values	Strategic Components & FinTech Instruments	Society 5.0 Cyber–Physical Mechanism	Proposed Indicative KPIs (Adaptable by Tier)	Explicit Regulatory, Standard & Literature Justification
Pillar 1: Value & Shariah Foundation (Amanah, 'Adalah, Mashlahah)	• Institutional Shariah FinTech Charter & Code of Ethics • Ex-ante contract screening & internal Shariah review • Tamper-evident digital/blockchain audit trail	Embeds Shariah rules into cyberspace smart-contract/platform screening to protect physical stakeholders from riba, gharar, and fund misuse.	• 100% of active campus FinTech contracts screened against DSN-MUI fatwas • ≥1 annual internal Shariah & financial audit with zero material non-halal findings	Grounded in IFSB-10 (2009) ex-ante screening & annual Shariah review standards; Fatwa DSN-MUI No. 117/2018 [S29] mandatory prohibition of riba/gharar/maysir; and empirical proof that Sharia compliance drives stakeholder trust [S13, S21].
Pillar 2: Inclusive Resource Mobilization (Zakat, Waqf, Infaq Solidarity)	• Registered campus nazhir / LKS-PWU partnership • E-waqf, CWLD/CWLS endowment & digital zakat/UPZ • Audited donation crowdfunding & licensed Sharia LPBBTI	Aggregates micro-philanthropy in cyberspace from alumni/public and channels yields into physical scholarships and infrastructure for underserved students.	• Progressive reduction of single-source SPP reliance toward <60% over a 5-year horizon • ≥10–15% YoY growth in digital ZISWAF/endowment receipts • 100% corpus preservation on cash waqf	Anchored in World Bank [S38] & Suyadi et al. [S26] findings on private HEI tuition vulnerability; Peraturan BWI No. 1/2020 [S27] mandatory 100% waqf principal preservation & audited distribution; and CWLD/campus waqf mobilization benchmarks [S14, S19].
Pillar 3: Cyber–Physical Data Governance (Shura & Bayyinah / Evidence)	• Multi-unit FinTech Governance Committee • Integrated Cloud SIMKEU–SIAKAD ERP • Executive BI dashboard & AI enrollment-budget forecasting	Transforms cyberspace transaction & enrollment big data into predictive scenarios deliberated via human-in-the-loop shura by campus leaders.	• ≥90% automated real-time tuition/ledger reconciliation • Monthly/semester financial closing within ≤5–7 working days • Unqualified/clean 3-year financial audit track record	Justified by COBIT 2019 (ISACA, 2018) information cycle-time & reconciliation controls; PMA No. 15/2022 [S30] requirement of 3-year accountable PTKIS financial performance; and empirical SIMKEU/AIS efficiency gains in Indonesian private universities [S07, S20].
Pillar 4: Human-Centric	• Continuous financial-digital & Shariah	Sustains human capability and inter-institutional	• ≥75% of finance/admin staff completing	Grounded in Cabinet Office Japan [S33] & Lundeto et al. [S15]

Sustainability (Istimrariyyah & Ta'awun)	literacy upskilling • Open Banking API & licensed FinTech alliances • PTIS consortium shared cloud infrastructure	solidarity so technology empowers staff and small regional PTIS rather than widening digital divides.	annual digital & Shariah-finance training • ≥2–3 active MoUs with OJK/BI/BWI-licensed Islamic financial/philanthropic partners	Society 5.0 human-capability imperatives; BI IPS Blueprint 2025 [S28] & POJK No. 10/2022 [S32] licensed ecosystem partnering rules; and UTAUT facilitating-conditions evidence [S03, S11, S22].

Source / Note: *Authors' conceptual formulation. All KPIs represent indicative governance benchmarks adaptable to small, medium, and established PTIS tiers rather than empirically calibrated thresholds.*

Crucially, the IFGF is designed as a non-linear, readiness-adaptive system. Resource-constrained regional PTIS (*Sekolah Tinggi/Institut*) can enter through *Pillar 2 and Pillar 4* at minimal capital cost by utilizing QRIS, partnering with licensed national *LKS-PWU/LAZ* platforms for CWLD/zakat scholarships [S14, S27], and sharing consortium cloud accounting tools, whereas larger Islamic universities can advance concurrently into *Pillar 1 and Pillar 3* via enterprise ERP–BI dashboards and permissioned ledger auditing [S07, S08, S22]. To facilitate rigorous future empirical testing, the authors derive four formal testable propositions from the IFGF:

a. *Proposition 1* (Axiological Trust Effect): Formalizing institutional Shariah screening and tamper-evident digital financial reporting (Pillar 1) positively influences *wakif, muzakki,* and student trust, thereby increasing non-tuition philanthropic inflows in PTIS.
b. *Proposition 2* (Diversification–Resilience Effect): Integrating digital Islamic social finance instruments-specifically e-waqf, CWLD/CWLS, digital zakat, and Shariah-compliant crowdfunding (Pillar 2)-into multi-year strategic planning reduces PTIS fiscal sensitivity to student enrollment fluctuations.
c. Proposition 3 (Cyber–Physical Governance Effect): Coupling integrated SIMKEU–SIAKAD data analytics with consultative *shura* budget deliberation (Pillar 3) significantly improves budget allocation efficiency, audit timeliness, and scholarship targeting accuracy for low-income students.
d. *Proposition 4* (Moderating Role of E-Leadership & Ecosystem Capacity): The positive effects of FinTech integration on PTIS financial sustainability are positively moderated by Islamic e-leadership capability, staff digital-Shariah literacy, and consortium partnerships with licensed ecosystem actors (Pillar 4).

6. Comparative Positioning of the Proposed IFGF Against Existing Governance Frameworks

To situate the theoretical contribution of the proposed IFGF rigorously, Table 6 compares it across seven governance dimensions against five established international and national frameworks: COBIT 2019 (ISACA, 2018), IFSB-10 Sharīʿah Governance Principles (Islamic Financial Services Board, 2009), the World Bank Digital Financial Services (DFS) Framework (Pazarbasioglu et al., 2020), the OECD Higher Education Resourcing & Digital Policy Framework (OECD, 2021), and the Indonesian Islamic Good University Governance (GUG) / BLU Model (Suharto, 2024; Suyadi et al., 2022).

Table 6. Multi-Dimensional Comparison of the Proposed IFGF Against Existing IT, Financial, and Shariah Governance Frameworks

Analytical Dimension	COBIT 2019 (ISACA, 2018)	IFSB-10 (IFSB, 2009)	World Bank DFS (Pazarbasioglu et al., 2020)	OECD HEI Policy (OECD, 2021)	Islamic GUG / BLU (Suharto, 2024)	Proposed IFGF (This Study)

1. Primary Institutional Scope	Generic corporate/ enterprise IT governance	Commercial Islamic financial institutions (banks/takaful)	Macro/retail financial inclusion ecosystems	Public & private higher education systems	Indonesian state BLU Islamic universities (PTKIN)	Indonesian Private Islamic HEIs (PTIS / yayasan)
2. Axiological / Normative Core	Stakeholder value, risk-resource optimization	Contractual Shariah compliance (fiqh muamalah)	Market competition, efficiency & inclusion	Public value, equity & fiscal resilience	Bureaucratic autonomy, transparency & accountability	Maqasid al-shari'ah (amanah, 'adalah, mashlahah, shura, istimrariyyah)
3. Shariah Screening & ZISWAF Integration	Absent (secular IT control focus)	Strong Shariah board audit; limited educational ZISWAF focus	Absent (conventional DFS neutral)	Absent	Partial (asset optimization; limited FinTech ZISWAF)	Core integration of DSN-MUI screening + digital waqf, CWLD/CWLS & zakat
4. FinTech & Data Intelligence Architecture	Comprehensive enterprise I&T process controls (40 objectives)	Minimal digital/AI/ blockchain specification	Strong payment, API & digital credit focus	General digital readiness; non-specific on FinTech	Basic campus e-budgeting & SIAKAD/BLU reporting	End-to-end mapping: QRIS/VA, SIMKEU, e-Waqf, blockchain & AI budgeting
5. Society 5.0 Cyber–Physical Mechanism	Implicit IT-business alignment only	Not addressed	Digital access focus; lacks campus governance loop	Emphasizes post-pandemic inclusion without cyber-shura model	Focuses on state public-service transformation	Explicit cyber-intelligence → human shura → physical student equity loop
6. Adaptability to Small Foundation PTIS	High implementation complexity & cost for small entities	Designed for regulated financial intermediaries with full DPS	Macro-regulatory rather than campus-level	System-level policy orientation	Tailored to state-subsidized BLU Satker rules	Modular non-linear entry + consortium sharing for small-to-large PTIS
7. Empirical Validation Status	Globally validated industry standard	Internationally adopted prudential standard	Empirically backed cross-country policy model	Cross-national OECD empirical synthesis	Empirically studied in Indonesian PTKIN BLU cases	Proposed conceptual framework (unvalidated; requires empirical testing)

Source / Note: *Authors' comparative synthesis across ISACA (2018), IFSB (2009), Pazarbasioglu et al. (2020), OECD (2021), and Suharto (2024).*

As Table 6 demonstrates, the IFGF does not discard existing frameworks; rather, it selectively synthesizes their complementary strengths while resolving their blind spots for PTIS. Specifically, IFGF adapts process-control discipline and cycle-time metrics from *COBIT 2019* (ISACA, 2018), ex-ante and ex-post Shariah assurance principles from *IFSB-10* (Islamic Financial Services Board, 2009), interoperable payment/API inclusion rails from the *World Bank DFS model* (Pazarbasioglu et al., 2020), fiscal-resilience priorities from *OECD* (2021), and transparent campus accountability from *Indonesian BLU GUG reforms* (Suharto, 2024). Its distinctive contribution lies in uniting three elements absent in any single prior model: (a) *private foundation (yayasan) fiscal realities* where student tuition vulnerability must be offset through digitized ZISWAF endowments (CWLD/CWLS, e-waqf, crowdfunding); (b) *embedded campus-level Shariah FinTech screening*; and (c) an explicit *Society 5.0 cyber–physical loop* guarded by consultative *shura* and e-leadership (Avolio et al., 2014). At the same time, Table 6 candidly acknowledges IFGF's key limitation relative to mature standards like COBIT 2019 and IFSB-10: whereas those frameworks enjoy decades of field validation, IFGF currently stands at the conceptual stage.

7. Methodological Limitations and Empirical Validation Roadmap

Three methodological limitations bound the interpretation of this study. First, because the findings rely on secondary literature and statutory documents (2015–2024) within an environment lacking a national PTIS FinTech census, the maturity tiers in Table 4 capture documented ecosystem patterns rather than statistically representative prevalence rates across Indonesia's >800 PTIS. Second, both the IFGF architecture (Figure 2) and its indicative KPIs (Table 5) represent normative-conceptual propositions whose causal pathways (Propositions P1-P4) and numerical target ranges have not yet undergone field calibration across heterogeneous PTIS strata (e.g., large Muhammadiyah/NU universities versus small rural *Sekolah Tinggi*). Third, rapid regulatory evolution in Indonesia-such as the transition from POJK 77/2016 to POJK 10/POJK.05/2022 [S32] and ongoing national waqf data integration [S02]-requires periodic updating of statutory compliance parameters.

Consequently, operationalizing the IFGF requires a three-stage empirical validation agenda: (Stage 1) *Modified Delphi expert validation* involving PTIS rectors/vice-rectors for finance, DSN-MUI/BWI scholars, Kemenag Kopertais coordinators, and Islamic FinTech practitioners to refine construct validity and calibrate tier-specific KPI thresholds; (Stage 2) *Multi-strata quantitative survey validation* across accredited PTIS using Partial Least Squares Structural Equation Modeling (PLS-SEM) to test Propositions P1–P4; and (Stage 3) *Longitudinal action-research piloting* in selected small, medium, and large PTIS to evaluate real-world governance costs, Shariah audit workflows, and student equity outcomes.

D. CONCLUSION

Through a PRISMA 2020-compliant Systematic Literature Review and policy analysis of 38 verified sources (2015–2024), coded inductively into 47 open codes, 12 axial categories, and four analytical themes, this study advances three principal conclusions that strictly distinguish empirical findings from conceptual propositions:

First, regarding empirical literature findings, FinTech adoption relevant to Indonesian PTIS exhibits pronounced *transactional–strategic decoupling*. Digital payment gateways (Virtual Accounts, QRIS) and campus accounting systems (SIMKEU/AIS) have achieved established-to-moderate operational uptake, whereas transformative strategic financing instruments-digital cash waqf/CWLD/CWLS, Shariah-compliant crowdfunding, collaborative LPBBTI financing, permissioned blockchain auditing, and AI/big-data budget analytics-remain at emerging or nascent pre-adoption readiness stages.

Second, regarding cross-source synthesis, FinTech integration in PTIS is constrained by five interlocking barriers-digital-Shariah human capital gaps, regional infrastructure and licensing cost disparities, multi-regulator policy fragmentation across

Kemenag–OJK–BI–BWI, centralized *yayasan* cultural resistance, and third-party Shariah compliance risks-which cannot be resolved through isolated software procurement.

Third, regarding the authors' conceptual contribution, this article formulates the *Islamic FinTech Governance Framework (IFGF)* as a proposed, unvalidated conceptual framework tailored to PTIS in the Society 5.0 era. By embedding four adaptive pillars (Value Foundation, Inclusive Resource Mobilization, Cyber-Physical Data Governance, and Human-Centric Sustainability) within a Society 5.0 cyber–physical loop-linking cyberspace financial intelligence through human-in-the-loop *shura* deliberation to physical - space scholarship inclusion and fiscal resilience - the IFGF bridges critical axiological and institutional gaps in existing IT, DFS, and Shariah governance models while providing justified indicative KPIs and four testable propositions (P1–P4) for future empirical verification.

2. Recommendations

Grounded in the synthesized evidence and mindful of IFGF's conceptual status, targeted recommendations are proposed for four stakeholder groups: For PTIS and Foundation (Yayasan) Leadership: (a) initiate phased digital financial governance pilots using the IFGF's modular entry pathways aligned with institutional scale; (b) establish a cross-functional Campus FinTech & Endowment Task Force integrating finance, IT, academic planning, and internal Shariah review; and (c) prioritize low-barrier partnerships with BWI-licensed *LKS-PWU* (e.g., CWLD/CWLS schemes) and accredited *LAZ/UPZ* to diversify non-tuition scholarship funding. For the Ministry of Religious Affairs (Ditjen Pendidikan Islam & Kopertais): (a) issue harmonized technical guidelines on digital philanthropy, campus *nazhir* governance, and Shariah-compliant FinTech partnerships for PTKIS as an operational derivative of PMA No. 15 Tahun 2022; (b) integrate baseline digital-finance maturity indicators into EMIS PTKI to address the national data vacuum; and (c) facilitate shared cloud SIMKEU/ERP consortia to lower licensing barriers for small regional PTIS. For OJK, Bank Indonesia, BWI, and DSN-MUI: expand collaborative regulatory sandboxes and standardized Shariah-compliance templates specifically tailored to educational endowment (*e-waqf/CWLD*) and campus micro-philanthropy ecosystems. For Future Researchers: empirically test and refine the proposed IFGF and Propositions P1–P4 through multi-stakeholder Delphi panels, nationwide EMIS-linked PTIS maturity surveys using PLS-SEM, and comparative cross-country case studies across Southeast Asian Islamic higher education institutions.

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