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Readiness of the Islamic Economics Education Ecosystem in the Sharia Central Bank Digital Currency (CBDC) Era

Sarwono[a,1,*], Erwina Kartika Devi [b,2]

[*a] Institut Islam Al Mujaddid Sabak, Indonesia;
[b] Institut Islam Al Mujaddid Sabak, Indonesia;
[1]sarwonos808@gmail.com; [2]erwinaelkhalifi@gmail.com;
*Correspondent Author; sarwonos808@gmail.com

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ABSTRACT

The transformation of the global monetary landscape through the development of Sharia-compliant Central Bank Digital Currencies (CBDC)—such as the Digital Rupiah—demands a fundamental reorientation of the Islamic Higher Education (IHE) ecosystem. This study critically analyzes the institutional readiness and curricular flexibility of IHE in responding to digital monetary disruption. Utilizing a qualitative approach grounded in Neoinstitutional Theory (mimetic, normative, and coercive isomorphism) and Critical Pedagogy, data were collected through in-depth interviews with 12 key informants, including monetary regulators (Bank Indonesia/OJK), university curriculum developers, senior academics, and Sharia macro-financial industry practitioners. The findings reveal that the current IHE ecosystem suffers from isomorphic inertia and curricular lag, wherein the discourse on Sharia CBDC is superficially conceptualized merely as a micro-banking technological instrument rather than a fundamental macro-monetary paradigm shift. Institutional readiness remains hindered by disciplinary silos separating fiqh-based Sharia sciences from digital econometrics. To address this gap, this study proposes a curricular reconceptualization based on a Triple-Helix Transdisciplinary Framework to bridge the divide between macro-monetary policy and Islamic economic pedagogy.

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Introduction

Financial technology innovation at the macroeconomic level has reached a pivotal juncture with the global expansion of Central Bank Digital Currency (CBDC) initiatives, epitomized in Indonesia by Bank Indonesia's Project Garuda introducing the Digital Rupiah (Bank Indonesia, 2024; Ozili, 2025). In a dual banking ecosystem, integrating Sharia principles into the architectural framework of a Sharia-compliant CBDC transcends mere technical programming of Smart Contracts or Distributed Ledger Technology (DLT). Instead, it constitutes a fundamental imperative surrounding digital monetary sovereignty,

macro-prudential stability, and macro-distributive justice (al-'adalah al-ijtimaiyyah) (Meera, 2024; Wardhany et al., 2025). As monetary authorities worldwide accelerate the transition toward programmable sovereign digital currencies, sovereign money is redefined beyond a passive medium of exchange into an active instrument of macro-monetary governance.

However, this rapid technological determinism and macro-monetary policy shift are advancing without a corresponding evolution within the Islamic Higher Education (IHE) ecosystem. A alarming decoupling has emerged between the swift formulation of digital monetary policies by regulatory bodies—such as Bank Indonesia, the Ministry of Finance, and the Financial Services Authority (OJK)—and the lagging institutional adaptation and pedagogical transmission within university classrooms (Hassan et al., 2024; Rahmat & Firmansyah, 2025). The prevailing Islamic economics curricula across public and private Islamic universities remain entangled in classical dichotomies, persistently confining pedagogical discourse to traditional fiqh al-muamalat contracts (e.g., ba'i, ijarah, mudarabah) and micro-level Islamic banking operations (Asmy et al., 2024; Huda et al., 2025).

Existing literature on digital finance in higher education predominantly focuses on micro-level financial technology adoption, general digital literacy, or basic fintech applications in Islamic banking (Ahmar et al., 2024; Supriadi et al., 2025). There is a conspicuous empirical and theoretical void regarding how higher education institutions critically evaluate and absorb macro-monetary disruptions—specifically Sharia-compliant CBDCs—into their institutional frameworks and academic curricula (Ascarya et al., 2025). Current academic inquiries largely neglect the structural lag between central bank macro-innovations and the epistemological readiness of Islamic economics faculties, creating an unexamined gap between regulatory policy execution and university-level curriculum adaptation.

To bridge this gap, this study offers distinct theoretical and analytical novelty by synthesizing Neoinstitutional Theory (examining coercive, mimetic, and normative isomorphism) with Critical Pedagogy to dissect the structural and epistemological barriers in Islamic economics education. The arrival of the Sharia CBDC era necessitates an entirely new academic discourse encompassing digital seigniorage, Islamic monetary quantity theory, non-interest monetary transmission mechanisms via programmable money, and macro-financial systemic risk analysis (Bakar et al., 2024; Indrawan & Maulida, 2026). By moving beyond conventional descriptive analyses of curriculum development, this research introduces a novel Triple-Helix Transdisciplinary Framework that systematically integrates macro-monetary econometrics, cryptographic architecture, and Maqasid al-Shariah governance.

The urgency of this investigation stems from the imminent risk of epistemological obsolescence and human capital misallocation; failure of the IHE ecosystem to proactively adapt will produce graduates equipped solely for conventional micro-banking roles while remaining illiterate in sovereign digital monetary architecture (Furqani et al., 2025). Ensuring that future Islamic economists can actively contribute to macro-monetary policy formulation requires an immediate critical diagnosis of institutional readiness. Therefore, this study aims to critically evaluate the institutional readiness of the IHE ecosystem, identify the root cause of pedagogical and structural bottlenecks, and formulate a transformative curriculum reconstruction model responsive to the Sharia CBDC era.

Method

To critically examine the institutional readiness and pedagogical adaptation of the Islamic Higher Education (IHE) ecosystem, this study employs a Critical Qualitative

Approach utilizing an Institutional Multi-Site Case Study Design (Creswell & Poth, 2025; Yin, 2024). The multi-site framework was selected to capture complex, real-world organizational dynamics across diverse academic settings—comprising premier public (PTN) and private (PTKIS) Islamic universities in Indonesia—thereby offering a comprehensive multi-layered perspective. Guided by Neoinstitutional Theory and Critical Pedagogy, this critical qualitative paradigm goes beyond simple descriptive reporting to uncover underlying structural inertia, power relations, and epistemological mismatches between macro-monetary policymaking and higher education curricula (Denzin & Lincoln, 2024).

Informants were selected using a purposive sampling strategy combined with criterion-based selection to ensure high data richness, expertise, and institutional representation (Merriam & Tisdell, 2025). The study engaged 12 key informants strategically divided across four distinct stakeholder clusters: Monetary Regulators & Policymakers (2 representatives from the Department of Islamic Economics and Finance at Bank Indonesia [DEKS-BI] and the Financial Services Authority [OJK]); Curriculum Developers & Faculty Leadership (4 Deans/Heads of Islamic Economics Departments across leading PTN and PTKIS); Senior Academics & Islamic Monetary Experts (3 Professors/Senior Lecturers in Sharia Monetary Economics and Fiqh al-Muamalat); and Macro-Financial Industry Practitioners (3 senior analysts and experts from Sharia fintech and Islamic banking sectors). Sampling continued until thematic data saturation was reached, ensuring that no new conceptual codes emerged from subsequent interviews (Saunders et al., 2025).

Data collection was conducted through a dual-source method integrating in-depth semi-structured interviews and unobtrusive documentary analysis (Bowen, 2024). The primary data were gathered via semi-structured interviews using a pre-validated thematic guide that explored institutional policies, curricular flexibility, and Sharia CBDC discourse. Concurrently, secondary data were derived from an exhaustive documentary analysis of critical institutional artifacts, including course syllabi (Rencana Pembelajaran Semester [RPS]), national benchmark curricula from professional associations (FORDEBI and IAEI), and official central bank policy documents, notably the Bank Indonesia Digital Rupiah White Paper. This dual approach enabled direct cross-examination between formal curricular policies and the lived experiences of key stakeholders (Kuckartz & Rädiker, 2026).

Data were analyzed using an Interactive Qualitative Content Analysis combined with Thematic Analysis following the framework of Miles, Huberman, and Saldana (2026), involving systematic data condensation, visual data display, and verified conclusion drawing. Coding procedures were executed through iterative inductive-deductive cycles to synthesize empirical codes into overarching themes regarding institutional inertia and curricular lag. To guarantee methodological rigor and data trustworthiness (credibility, transferability, dependability, and confirmability), the study implemented methodological and source triangulation by cross-verifying interview transcripts against documentary evidence and theoretical constructs (Lincoln & Guba framework updated in Flick, 2025). Member checking with key informants was also conducted to validate the authenticity of the analytical interpretations.

Results and Discussion

Empirical findings reveal that the Islamic Higher Education (IHE) ecosystem is entrapped in severe coercive isomorphism, where faculty leadership overwhelmingly prioritizes compliance with rigid administrative criteria dictated by accreditation bodies (LAMEMBA/BAN-PT) over substantive paradigm shifts. Department heads across both public (PTN) and private (PTKIS) Islamic universities emphasized that cutting-edge

topics—such as Sharia Central Bank Digital Currency (CBDC) architecture, tokenomics, and algorithmic monetary governance—yield zero quantitative weight in standard accreditation rubrics. Consequently, institutional energy is consumed by bureaucratic compliance rather than curriculum innovation. This finding corroborates Rahmat and Firmansyah (2025), who argued that rigid state accreditation frameworks stifle agility in higher education. However, this observation contrasts with the optimistic view of Hassan et al. (2024), who asserted that regulatory oversight inherently accelerates technological alignment in Islamic financial institutions. The reality in IHE demonstrates that regulatory mandates act as structural bottlenecks rather than catalysts for digital transformation.

Driven by competitive market pressures, universities display strong mimetic isomorphism by superficially rebranding courses without updating their fundamental epistemological foundations. Content analysis of course syllabi shows that departments frequently attach terms like "Digital" or "Fintech" to legacy modules, yet the core instructional material remains anchored in classical gold dinar/dirham debates and physical currency transaction mechanics. As Informant 4 (Head of Islamic Economics Department at a public university) noted: "We are fully aware of the Digital Rupiah and CBDC discourse, but candidly, faculty members capable of dissecting how a CBDC alters Sharia monetary transmission and Sovereign Sukuk yields are extraordinarily rare; most of us remain stuck teaching conventional micro-banking operations." This superficial adaptation aligns with Asmy et al. (2024), who documented widespread "curriculum bleaching" in Southeast Asian Islamic studies. Conversely, it challenges the assertion by Supriadi et al. (2025) that digital title integration reflects genuine pedagogical advancement.

The institutional paralysis is further compounded by normative isomorphism and entrenched professional conservatism among academic staff. A deeply rooted "silo mentality" divides faculties: fiqh al-muamalat scholars actively resist engaging with cryptographic architecture and quantitative econometrics, viewing software code as alien to sacred jurisprudence. Simultaneously, quantitative economics lecturers routinely treat monetary policy as purely mechanical, ignoring the embedded Maqasid al-Shariah dimensions of sovereign money. This epistemological fracturing validates Furqani et al. (2025), who highlighted the persistent dualism between traditional Islamic sciences and modern analytical tools. However, it contradicts the findings of Huda et al. (2025), who reported an emerging convergence between Sharia scholars and data scientists. In practice, traditional normative boundaries continue to hinder cross-disciplinary collaboration.

Analysis of 25 course syllabi (Rencana Pembelajaran Semester [RPS]) across sample institutions demonstrates a profound curricular lag characterized by an over-reliance on techno-pragmatic micro-applications. Existing modules treat digital finance merely as a consumer-facing operational tool—focusing on e-wallets, QRIS payments, and peer-to-peer lending platforms—while completely ignoring macro-monetary dynamics. Crucial macroeconomic topics, such as the impact of a direct Sharia CBDC on money velocity, interest-free monetary policy transmission via programmable smart contracts, and bank disintermediation risks, are absent. This outcome supports the critique by Indrawan and Maulida (2026) that Islamic economic pedagogy suffers from excessive micro-financial reductionism. On the other hand, it refutes the claim by Ahmar et al. (2024) that current digital finance curricula adequately prepare students for macro-financial complexities.

A primary driver of this curricular lag is the acute shortage of integrated literature bridging Sharia jurisprudence, macroeconomics, and computer science. Existing course bibliographies rely heavily on textbooks published between 2000 and 2010, which treat money strictly as a physical medium of exchange or unbacked fiat currency. There is a total absence of instructional resources that evaluate smart contract auditing (e.g., Solidity code analysis for automated zakat deduction) alongside macro-distributive justice. This

empirical void aligns with Bakar et al. (2024), who emphasized that the academic literature on programmable money in Islamic finance remains fragmented and inaccessible to undergraduates. This finding challenges Ozili (2025), who suggested that open-access CBDC literature has democratized digital monetary education globally.

To fully illuminate the structural magnitude of this epistemological disconnect, the empirical findings highlight a profound mismatch between existing Islamic Higher Education (IHE) curricula and the imperative demands of the Sharia Central Bank Digital Currency (CBDC) era across three critical dimensions:

First, regarding the conceptualization of money, a sharp divergence exists between academic instruction and monetary reality. While central banks and regulatory authorities are rapidly transitioning toward programmable digital legal tender, tokenized sovereign currencies, and smart contract-based financial instruments, IHE instructional modules remain firmly anchored in legacy concepts. Current classroom instruction continues to fixate on physical fiat cash and historical gold or silver standards (Dinar and Dirham), treating digital currency as a peripheral consumer tool rather than a fundamentally restructured sovereign monetary medium.

Second, in terms of monetary policy focus, existing curricula exhibit a pronounced micro-financial bias. Pedagogical content remains restricted to conventional reserve requirements, standard open market operations (OMO), and micro-level commercial bank intermediation. Conversely, the Sharia CBDC paradigm necessitates a sophisticated macro-monetary approach. This includes understanding programmable monetary transmission mechanisms, real-time macroeconomic stabilization, and the automated integration of social fiscal tools, such as algorithmic zakat deductions directly embedded within central bank digital tokens.

Third, a severe gap is evident in student research methodologies. While modern central banking and financial technology sectors rely heavily on real-time macro-simulations and high-frequency data analytics, undergraduate and graduate research in IHE remains restricted to basic Ordinary Least Squares (OLS) regressions and static descriptive statistics. To meaningfully engage with Sharia CBDCs, student methodologies must be upgraded to encompass algorithmic simulations—such as Dynamic Stochastic General Equilibrium (DSGE) modeling—computational data programming in Python or R, and rigorous Fiqh-Tech auditing frameworks capable of inspecting smart contract code for Sharia compliance.

Overcoming isomorphic inertia requires a structural shift toward transdisciplinary integration. Curricula must discard the artificial division between Sharia jurisprudence and computational econometrics in favor of hybrid course structures, such as "Islamic Macro-Digital Economics" and "Smart Contract Auditing for Sharia Governance". In these courses, students evaluate computer code through the lens of Maqasid al-Shariah (hifz al-mal and al-'adalah). This proposed model extends the theoretical framework of Meera (2024), who advocated for the ethical alignment of sovereign digital tokens. However, it departs from classical curriculum models (e.g., Ascarya et al., 2025) that treat Islamic economics as a passive consumer of central bank policy rather than an active driver of monetary design.

Systemic curriculum adaptation cannot occur within academic isolation; it demands a functional Triple-Helix Partnership involving monetary authorities (Bank Indonesia/OJK), universities, and the financial technology industry. Central banks must move beyond top-down policy dissemination and provide an "Academic Regulatory Sandbox" alongside open-data APIs for digital currency simulations. Access to simulated environments would allow students and researchers to model the macroeconomic impacts of Sharia CBDCs in real time. This recommendation aligns with Wardhany et al. (2025), who demonstrated that collaborative regulatory sandboxes accelerate applied research output. Conversely, it critiques current institutional practices that confine central bank engagement to ceremonial

guest lectures (Rahmat & Firmansyah, 2025).

Finally, curriculum reconstruction must be anchored in Critical Pedagogy to prevent students from becoming uncritical technicians of state-sponsored digital architecture. The instructional focus must extend beyond technical mechanics to foster critical inquiry regarding algorithmic bias, digital surveillance, and individual privacy protections under the principle of Maslahah Perimbangan (balanced public interest). Students must be equipped to interrogate whether programmable money could inadvertently concentrate monetary authority or restrict financial access for marginalized groups. This critical stance reinforces the pedagogical principles of Freirean critical inquiry as applied to digital finance (Denzin & Lincoln, 2024). It directly opposes pure market-driven educational models that prioritize technical employability over social justice and ethical critique (Furqani et al., 2025).

Conclusion

This study reveals that the Islamic Higher Education (IHE) ecosystem is entrapped in severe isomorphic inertia and curricular lag, leaving it unprepared for the macroeconomic disruptions introduced by Sharia Central Bank Digital Currencies (CBDC), such as Bank Indonesia's Digital Rupiah. Driven by rigid coercive accreditation demands, mimetic superficial course rebranding, and normative disciplinary silos separating fiqh scholars from quantitative economists, current curricula remain fixated on physical fiat cash, historical gold standards, and micro-banking mechanics. This study's distinct theoretical and analytical novelty lies in shifting the paradigm from viewing CBDC merely as a consumer-facing operational tool to framing sovereign digital money as an instrument of macro-distributive justice (al-'adalah al-ijtimaiyyah) and monetary sovereignty. By synthesizing Neoinstitutional Theory and Critical Pedagogy, this research introduces a novel Triple-Helix Transdisciplinary Framework that bridges cryptographic smart contract architecture, digital macro-econometrics, and Maqasid al-Shariah governance to address the epistemological disconnect in higher education. The findings carry critical multidimensional implications: accreditation bodies (LAMEMBA/BAN-PT) must reform evaluation rubrics to incentivize digital monetary innovations; monetary authorities (Bank Indonesia/OJK) must establish "Academic Regulatory Sandboxes" and open-data APIs for real-time macro-simulations; and faculty leadership must execute a structural overhaul of course syllabi (RPS) by embedding hybrid modules like "Islamic Macro-Digital Economics" and "Smart Contract Auditing." Limitations arise from the study's primary focus on Indonesian PTN and PTKIS adapting to Bank Indonesia's Project Garuda, which reflects Southeast Asia's specific dual banking regulatory landscape. Consequently, future research should pursue comparative cross-border analyses involving central banks and universities in the GCC, North Africa, and South Asia, as well as quantitative empirical studies testing the operational efficacy of the proposed Triple-Helix Transdisciplinary Framework across diverse academic institutions.

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