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ISLAMIC FINANCE AND NCCS: COMPARATIVE INSIGHTS FROM MALAYSIA, INDONESIA, AND EL SALVADOR

Ema Izati Zull Kepili*, Nik Hadiyan Nik Azman

School of Management, Universiti Sains Malaysia Pulau Pinang, MALAYSIA

Corresponding Author; email: emazull@usm.my

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Abstract

The growing interest in national cryptocurrencies (NCCs), also known as central bank digital currencies (CBDCs), has prompted policymakers worldwide to explore their potential in enhancing monetary efficiency, financial inclusion, and digital sovereignty. Yet, most frameworks for evaluating NCC readiness remain heavily skewed toward technical and regulatory perspectives, overlooking crucial dimensions such as socio-cultural alignment and ethical compliance—particularly in Islamic finance jurisdictions. This conceptual paper proposes a four-pillar framework to assess NCC readiness in Muslim-majority countries, drawing on case studies from Malaysia and Indonesia, and contrasting them with El Salvador's experience. The proposed pillars—technological infrastructure, regulatory adaptability, monetary policy integration, and socio-cultural and Shariah alignment—are examined through an interdisciplinary lens combining technology adoption, institutional theory, and Islamic finance principles. Findings highlight the need for a culturally grounded, ethically compliant approach to NCC implementation, especially in ASEAN economies navigating both digital transformation and geopolitical uncertainty. This study offers strategic insights for central banks, regulators, and Shariah bodies seeking inclusive and sustainable pathways in the evolving digital currency landscape. Also, this study integrates Maqasid al-Shariah into NCC readiness assessment and offers comparative insights contrasting El Salvador with Malaysia and Indonesia.

Keywords: *National Cryptocurrencies, Islamic Finance, Shariah Compliance, Monetary Policy, and Digital Sovereignty.*

Abstrak

Minat yang semakin meningkat terhadap mata wang kripto kebangsaan (NCC), yang juga dikenali sebagai mata wang digital bank pusat (CBDC), telah mendorong penggubal dasar di seluruh dunia untuk meneroka potensinya dalam meningkatkan kecekapan monetari, keterangkuman kewangan dan kedaulatan digital. Namun, kebanyakan rangka kerja untuk menilai tahap kesediaan NCC masih terlalu tertumpu kepada perspektif teknikal dan peraturan, sambil mengabaikan dimensi penting seperti keselarasan sosio-budaya dan pematuhan etika—terutamanya dalam bidang kewangan Islam. Kertas konsep ini mencadangkan satu rangka kerja berasaskan empat tonggak untuk menilai kesediaan NCC di negara-negara majoriti Muslim, dengan merujuk kepada kajian kes dari Malaysia dan Indonesia, serta membuat perbandingan dengan pengalaman El Salvador. Empat tonggak yang dicadangkan—iaitu infrastruktur teknologi, kebolehsuaian peraturan, integrasi dasar monetari, dan keselarasan sosio-budaya serta Syariah—dikaji melalui lensa interdisiplin yang menggabungkan teori penerimaan teknologi, teori institusi dan prinsip kewangan Islam. Dapatan kajian menekankan keperluan pendekatan yang berasaskan budaya dan mematuhi etika dalam pelaksanaan NCC, khususnya di ekonomi ASEAN yang sedang mengharungi transformasi digital dan ketidaktentuan geopolitik. Kajian ini menawarkan pandangan strategik kepada bank pusat, pengawal selia dan badan Syariah yang mencari laluan inklusif dan mampan dalam landskap mata wang digital yang sedang berkembang. Selain itu, kajian ini mengintegrasikan Maqasid al-Shariah dalam penilaian kesediaan NCC dan memberikan pandangan perbandingan antara El Salvador dengan Malaysia dan Indonesia.

Kata kunci: *Mata Wang Kripto Kebangsaan, Kewangan Islam, Pematuhan Syariah, Dasar Monetari, dan Kedaulatan Digital.*

INTRODUCTION

National cryptocurrencies, within the context of a digitally disrupted global economy, exemplify the transformative impact of digital innovation on financial systems (IMF, 2025). Central banks are now exploring new ways to manage money, and national cryptocurrencies (NCCs), or central bank digital currencies (CBDCs), have emerged as one such path. Unlike decentralized cryptocurrencies like Bitcoin, NCCs are state-issued and centrally regulated, allowing integration with existing monetary policies. These digital currencies offer improved efficiency, security, and accessibility, especially for countries looking to strengthen their digital and financial sovereignty (Auer, Cornelli, & Frost, 2020; Liu, 2024; IMF, 2023).

More than 130 countries are studying NCCs today, largely due to the rise of digital transactions and the growing demand for more inclusive and transparent financial systems (BIS, 2023). Yet, most frameworks for evaluating NCC readiness often neglect socio-cultural and ethical dimensions. This paper addresses this through an interdisciplinary approach combining technology adoption, institutional theory, and Islamic finance principles.

In Southeast Asia, Malaysia and Indonesia are taking early, careful steps. Malaysia's Bank Negara has joined Project Dunbar, a collaborative effort on cross-border multi-CBDC platforms. Meanwhile, Bank Indonesia has launched Project Garuda, which explores both wholesale and retail use cases for digital currency (BNM, 2022; BI, 2023). The Organization of Islamic Cooperation’s COMCEC has observed that many Emerging Market and Developing Economies (EMDEs)—including Malaysia and Indonesia—are moving faster to explore both retail and wholesale CBDCs than advanced economies, further demonstrating regional appetite for financial innovation (COMCEC, 2023).

For Muslim-majority nations, however, the question is not only technical or economic. It is also ethical and religious. Any digital currency must meet Shariah standards, avoid riba (interest) and gharar (excessive uncertainty), and align with the objectives of Maqasid al-Shariah (Abubakar, Ogunbado, & Saidi, 2018; Naz, 2024). Public trust and religious legitimacy are central concerns. This is where Malaysia and Indonesia differ from other NCC adopters.

The interest in NCCs is also shaped by growing geopolitical and currency-related uncertainties. With intensifying global trade tensions, inflationary pressures, particularly among developing nations, digital currencies are increasingly being viewed as strategic tools for economic resilience and digital sovereignty. Notably, Malaysia’s Prime Minister, Dato’ Seri Anwar Ibrahim,in Sasana Symposium 2025 has highlighted the potential role of stablecoins in supporting cross-border trade, signalling an openness at the highest level of government to explore regulated, asset-backed digital instruments that could complement existing monetary systems (Fintech News Malaysia, 2025; Cointelegraph, 2025; Blockhead, 2025; CoinLive, 2025; Ledger Insights, 2025).

However, El Salvador's approach offers critical lessons on the importance of institutional and cultural preparedness. In 2021, El Salvador became the first country in the world to adopt Bitcoin as legal tender. The move was supposed to improve financial inclusion and lower remittance costs, but the results proved complex. The country faced significant public resistance, digital infrastructure limitations, low adoption rates, and credibility concerns, particularly due to the volatility of Bitcoin and limited financial literacy among the population (Carreres, 2024; IMF, 2022). This highlights a critical lesson: technological readiness alone is insufficient. Sociocultural context, regulatory trust, and ethical alignment are equally vital for successful adoption.

In light of these developments, this paper argues that any National Cryptocurrency (NCC) effort—especially in Islamic finance countries like Malaysia and Indonesia—should be reviewed more holistically. Beyond technical and legal aspects, it is important to understand how cultural values, ethical standards, and public trust shape acceptance. NCCs must be not only functional, but also trusted, inclusive, and in line with Islamic principles.

The objective of this paper is to develop a conceptual framework for evaluating how ready a country is to adopt National Cryptocurrencies. It focuses on those operating within Islamic financial systems. This study proposes a four-pillar framework of NCC readiness that incorporates:

1. Technological infrastructure,
2. Regulatory and policy adaptability,
3. Monetary policy integration and geopolitical resilience, and
4. Socio-cultural and Shariah alignment.

In doing so, this paper makes the following three contributions:

a. Conceptual Contribution:
The paper draws from Technology Readiness Theory, Institutional Theory, and Islamic ethical finance frameworks, including *Maqasid al-Shariah*, to formulate a holistic model for assessing NCC readiness.

b Comparative Case Insights:
Using El Salvador's Bitcoin experience as a reference point, the paper highlights the pitfalls of poorly contextualised adoption strategies. These lessons are examined alongside the more deliberate, structured, and Shariah-compliant approaches adopted by Malaysia and Indonesia, providing deeper insight into effective implementation strategies and their underlying factors.

c. Strategic Policy Relevance:
By framing NCC development within the broader geopolitical and ethical context, the study aims to guide central banks, regulators, and Islamic finance stakeholders in crafting policies that are not only technologically progressive, but also morally grounded, socially accepted, and regionally resilient.

Overall, this paper contributes to a growing body of research aimed at responsible digital transformation in the financial sector—one that is inclusive, ethical, and relevant to the lived realities of ASEAN economies.

This paper is structured into six main sections to explore how National Cryptocurrencies (NCCs) can be developed in countries with Islamic financial systems. Section 2 reviews existing literature on NCCs, key Islamic finance principles, and ongoing projects such as Project Dunbar and Project Garuda. Section 3 introduces a four-pillar framework to assess NCC readiness, focusing on technology, regulation, monetary policy, and socio-cultural alignment. Section 4 compares El Salvador’s experience with Malaysia and Indonesia to highlight different levels of preparedness. Section 5 discusses key policy lessons for central banks and Shariah bodies, calling for a gradual and ethical approach to NCC adoption. Section 6 concludes the paper with key findings and proposes future research on areas like public trust, digital literacy, and regional Shariah coordination.

LITERATURE REVIEW

Understanding National Cryptocurrencies (NCCs)

The idea of National Cryptocurrencies (NCCs) or Central Bank Digital Currencies (CBDCs), has evolved over the past decade as part of a broader shift towards digital financial ecosystems. The interest in NCCs gained momentum following the 2008 global financial crisis and the emergence of Bitcoin in 2009. NCCs are digital versions of a country’s official currency, issued and managed by the central bank. Unlike private cryptocurrencies, NCCs aim to provide the public with a safe, accessible, and sovereign digital payment instrument. Most central banks are considering NCCs to complement—not replace—physical cash. They are also exploring how NCCs can improve payment efficiency, support financial inclusion, and enhance monetary policy tools (Auer & Böhme, 2021; IMF, 2023).

Although there are more than 130 countries exploring or piloting NCCs, only a few have moved beyond the research stage, for example:

- The Bahamas launched the Sand Dollar in 2020, mainly to improve access in remote islands. Nonetheless as to date, the Sand Dollar has not yet been fully effective, as adoption remains limited— accounting for less than 0.5% of currency in circulation
- Nigeria introduced the eNaira in 2021, but uptake has been slow due to limited trust and awareness. Persistent low adoption is attributed to insufficient public awareness, limited merchant acceptance, weak financial literacy, and lack of compelling use cases (IMF, 2023; Stears, 2023; UCI, 2022).
- China is testing the e-CNY (Digital Yuan) in major cities, positioning it as a tool for domestic efficiency and international trade. China’s digital yuan (e-CNY) is growing rapidly, with over 260 million wallets and nearly US$1 trillion in transactions as of 2025. It is expected to reach US$2.7 trillion annually by 2030, with potential to support 20–30% of China’s foreign trade, making it one of the most promising and widely adopted CBDCs globally.
- In Europe, the European Central Bank is exploring a Digital Euro, while the Bank of England is studying a potential Digital Pound. The Digital Euro is in the preparation phase with a possible launch by 2026, while the Digital Pound is still being designed, with full rollout expected later this decade.

Despite the initiatives, only El Salvador adopted a cryptocurrency (Bitcoin) as legal tender in 2001, as fully decentralised currency. However, its experience has raised concerns globally. Many countries are still cautious about adopting national cryptocurrencies due to key concerns. These include unclear regulations, cybersecurity risks, potential threats to financial stability, low public readiness, and rising geopolitical tensions.

A major reason why most nations have not implemented NCCs is that public trust and digital literacy remain low, especially in developing economies. In addition, central banks must ensure that NCCs do not disrupt the existing banking system, cause capital flight, or expose the country to speculative risks. Moreover, data privacy and cross-border use remain complex, especially in regions with uneven legal frameworks and weak digital infrastructure.

Within ASEAN, Malaysia and Indonesia have opted for a more structured, exploratory approach:

- Malaysia’s Project Dunbar (with the Bank for International Settlements) is testing multi-CBDC use for cross-border transactions among central banks. To date, Project Dunbar successfully developed prototypes for a shared multi-CBDC platform to enable seamless cross-border payments among participating central banks. While technically feasible, the project is now focused on governance, regulatory coordination, and potential real-world trials, with no confirmed launch timeline.
- Indonesia’s Project Garuda is evaluating both retail and wholesale CBDC models under Bank Indonesia’s phased roadmap. To date, the project successfully completed its wholesale Digital Rupiah proof-of-concept in December 2024, demonstrating strong technical feasibility through integration with multiple distributed ledger technologies (DLT) and existing banking infrastructure (Bank Indonesia, 2024). Following this, Bank Indonesia introduced Regulation No. 4 of 2025, which reinforces its national payment system framework and supports the transition to intermediate and retail CBDC phases in line with its 2030 payment system blueprint (Bank Indonesia, 2025).

While both Malaysia and Indonesia are making steady progress in developing their national digital currency frameworks, it remains unclear to what extent Shariah principles and public trust mechanisms are being fully integrated into the design and implementation phases. Although there are encouraging signs—such as the involvement of the Shariah Advisory Council in Malaysia and the strong Islamic finance community in Indonesia—there is limited public information confirming whether these ethical and cultural considerations are embedded at the core of their NCC development. It is hoped that both countries will incorporate these critical elements to ensure that the digital currency initiatives not only achieve technical success but also avoid the pitfalls of inadequate social alignment, as witnessed in the El Salvador case.

Islamic Finance and Digital Currency

In Islamic finance, all financial transactions must align with Shariah principles, which emphasize justice (*‘adl*), transparency (*bayyinah*), and the avoidance of harm (*darar*). These principles prohibit *riba* (interest), *gharar* (excessive uncertainty), and *maysir* (gambling/speculation). The goal is to ensure that wealth is generated from productive and fair economic activity, not from unjust enrichment or exploitation (Abubakar, Ogunbado, & Saidi, 2018; Naz, 2024).

This framework is firmly rooted in the Qur’an and Sunnah,
"Allah has permitted trade and forbidden riba (usury)."

(Surah Al-Baqarah, 2:275)

Also:
“O you who believe! Do not consume one another’s wealth unjustly but only [in lawful] business by mutual consent.”

(Surah An-Nisa, 4:29)

The Prophet Muhammad ﷺ also stated:
“Whoever cheats is not one of us.”

(Sahih Muslim, Hadith 102)

These injunctions guide the Islamic perspective on emerging digital financial instruments, including digital currencies. Cryptocurrencies such as Bitcoin and Ethereum have raised considerable debate among Shariah scholars. Due to their speculative nature, high volatility, and lack of intrinsic value, many scholars argue they contain elements of *gharar* and *maysir*, thus rendering them non-compliant with Shariah (Rahman & Rehman, 2020; Mansoori, 2022).

However, NCCs present a more structured alternative. Since these are backed either by sovereign reserves or real assets and issued by regulatory authorities, they offer greater monetary stability, transparency, and potential for Shariah compliance (Muneeza & Mustapha, 2021; Alshater et al., 2023). For a digital currency to be Shariah-compliant, scholars have generally proposed two key conditions:

1. It must function as a legitimate medium of exchange, recognised by lawful authority and used in halal transactions (Muneeza & Mustapha, 2021).
2. It must avoid harmful characteristics, including price manipulation, fraud, or excessive uncertainty (Zainal et al., 2023).

Beyond avoiding prohibition, a Shariah-compliant NCC should also advance the Maqasid al-Shariah—the higher objectives of Islamic law: protecting religion (*din*), life (*nafs*), intellect (*‘aql*), progeny (*nasl*), and property (*mal*). In this regard, a properly designed NCC can support:

- Financial inclusion in rural and underbanked communities
- Reduced dependence on interest-based instruments
- Trustworthy digital payment infrastructure consistent with Islamic ethics

These outcomes align with the principle of maslahah ‘ammah (public interest), which serves as a basis for legal permissibility (*hukm*) in cases of modern ijtihad (independent reasoning). The potential benefits of NCCs—such as reducing financial inequality and improving payment transparency—can be considered Islamically commendable innovations, provided their risks are mitigated and governance is strong (Ibrahim et al., 2023; Muneeza & Mustapha, 2021).

Finally, Shariah governance mechanisms play a central role in ensuring religious legitimacy. In Malaysia, the Shariah Advisory Council (SAC) under Bank Negara Malaysia provides oversight and rulings on new financial technologies. In Indonesia, the Dewan Syariah Nasional – Majelis Ulama Indonesia (DSN-MUI) serves a similar function. These bodies ensure that innovations like NCCs undergo not only regulatory review but also fatwa evaluation, integrating technical, legal, and ethical considerations.

In conclusion, NCCs can be made compatible with Islamic financial principles, but only through robust Shariah screening, purposeful design, and public education. In Muslim-majority contexts like Malaysia and Indonesia, digital currencies must function not just as efficient tools—but as ethically grounded instruments that preserve trust, support justice, and align with Islamic economic philosophy.

Lessons from El Salvador: Understanding Readiness Beyond Technology

In 2021, El Salvador became the first country in the world to make Bitcoin legal tender. The policy was introduced with ambitious objectives—financial inclusion, cheaper remittance costs, and more independence from global monetary pressures (Howson, 2025; Carreres, 2024; IMF, 2022). After the launch, surveys showed that most Salvadorans rarely used Bitcoin in daily life. A large number of people either lacked smartphones, stable internet access, or did not trust a digital currency not backed by their central bank (Alvarez & Loayza, 2022). There were also technical problems, such as errors in the government's "Chivo Wallet" app, identity fraud, and confusion over how to use the system properly (Runde & Issa, 2022). More importantly, the government introduced this policy in a top-down way, with little public consultation or education. This made many citizens feel left out of the process. Without public trust and clear understanding, the Bitcoin rollout failed to gain support—especially among low-income groups who were supposed to benefit the most.

This example is very important for countries in ASEAN, especially those with large Muslim populations like Malaysia and Indonesia. In these countries, people want financial solutions that are not only efficient, but also aligned with Islamic ethical principles like whether its is halal or haram, fairness, transparency, and justice. A digital currency that is not trusted, or seen as risky (*gharar*) or speculative (*maysir*), would face serious resistance.

The Qur'an clearly says:
"O you who believe! Do not consume one another's wealth unjustly…"

(Surah An-Nisa, 4:29)

The Prophet Muhammad ﷺ also warned against harm in economic dealings:
"There should be neither harming nor reciprocating harm."

(Sunan Ibn Majah)

From an Islamic economic perspective, a financial system must protect the vulnerable and promote the public good (*maslahah*). El Salvador's experience shows what happens when technology is introduced without strong public trust or ethical alignment. It becomes more of a burden than a solution.

For NCCs to succeed—especially in countries that follow Islamic finance—four key elements are needed; i. Community engagement before implementation, ii. Shariah screening to ensure compliance, iii. Infrastructure and literacy support for the population, and iv. Transparent and inclusive policies. El Salvador teaches us that readiness is not just technical. It includes values, trust, and social context. For ASEAN countries, this is a lesson worth noting. With the right preparation, national digital currencies can offer real benefits—but if rushed or poorly communicated, they may do more harm than good.

METHODOLOGY

Conceptual Framework For NCC Readiness In Islamic Finance Context

In this study, the comparative case analysis relies on a synthesis of existing literature and publicly available reports (desk review). These cases serve illustrative purposes rather than empirical validation. Based on a synthesis of relevant literature and grounded in the context of Islamic financial systems, this paper proposes a four-pillar conceptual framework to assess NCC readiness. Each pillar addresses interconnected dimension necessary for responsible and inclusive implementation.

Pillar 1: Technological Infrastructure

The first pillar refers to the digital capacity of a country to support secure, scalable, and accessible NCC systems. This includes internet penetration, mobile banking usage, cybersecurity frameworks, and access to digital identity systems. According to BIS (2023), many central banks consider reliable digital infrastructure a minimum requirement before launching a central bank digital currency (CBDC). Without this foundation, adoption will be uneven and limited. However, rural-urban digital divides and cybersecurity risks remain challenges to be addressed before any full-scale launch.

Pillar 2: Regulatory and Policy Adaptability

The second pillar concerns the legal and institutional readiness to regulate digital currencies. NCCs sit at the intersection of finance, technology, and law. Therefore, regulators must ensure that policies are adaptable to innovation, yet consistent with national laws and Shariah governance principles. Malaysia, for example, has a dual-regulatory structure, with Bank Negara Malaysia overseeing monetary policy and the Shariah Advisory Council ensuring compliance with Islamic principles. Both systems must work in tandem to assess the legal classification of digital assets, anti-money laundering (AML) risks, and the issuance of NCC. Indonesia has shown similar awareness, integrating digital finance within broader financial inclusion strategies and Shariah banking development plans. However, aligning digital currency policies with Shariah rulings remains a work in progress.

Pillar 3: Monetary Policy Integration and Geopolitical Strategy

Digital currencies must be integrated into the overall monetary and macroeconomic policy framework, especially in countries aiming to manage inflation, currency stability, and capital flows. For many emerging economies, NCCs offer a tool to reduce dollar dependency, improve cross-border payments, and respond to geopolitical risks (BIS, 2023). In the ASEAN region, economic pressures from global trade tensions, exchange rate volatility, and the rise of digital currencies from major economies (like China’s e-CNY) push central banks to explore their own digital options. Initiatives like Project Dunbar indicate a strategic direction for ASEAN to manage cross-border liquidity using Shariah-compliant digital currencies (BNM, 2022).

Pillar 4: Socio-Cultural and Shariah Alignment

The final and most critical pillar—particularly for Muslim-majority nations—is socio-cultural readiness and Shariah compliance. Even with good infrastructure and supportive regulations, an NCC will not succeed without public trust and alignment with community values. Islamic finance places strong emphasis on justice (*adl*), mutual benefit (*maslahah*), and ethical certainty in financial transactions.

The Qur'an emphasizes fairness in trade:
"Give full measure and weight in justice, and do not deprive people of their due."

(Surah Al-A'raf, 7:85)

The Hadith also reminds us:
"Whoever cheats is not one of us."

(Sahih Muslim)

Digital currencies must be free from elements of speculation (*maysir*), ambiguity (*gharar*), and harmful consequences (*darar*). This includes how the money is created, managed, and used. As noted by Zainal et al. (2023), public acceptance of digital currencies in Islamic countries depends heavily on perceived Shariah compatibility and the involvement of religious authorities in the design process. For example, in El Salvador, weak cultural engagement and lack of ethical alignment contributed to low public trust (Howson, 2025). For Malaysia and Indonesia, failing to engage Islamic scholars, educators, and community leaders in NCC development could lead to similar outcomes.

Theoretical Foundation

The proposed framework for assessing national cryptocurrency (NCC) readiness in Islamic finance jurisdictions draws from four key theoretical foundations. These theories are chosen to ensure a holistic and interdisciplinary understanding of readiness—capturing not only technical and policy aspects, but also ethical, social, and institutional dimensions. This is especially important for countries like Malaysia and Indonesia, where financial systems must align with both central bank governance and Shariah principles.

a) Technology Readiness Theory (TRT)
Technology Readiness Theory, first introduced by Parasuraman (2000), offers a foundation for understanding how individuals and institutions adopt and respond to new technologies. It identifies four key traits that influence readiness: optimism, innovativeness, discomfort, and insecurity. These traits influence whether a population or institution is likely to adopt technologies like digital currencies.

In the context of NCCs, TRT helps policymakers evaluate whether users are digitally literate, trust the digital environment, and have access to the required tools—such as mobile devices and secure internet connections. For ASEAN countries, this is critical. While urban areas may show high digital readiness, rural communities may face discomfort or insecurity due to limited access or lack of knowledge. The gap between infrastructure and digital trust must be addressed before national rollout.

b) Institutional Theory
Institutional Theory (Scott, 2008) explains how social structures, norms, and formal rules influence the behavior of institutions. It highlights three pillars of institutions: regulative, normative, and cultural-cognitive. This theory is useful for assessing how governments, central banks, and Shariah bodies respond to digital innovation. For example, in Malaysia, institutions like Bank Negara Malaysia and the Shariah Advisory Council have clear roles in shaping financial policies. Their cooperation ensures that technological advancements such as NCCs are not only legally permissible but also ethically sound. Institutional Theory helps us understand how Shariah legitimacy, policy clarity, and community norms play a role in enabling or delaying digital currency adoption.

c) Monetary Policy Integration

A strong foundation for NCC development also requires grounding in monetary policy theory, particularly how digital currencies interact with macroeconomic tools such as interest rates, inflation targeting, and liquidity control (BIS, 2023). NCCs can either support or disrupt the central bank’s monetary transmission mechanism, depending on their design. In emerging markets, digital currencies are often introduced as tools to promote financial inclusion, reduce reliance on foreign currencies (especially USD), and improve cross-border transactions. However, poor integration may lead to currency instability or speculative behavior. For Islamic countries, monetary policy must be free of interest-based instruments (*riba*) and promote value stability, risk-sharing, and justice in economic outcomes. Therefore, NCCs must be designed to function within these ethical and economic boundaries.

d) *Maqasid al-Shariah* (Higher Objectives of Islamic Law)

The final and most unique pillar in this framework is *Maqasid al-Shariah*, or the higher objectives of Islamic law. This includes the protection of religion (din), life (nafs), intellect (aql), wealth (mal), and lineage (nasl). In financial matters, Maqasid encourages fairness, prevents exploitation, and ensures that economic tools promote public welfare (*maslahah*) and prevent harm (*mafsadah*). Digital currencies must not promote speculation (*maysir*), excessive uncertainty (*gharar*), or unjust enrichment. They must also serve the community by improving access, reducing inequality, and protecting wealth. As stated in the Qur’an:

“Do not consume one another’s wealth unjustly, but do so by mutual consent.”

(Surah An-Nisa, 4:29)

By embedding Maqasid al-Shariah into the NCC readiness framework, policymakers in Malaysia and Indonesia can ensure that digital currencies uphold Islamic financial ethics and gain broader social acceptance. This also differentiates the Islamic approach from conventional models, where technical efficiency often takes precedence over moral considerations.

Nonetheless, as a conceptual paper, the limitation lies in findings are illustrative and not empirically tested. Future research should validate the framework through quantitative measures.

FINDINGS

Comparative Case Analysis: El Salvador, Malaysia, And Indonesia

The global shift toward National Cryptocurrencies (NCCs) shows significant variation in implementation, especially between countries with different institutional, cultural, and economic contexts. In this section, we analyze the experiences and approaches of three countries: El Salvador, Malaysia, and Indonesia. While El Salvador represents a case of early adoption with mixed outcomes, Malaysia and Indonesia are taking a more cautious, structured, and culturally grounded approach. This section applies the four-pillar framework from Section 3—technological infrastructure, regulatory adaptability, monetary integration, and socio-cultural alignment—to evaluate readiness and highlight critical lessons.

A comparison of technological infrastructure (Table 1.0) shows significant variation in readiness among the three countries. El Salvador faced major technological limitations, particularly in rural areas where internet access and smartphone penetration remain low, resulting in limited public engagement with Bitcoin and practical usage challenges (Howson, 2025; Krause, 2024). For example, technical errors in the Chivo Wallet and identity fraud highlight infrastructure weaknesses and contributed to low trust. In contrast, Malaysia possesses a strong digital foundation, with nationwide internet coverage, a thriving fintech ecosystem, and widespread use of e-wallets and digital banking services (World Bank, 2023). Indonesia is making strong progress in digital development, especially in urban areas, but still faces noticeable gaps in rural regions, which could pose obstacles to a fully inclusive NCC rollout (WEF, 2023). Therefore, it is safely said that Malaysia's involvement in Project Dunbar and Indonesia's successful Digital Rupiah proof-of-concept demonstrate cautious yet effective progress.

From a regulatory perspective, El Salvador's rapid adoption of Bitcoin was widely criticized for lacking sufficient legal safeguards and institutional preparedness, leading to confusion and mistrust among its citizens (Alvarez & Loayza, 2022). On the other hand, Malaysia operates under a dual legal and Shariah-compliant financial system that ensures both regulatory clarity and ethical oversight, particularly important in a Muslim-majority context. The presence of institutions like the Shariah Advisory Council ensures financial products meet religious standards while aligning with central bank policies (BNM, 2022). Indonesia's regulatory environment is still evolving, but inter-agency coordination between OJK and Bank Indonesia has shown promise in fostering both Islamic and digital finance frameworks (Bank Indonesia, 2023).

The socio-cultural and ethical dimension is perhaps the most defining factor in the readiness for NCC adoption. El Salvador struggled with low public trust, limited financial literacy, and a lack of religious or community-based engagement in its rollout strategy—factors that undermined the legitimacy of the Bitcoin initiative (Howson, 2025; Krause, 2024). In contrast, Malaysia integrates Shariah principles into its policymaking process, increasing acceptance among the Muslim population and reinforcing trust in financial innovation. While Indonesia also has a strong Islamic finance sector, awareness and understanding of digital Islamic finance remain relatively low. Active involvement from religious scholars and Islamic institutions will be critical for improving legitimacy and public confidence in any future NCC initiative (Azmi et al., 2023). Overall, the contrasting approaches suggest that technological readiness, regulatory coordination, and socio-cultural alignment must all be addressed in a balanced way for NCCs to be viable in diverse national contexts. Table 1.0 summarizes the comparative insights across the four pillars, providing a visual snapshot of each country's readiness.

Table 1: Key Comparative Insights

Pillar	El Salvador	Malaysia	Indonesia
Technological Infrastructure	Patchy; poor rural access	Strong fintech base; nationwide coverage	Growing; rural gaps remain
Regulatory Adaptability	Weak and rushed	Dual legal-Shariah system; evolving	Developing; coordination improving
Monetary Integration	Disconnected; Bitcoin volatile	Integrated; cautious monetary policies	Strategic but still exploratory
Socio-Cultural/ Shariah Fit	Low trust, no religious input	Shariah council involvement; public trust	Strong Islamic sector; public awareness low

El Salvador's bold but underprepared approach stands in contrast to Malaysia and Indonesia, which demonstrate more measured, inclusive, and ethically grounded strategies. These differences show that NCC implementation cannot rely on technology alone. Readiness must include policy alignment, community engagement, and compliance with ethical-religious norms. For countries in the Islamic world, socio-cultural trust and Shariah legitimacy are not optional—they are foundational to success.

Key findings

The comparative analysis of El Salvador, Malaysia, and Indonesia highlights that readiness for national cryptocurrency (NCC) adoption must be holistic rather than technology-centric. Specifically:

- Technological Infrastructure: El Salvador's limited digital access and technical issues hindered adoption, whereas Malaysia and Indonesia benefit from stronger digital ecosystems.
- Regulatory and Policy Alignment: Rushed implementation in El Salvador created mistrust, while Malaysia and Indonesia employ structured, Shariah-compliant frameworks to ensure legitimacy.
- Socio-Cultural and Ethical Fit: Public trust and cultural legitimacy are critical; Malaysia integrates Shariah councils effectively, whereas Indonesia requires greater awareness initiatives.

These findings emphasize that ethical compliance and community engagement are fundamental prerequisites for NCC success in Muslim-majority contexts.

POLICY IMPLICATIONS AND STRATEGIC RECOMMENDATIONS

The development of National Cryptocurrencies (NCCs) presents both opportunities and responsibilities for Islamic finance jurisdictions. While Malaysia and Indonesia show prudence and promise in their explorations, moving forward requires an integrated policy approach that upholds Shariah values, promotes public trust, and responds to geopolitical realities. This section offers actionable recommendations based on the four-pillar readiness framework and comparative country analysis, with supporting evidence from current literature.

a) Engage Multistakeholder Governance Early

One of the key lessons from El Salvador is that top-down implementation without institutional inclusivity leads to poor outcomes (Howson, 2025; Krause, 2024). In contrast, Malaysia's Project Dunbar demonstrates the benefit of involving international regulators and Shariah authorities from the outset (BNM, 2022). Islamic finance ecosystems require an expanded stakeholder map including central banks, regulatory bodies, fintech providers, Shariah councils, and civil society. As pointed out by Ramli et al. (2023), Shariah governance in digital financial innovation must not be limited to ex-post screening but embedded during product conceptualisation.

Recommendation: Establish NCC advisory panels at the national level that include ulama, Shariah fintech experts, macroeconomists, and digital inclusion advocates to align with Maqasid al-Shariah from day one.

b) Build Public Trust Through Shariah-Led Literacy Campaigns

Digital currency acceptance in Islamic societies depends on the community's belief that such tools are ethically legitimate. The lack of clear public communication and education in El Salvador led to distrust and low adoption rates (Alvarez & Loayza, 2022). In Malaysia and Indonesia, high trust in religious leaders and institutions offers a unique channel for educating the public about NCCs.The Quran advocates protecting the financially vulnerable and ensuring transparency in transactions:

"And do not give the weak-minded your property… but provide for them and clothe them, and speak to them with kind words"

(Surah An-Nisa, 4:5).

Recommendation: Develop joint campaigns with Islamic finance institutions and religious authorities to clarify how NCCs are free of *riba*, *gharar*, and *maysir*, using local languages and relatable case studies (Azmi et al., 2023). Since public awareness campaigns by Islamic finance institutions in Malaysia and Indonesia remain limited, a need for proactive literacy programs is highly suggested.

c) Strengthen Regulatory-Shariah Synergy

The challenge in Islamic NCC implementation lies in harmonizing traditional monetary regulation with Islamic jurisprudence. According to Abubakar, Ogunbado, & Saidi (2018), Shariah boards must evolve from passive reviewers to proactive co-creators of fintech regulation. Malaysia's dual regulatory structure and Indonesia's collaborative model between Bank Indonesia and DSN-MUI offer promising templates.

Recommendation: Introduce a regional regulatory sandbox under ASEAN or IFSB coordination to test NCC applications with built-in Shariah compliance metrics, as advocated by Rahim & Abidin (2024).

d) Embed Monetary Policy Functions Within Shariah Limits

Unlike fiat systems that rely on interest rate tools, NCCs in Islamic jurisdictions must align with permissible instruments such as profit-loss sharing, sukuk-backed liquidity management, or digital zakat disbursement. Recent studies (Meera, 2021; Hossain et al., 2023) argue that programmable features in CBDCs can enable targeted monetary interventions without violating Shariah, particularly in distributing relief funds or regulating consumption patterns. Malaysia's sukuk-backed liquidity tools and Indonesia's roadmap for non-interest-based instruments illustrate efforts to embed monetary policy within Shariah limits.

Recommendation: Program NCCs with features to support Islamic monetary tools (e.g., zakat automation, digital waqf allocation), thus complementing central bank mandates without relying on *riba*-based mechanisms.

e) Promote Digital Sovereignty through Regional Collaboration

Global dollar dependency and sanctions risk have reignited interest in de-dollarisation and regional payment networks. NCCs offer a path forward, particularly for Muslim-majority countries aiming for monetary sovereignty. Project Dunbar's multi-CBDC infrastructure is a step in this direction (BNM, 2022). Studies by Lim et al. (2023) suggest that ASEAN-based Islamic finance hubs can pioneer cross-border stablecoins or interoperable NCC corridors that respect Shariah standards.

Recommendation: Create a shared NCC governance framework across Islamic ASEAN states, with protocols for interoperability, halal trade facilitation, and regional data protection.

f) Institutionalise Maqasid-Based Performance Audits
Shariah compliance alone is not enough—NCCs must also fulfil *maslahah* (public good) and avoid *mafsadah* (harm). The ethical outcomes of digital finance tools must be assessed over time. Zainal et al. (2023) suggest using a Maqasid-based dashboard that measures NCC impact on inclusion, justice, and wealth redistribution. This aligns with SDG and ESG frameworks increasingly used in Islamic investment.

Recommendation: Include Maqasid indicators in NCC KPIs—for example:
- Does the currency reduce exclusion?
- Does it prevent speculation?
- Does it enhance *halal* economic activity?

Table 2: Summary of Strategic Recommendations

Policy Focus	Strategic Recommendation
Inclusive Governance	Establish NCC advisory bodies with fintech, Shariah, and civil society stakeholders
Public Literacy	Co-create national campaigns on Islamic digital finance with ulama and educators
Regulatory-Shariah Fit	Coordinate sandbox testing with regional Islamic finance standard-setting bodies
Monetary Integration	Program NCCs for zakat, sukuk, and non-interest-based liquidity support
Geopolitical Readiness	Pursue ASEAN-wide Shariah-compliant NCC corridor for trade and payments
Ethical Outcome Monitoring	Apply Maqasid al-Shariah dashboards to monitor NCC impact on society and economy

g) Alternative perspective

Prioritizing Shariah alignment in NCCs is occasionally viewed as restrictive, potentially limiting innovation and reducing global competitiveness. An alternative perspective emphasizes universal ethical standards as a means to enhance inclusivity and simplify compliance processes. Concerns also arise regarding increased operational costs and complexity associated with strict adherence. However, these arguments often overlook the growing demand for faith-based financial solutions and the trust advantages that Shariah compliance provides, which can strengthen market positioning and stakeholder confidence.

CONCLUSION AND FUTURE RESEARCH DIRECTIONS

The rapid advancement of digital finance globally has created momentum for the development of national cryptocurrencies (NCCs), particularly in regions seeking to enhance monetary sovereignty and financial inclusion. For Islamic finance jurisdictions such as Malaysia and Indonesia, the introduction of NCCs represents both a technological opportunity and a moral obligation. This paper has argued that while infrastructure and regulatory capacity are crucial, socio-cultural alignment and Shariah compliance are equally vital to ensure meaningful and ethical implementation.

Using a four-pillar framework—technological infrastructure, regulatory adaptability, monetary integration, and socio-cultural alignment—this study has proposed a comprehensive lens through which NCC readiness can be evaluated. Drawing from the cautionary experience of El Salvador and contrasting it with more measured approaches like Malaysia's Project Dunbar and Indonesia's Project Garuda, we highlight the importance of integrating Islamic ethical principles, public trust, and institutional maturity into digital currency strategies.

The Islamic finance tradition provides valuable tools for ethical innovation, grounded in the *Maqasid al-Shariah*, which emphasizes justice (*adl*), public interest (*maslahah*), and the avoidance of harm (*mafsadah*). As NCCs evolve, ensuring these principles are embedded from the design stage will be essential. This includes avoiding *riba*, reducing *gharar*, and promoting equitable access to financial services.

Furthermore, geopolitical uncertainty and the push for digital sovereignty highlight the need for ASEAN-level collaboration. Regional NCC corridors, built on shared Islamic finance standards and interoperable platforms, could become a model for ethical and resilient financial systems.

Future Research Directions

This study opens up several avenues for future investigation:

1. Empirical NCC Readiness Index
   Researchers can develop a country-level NCC readiness index that incorporates Maqasid-based indicators and technological benchmarks for Islamic jurisdictions.

2. Shariah-Compliant NCC
   Further research can explore the feasibility of asset-backed stablecoins that are compliant with Islamic financial principles, especially in the context of regional trade and digital waqf/zakat.

3. Behavioural Insights in Digital Finance Adoption
   Studies should examine how religious values, digital trust, and community norms shape public acceptance of NCCs in Muslim-majority populations.

4. Cross-Border CBDC Interoperability
   Future work can investigate regulatory and technical challenges in building ASEAN-based interoperable CBDC systems that align with both civil and Shariah requirements.

As Malaysia and Indonesia move cautiously but confidently into the era of national digital currencies, it is crucial that digital innovation does not outpace ethical reflection. A national cryptocurrency is more than a tool of financial efficiency—it is a reflection of a country's values, systems of trust, and moral compass. In Islamic finance jurisdictions, the true success of NCCs will lie not just in technical deployment, but in their ability to uphold justice, inclusion, and *amanah* (trustworthiness)—values at the very heart of both Islam and sound financial governance.

This paper is not without its limitation. As mentioned earlier, this conceptual framework requires empirical validation through surveys and readiness indices to confirm its applicability across diverse Islamic finance jurisdictions.

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