

# Zakat in Programmable Economies: A Conceptual Framework for Digital Wealth and Financial Planning with Implications for Emerging Generations

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## Abstract

Blockchain-based assets, decentralised finance, stablecoins and automated financial services create new challenges for identifying, valuing and transferring wealth. For zakat planning, these challenges concern asset classification, beneficial ownership, reliable valuation, the nisab threshold, applicable holding-period conditions and authorisation of payment. This conceptual article integrates behavioural finance, digital asset economics, Islamic normative analysis and financial planning to develop a practitioner-oriented framework. It distinguishes the jurisprudential basis of zakat from the technological systems used to implement an assessment. Stablecoins are considered possible reporting or settlement instruments, rather than substitutes for the authorised nisab benchmark. Eight propositions address wealth abstraction, fragmentation, aggregation, automation, perceived agency, explainability, volatility and institutional recognition. These propositions are theoretical extensions and have not been empirically tested. The framework translates them into an asset taxonomy, an advisory protocol, valuation safeguards, a defined wealth-planning equation and digital succession procedures. Malaysia illustrates the need to distinguish capital-market regulation, Shariah assessment and zakat administration. References to Generations Alpha and Beta identify future research settings rather than established behavioural characteristics. The article concludes that automated tools should combine documented assessment rules, reliable data, informed authorisation, human review and beneficiary accountability. Empirical research and asset-specific scholarly assessment are required before claims about effectiveness or general Shariah validity can be made.

**Keywords:** Zakat, Islamic fintech, decentralised finance, digital assets, behavioural finance, financial planning

## Introduction

Digital financial participation creates new ways to record and transfer wealth. The Global Findex Database 2025 reports financial-inclusion and digital-connectivity evidence collected during the 2024 survey year (World Bank, 2025). These data provide context for digitally mediated finance, but account ownership or digital-payment use should not be equated with cryptocurrency ownership.

Blockchain-based assets add particular challenges to this broader transition. A person may hold assets through exchanges, self-custody wallets, custodians

and smart contracts. The Financial Stability Board (FSB, 2023) identifies vulnerabilities in decentralised finance (DeFi), including operational weaknesses and financial interconnections. For financial planners, the relevant question is how to document the client's economic rights and obligations across these arrangements, rather than assuming that an application's displayed balance is a complete statement of wealth.

Zakat introduces both an assessment obligation and a religious purpose. Computational accuracy alone cannot determine the appropriate treatment of an asset, the applicable holding-period rule or the validity of a

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payment arrangement. Those questions require an identified jurisprudential basis and competent institutional guidance. This article develops a conceptual framework linking these decisions to digital asset characteristics, behavioural mechanisms and financial-planning practice.

The framework addresses three questions. RQ1: How might digital asset properties affect recognition of wealth relevant to zakat? RQ2: Under what conditions can stablecoins assist valuation or settlement while preserving the authorised nisab benchmark? RQ3: How might automation affect perceived agency and the informed fulfilment of zakat obligations?

### Generational Scope and Analytical Boundaries

The labels Generation Alpha and Generation Beta are used only to identify prospective research contexts. McCrindle's convention assigns 2010–2024 births to

Alpha and 2025–2039 births to Beta (McCrindle, n.d.-a, n.d.-b). These commercial labels are not validated psychological categories or official United Nations demographic classifications. World Population Prospects 2024 supplies demographic estimates and projections, not evidence that a named generation shares a particular financial mindset (United Nations DESA, 2024).

At the article's 2026 reference point, those defined as Generation Alpha are children or adolescents, while the earliest Generation Beta members are infants or very young children. Their independent financial behaviour cannot be inferred from adult cryptocurrency users. The analysis therefore concerns digital wealth holders generally and family or guardian planning where appropriate. It does not imply that childhood, technical familiarity or cohort membership establishes personal zakat liability. The treatment of wealth owned by minors requires a separately specified jurisprudential approach.

**Table 1**

Generational scope and evidential boundaries

| Group                                              | Relevant research setting                                                         | Permissible interpretation                                                                                                    |
|----------------------------------------------------|-----------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------|
| Adult users including Millennials and Generation Z | Observed use of accounts, platforms or digital assets, where documented           | Age, experience, income and jurisdiction must be measured; behaviour is not inferred from a label.                            |
| Generation Alpha under the stated convention       | Children and adolescents in family, educational and supervised financial settings | Study learning and interface use with appropriate safeguards; do not assume independent asset ownership or adult obligations. |
| Generation Beta under the stated convention        | Future systems and guardian-led planning                                          | Scenario and design research only at present; no established cohort-specific financial behaviour.                             |

### Statement of the Problem and Research Gap

Digital asset balances can be fragmented across interfaces, subject to transfer restrictions and valued using different market sources. A token may represent an underlying asset or a claim against an intermediary; counting both the token and its backing can overstate wealth. Conversely, recording only immediately visible wallet balances can omit claims held in protocols. These are accounting and ownership problems before they become calculation problems.

Behavioural finance provides a basis for examining how people mentally separate financial positions and respond to payment design (Thaler, 1999; Prelec & Loewenstein, 1998). Applying these mechanisms to zakat is a conceptual extension. Fragmented displays might obscure aggregate wealth, while consolidated records might improve recognition. Either outcome is possible; digitalisation should not be assumed to reduce religious commitment or increase compliance.

The contribution lies in connecting four decisions that are often handled separately: identifying economic rights, determining the adopted zakat treatment, measuring the assessable base, and

arranging authorised payment. A fifth concern is whether the system's presentation enables the client to understand those decisions. The framework does not claim that no prior work links Islamic finance and technology, nor that existing standards uniformly omit every form of digital asset.

## Methodology and Framework Development

This is a non-systematic conceptual synthesis, not an empirical study or an exhaustive review of jurisprudential opinions. It brings together selected theoretical studies, technical documentation and official institutional sources. The purpose is to derive explicit propositions and a practical assessment structure, rather than estimate effect sizes or establish the prevalence of a behaviour.

The analysis separates three types of statement: source-supported descriptions, interpretive links

between disciplines, and proposals for future testing. Behavioural studies inform possible mechanisms; protocol documentation informs technical descriptions; regulatory instruments establish their own jurisdictional scope. None of these sources alone establishes the Shariah treatment of every digital position or validates the proposed advisory framework.

The framework proceeds analytically from asset characteristics to possible behavioural mechanisms, then to assessment and governance requirements, and finally to planning implications. Table 2 records the role and limits of each domain. Appendix A maps the principal sources to the propositions and distinguishes their original contribution from this article's extension. This map provides traceability but does not substitute for a documented search and appraisal process.

**Table 2**

Interdisciplinary domains and their analytical roles

| Domain                     | Concepts and contribution                                                                      | Boundary                                                                                          |
|----------------------------|------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------|
| Behavioural finance        | Mental accounting, payment salience, reference dependence, defaults and reliance on automation | Mechanisms from other settings motivate hypotheses; they are not digital-zakat findings.          |
| Digital asset economics    | Token rights, liquidity, custody, protocol dependencies and valuation inputs                   | Technical function does not establish ownership, legal validity or Shariah permissibility.        |
| Islamic normative analysis | Mal, milk, nisab, hawl, niyyah and beneficiary eligibility                                     | Apply a stated scholarly or institutional position; differences cannot be resolved by code alone. |
| Financial planning         | Inventory, valuation, liquidity, retirement projections and succession                         | Proposed professional procedures require testing and client-specific assessment.                  |
| Regulatory governance      | Authorisation, custody, disclosure, financial-crime controls and privacy                       | Each instrument has a defined scope; capital-market status is not a zakat ruling.                 |

## Demographic and Institutional Context

Digital financial environments differ within as well as across age groups. Access to reliable connectivity, education, advice and regulated services can shape how a person encounters digital wealth. This framework treats these characteristics as variables to measure rather than outcomes implied by the term "digital native". Longitudinal research is needed to determine whether early exposure has lasting effects on recognition of wealth or financial responsibility.

Regulatory context also matters, but its behavioural effects remain propositions. The EU Markets in Crypto-Assets Regulation, Regulation (EU) 2023/1114 (MiCA), distinguishes asset-referenced tokens and e-money tokens and establishes requirements for activities within its scope (European Parliament and Council, 2023, Article 3 and Titles III–V). It does not make every stablecoin equivalent to sovereign currency or determine zakat treatment. Outside that scope, different instruments and authorities may apply.

The Financial Action Task Force's updated guidance on virtual assets and virtual asset service providers addresses implementation of anti-money-laundering and counter-terrorist-financing requirements, including the Travel Rule (FATF, 2021). FATF guidance is implemented through national frameworks; it is not itself a universal authorisation or prohibition for every charitable transfer. A proposed payment service must identify the rules applicable to its activities and location.

Malaysia is examined below as an institutional illustration. Other jurisdictions cannot be grouped into a single "Asian", "African" or "Islamic" model. Differences in licensing, custody rights, permitted services and enforcement should be documented for a named jurisdiction and date before comparative claims are made.

### **Qur'anic Foundations and the Normative Economy of Zakat**

#### **Wealth and Responsibility**

The normative discussion draws on Qur'anic passages concerning entrusted wealth, giving and beneficiary categories, including 57:7, 2:267, 9:60 and 9:103. These passages motivate attention to responsibility, the quality of what is given and appropriate distribution. These ethical principles provide a foundation for analysis, while a complete digital-asset ruling requires interpretation of the relevant jurisprudential sources.

Qur'an 59:7 refers to the distribution of *fay'* and contains a concern about wealth circulating only among the rich. It provides a broader distributive context; it is not a stand-alone prescription of the zakat rate, *nisab* or treatment of a particular token. The distinction matters when connecting Islamic ethical reasoning to modern financial instruments.

### **Redistribution and Beneficiary Accountability**

The World Inequality Report 2022 reports that the global top 10% held 76% of wealth and the bottom 50% held 2% in its 2021 estimates (World Inequality Lab, 2022, executive summary). These figures provide context for distributive concerns; they do not show that a particular DeFi architecture increases inequality or that an automated zakat mechanism reduces it.

A payment record also does not establish beneficiary eligibility or real-world delivery. Smart contracts can enforce specified transfer conditions, but the identification of eligible recipients, authorisation of intermediaries and handling of disputes require accountable procedures. The proposed framework therefore distinguishes transaction traceability from evidence of appropriate distribution and social outcomes.

### **Niyah and Delegated Execution**

Niyah, or intention, is a religious concept and should not be reduced to a behavioural survey score. Explicit authorisation, clear explanations and review opportunities are proposed ways to support informed participation. They do not, by themselves, establish that a system satisfies every jurisprudential requirement. The timing and form of intention and agency must be evaluated under the position adopted for the service.

The appropriate design separates the client's informed instruction from technical execution. Users should be able to understand what assets are included, which rules are applied, the proposed amount and the intended recipient or institution. Changes to an instruction should be possible before execution where the arrangement permits. Completed blockchain transfers may not be reversible, so a promise of universal reversibility would be misleading.

## Behavioural Finance of Digital Zakat

### Recognition and Mental Accounting

Mental accounting concerns the ways individuals organise and evaluate financial activity (Thaler, 1999). The proposed application is that a collection of separate wallet or platform displays may encourage attention to individual balances rather than the complete assessable position. An interface could also improve recognition by consolidating relevant holdings. The direction and size of either effect require testing against a verified inventory.

Household aggregation must not erase differences in ownership. A family dashboard may display several people's assets for planning purposes, but each person's assessable base must remain separately identifiable under the applicable rules. Trust, company, custodial and jointly held positions likewise require attribution before aggregation.

### Payment Salience and Agency

Prelec and Loewenstein (1998) link payment arrangements to the mental accounting of consumption and debt. This provides a rationale for examining payment salience, not evidence that frictionless zakat payments reduce sincerity. Lower transaction costs could facilitate payment while leaving, increasing or decreasing perceived meaning. Research should measure payment completion, understanding and perceived agency separately.

Johnson and Goldstein (2003) examine defaults in organ-donation decisions, while Parasuraman and Riley (1997) distinguish appropriate and inappropriate reliance on automation. Neither study tests automated zakat. They motivate comparisons between manual payment, assisted automation and default execution, with comprehension and error detection assessed alongside convenience.

## Volatility and Reference Dependence

Prospect theory concerns evaluation relative to reference points and decisions under risk (Kahneman & Tversky, 1979). It does not establish that volatility necessarily weakens reference dependence. This article instead proposes that fluctuating displayed balances may make users uncertain about the amount relevant to assessment or encourage selective attention to favourable prices. A predetermined valuation policy is a proposed procedural safeguard, not an empirically demonstrated cure.

### Digital Asset Valuation and Nisab Determination

#### Distinguishing the Asset Value from the Threshold

The assessable asset value and the nisab threshold are separate inputs. An adopted gold- or silver-based benchmark can change in reporting-currency terms; its jurisprudential basis is not replaced merely because a digital unit appears more stable. A system should record the reference asset, quantity or official threshold, valuation date, reporting currency and source required by the applicable authority. It should not select between gold, silver or alternative dates opportunistically to minimise the payment.

Similarly, continuous market pricing does not create a requirement to recalculate and pay zakat continuously. The relevant assessment date and hawl rules depend on the asset and adopted position. Monitoring software should implement those rules explicitly rather than treat every temporary price movement as restarting or completing a holding period.

### Stablecoins as Reporting or Settlement Instruments

A stablecoin can be an asset held by the client, a reporting denomination or a payment instrument. These roles must be distinguished. A fiat-referenced unit may simplify display, yet its peg, reserves,

redemption terms and market liquidity can fail to deliver the expected value. Gorton and Zhang (2023) analyse stablecoin fragility and the institutional arrangements associated with redemption confidence.

Two design approaches are therefore possible for evaluation. A system can use the authorised reporting currency and threshold directly, with no stablecoin intermediary. Alternatively, where accepted, it can convert values into a stablecoin denomination using documented exchange rates and redemption assumptions. The latter adds risks and does not change the underlying nisab basis. Neither approach establishes universal Shariah acceptance of the token or of in-kind payment.

A de-pegged stablecoin should not automatically be recorded at its nominal target value. Its observable market value, enforceable redemption claim and access restrictions must be assessed under the chosen valuation policy. Uncertainty should be disclosed and escalated for review. An unsupported discount described as “conservative” could understate the assessable base just as an unrealistic peg could overstate it.

### **Price Sources and Oracle Governance**

Oracles supply external information to smart contracts; they do not establish the truth of an asset’s legal status or the correct religious rule (ethereum.org, n.d.-b). A reliable implementation should document price sources, update frequency, stale-data limits, treatment of thin markets and conditions for suspending automated execution. Independent checks can reduce reliance on one erroneous feed but do not eliminate common-source or manipulation risk.

The proposed valuation record includes a timestamp and time zone, asset quantity, price source, reporting-currency conversion and any restrictions on realisation. For illiquid assets, an observed last trade may not support valuation of the entire holding. The basis of an estimate and its uncertainty should be

transparent, with specialist review where no defensible market input is available.

## **Shariah Governance and Jurisprudential Questions**

### **Mal and Ownership**

Digital form alone does not decide whether an asset qualifies as mal or how it should be treated. The Securities Commission Malaysia’s Shariah Advisory Council (2020, pp. 2–4) recognises specified digital assets within its jurisdiction as mal and distinguishes their characteristics and applicable conditions. Its resolution expressly excludes assets outside that jurisdiction. It should not be presented as a universal approval of cryptocurrencies, DeFi arrangements or a comprehensive zakat assessment rule.

Private-key control is also different from legal title or beneficial ownership. A custodian, trustee or employee may control a key for someone else. A client may have a recoverable claim without controlling an on-chain address. Assessing ownership therefore requires the relevant contract, economic exposure and access conditions, not simply a wallet signature.

### **Asset Classification and Holding Periods**

Personal use, trading inventory, an investment claim and a right to receive a service may require different assessment. A token’s marketing label does not resolve that classification. Staking rewards, liquidity-pool claims and lending receipts require attention to the contract, lawful source of return, recovery rights and timing of recognition. A market price or payment of zakat does not establish that the underlying activity is permissible.

Hawl is a relevant holding-period condition for applicable categories, not a universal rule for every form of wealth or receipt. Asset exchanges, additions, rewards, temporary restrictions and changes around nisab must be assessed under the stated approach.

Software should retain the events needed for that analysis rather than assume a single clock applies to all tokens.

AAOIFI identifies Shari'ah Standard No. 35 as "Zakah" (AAOIFI, n.d.). This should be distinguished from financial accounting standards with different numbers and purposes. A standard's existence does not demonstrate its legal adoption in every jurisdiction or resolve every protocol-specific question. Implementation requires the relevant edition, provisions, institutional applicability and any local requirements to be identified.

### **Philosophical Implications of Programmable Wealth**

Programmability makes some rights and restrictions executable through code, but it does not make conventional wealth purely tangible or unconditional. Bank deposits, securities and contractual claims have long depended on institutions, records and enforceable promises. Conversely, some tokens represent claims on productive or physical assets. The distinction between traditional and digital wealth should therefore concern the structure of rights and dependencies rather than a claim that only digital value is socially recognised.

The framework's normative interpretation is that technical control and market valuation do not exhaust the responsibilities associated with wealth. Zakat planning adds an assessment of obligations and appropriate distribution. This is a conceptual position about governance, not evidence that zakat stabilises token prices, prevents concentration or guarantees the legitimacy of an asset. Those stronger claims require separate arguments and evidence.

### **Digital Asset Taxonomy for Zakat and Estate Planning**

Table 3 distinguishes economic functions and review questions. It is a due-diligence taxonomy, not

a schedule of binding rulings. A look-through approach identifies the underlying right and prevents duplicate recognition where a token represents assets already recorded elsewhere. Valuation, liquidity and ownership should remain separate fields.

### **Integrated Conceptual Framework and Propositions**

The framework links abstraction, fragmentation, volatility, liquidity, programmability and custody to possible differences in wealth recognition, assessment accuracy and payment behaviour. Financial literacy, interface design, access to advice and institutional context are proposed moderators. The following propositions are untested and concern mechanisms rather than inherent generational traits.

P1 — Digital abstraction. Displaying isolated token quantities without understandable aggregate values may reduce recognition of the complete assessable position compared with a comprehensible consolidated display.

P2 — Fragmentation. Holding assets across more wallets, exchanges and protocols may increase omission risk, conditional on complexity, experience and the availability of complete records.

P3 — Aggregation and visibility. A verified, ownership-sensitive inventory may reduce the omission errors associated with fragmentation. Incomplete automated aggregation may instead create false confidence.

P4 — Automation and accuracy. Automated calculations and reminders may reduce arithmetic and timing errors when the input data and encoded rules are correct. Incorrect rules or feeds may scale those errors.

P5 — Automation and agency. Opaque execution may reduce perceived agency relative to assisted automation, but convenience or prior informed

authorisation may offset this effect. Perceived agency is distinct from religious validity.

P6 — Explainability and legitimacy. Understandable calculations, disclosed rules and meaningful review options may improve comprehension and perceived legitimacy compared with an opaque interface. Mere disclosure volume may not do so.

P7 — Volatility and valuation choices. Volatility may increase uncertainty or selective valuation behaviour, while a predetermined assessment policy may limit opportunistic price selection.

P8 — Institutional recognition. Credible and clearly bounded institutional guidance may increase willingness to disclose digital positions and seek advice. Effects may depend on trust and perceived privacy costs; recognition should not be interpreted as a guarantee of safety.

**Table 3**

Digital asset taxonomy and assessment questions

| <b>Asset category</b>             | <b>Economic right and valuation</b>                                   | <b>Principal risks</b>                                | <b>Question for assessment</b>                                                           |
|-----------------------------------|-----------------------------------------------------------------------|-------------------------------------------------------|------------------------------------------------------------------------------------------|
| Payment cryptocurrencies          | Transferable units; observable market price where sufficiently liquid | Price volatility, custody and market concentration    | Which classification, ownership and assessment-date rules apply?                         |
| Fiat-backed stablecoins           | Token and any enforceable redemption claim; assess achievable value   | De-pegging, issuer, reserve and redemption risk       | Is the adopted treatment supported by the actual rights, rather than the advertised peg? |
| Crypto-collateralised stablecoins | Stability supported by collateral and protocol rules                  | Liquidation, collateral volatility and oracle failure | How should collateral rights and restrictions be attributed?                             |
| Algorithmic stablecoins           | Stability mechanism may rely on incentives and linked tokens          | Reflexivity, liquidity failure and collapse           | Is there a recoverable claim or reliable value? Do not assume cash equivalence.          |
| Utility tokens                    | Access or service rights, possibly transferable                       | Platform dependency and uncertain resale value        | Personal use, investment or trading inventory?                                           |
| Governance tokens                 | Protocol voting rights and any additional contractual benefits        | Voting concentration and protocol failure             | What rights and benefits actually attach to the token?                                   |
| Non-fungible tokens               | Unique token; rights depend on associated terms                       | Illiquidity, fraud and uncertain comparables          | What is owned, for what purpose, and on what defensible valuation basis?                 |
| Tokenised real-world assets       | Claim on an underlying asset or issuer                                | Title, custody and enforceability risk                | Apply the relevant underlying-asset analysis and avoid double counting.                  |
| Staking positions                 | Staked principal and recognised rewards under protocol terms          | Slashing, withdrawal delays and service-provider risk | Are principal and rewards accessible and attributable, and when are rewards recognised?  |
| Liquidity-pool positions          | Share of pool assets and accrued fees; protocol-specific valuation    | Impermanent loss, smart-contract and liquidity risk   | Value the claim and fees without also counting the same underlying reserves.             |
| Lending and yield positions       | Claim to principal and contractual returns, if recoverable            | Default, liquidation and protocol risk                | Assess permissibility, recoverability and timing; yield is not automatically lawful.     |
| Wrapped or bridged assets         | Representation of another asset across a contract or chain            | Bridge, custody and backing risk                      | Count the economic exposure once and verify backing and redemption.                      |

Sources and scope. Technical descriptions draw on FSB (2023), Gorton and Zhang (2023), ethereum.org (n.d.-a, n.d.-c) and Uniswap (n.d.). The assessment questions are the author's proposed synthesis, subject to asset-specific review. Impermanent loss is a divergence in value relative to holding the underlying assets outside the pool; it is not a promise that the loss will reverse. Protocol rewards and fee income do not guarantee a positive total return.

**Table 4**

Potential risks and benefits of digital mechanisms

| <b>Mechanism</b>               | <b>Possible adverse effect</b>                               | <b>Possible benefit and condition</b>                                              |
|--------------------------------|--------------------------------------------------------------|------------------------------------------------------------------------------------|
| Multiple wallets and protocols | Omitted holdings, duplicate claims or fragmented records     | Aggregation may improve coverage if ownership and backing are verified.            |
| Frictionless payment           | Reduced attention to amount or recipient                     | Lower effort may support timely payment; informed authorisation remains necessary. |
| Smart-contract execution       | Repeated errors, unintended transfers or weak user control   | Consistent execution of correctly specified instructions, with exception controls. |
| Portfolio dashboard            | False precision, overload or incorrect ownership aggregation | Clearer inventory and monitoring when scope and uncertainty are visible.           |
| Defaults and reminders         | Passive acceptance or ignored alerts                         | Fewer missed actions if settings are understood and appropriately chosen.          |
| Price oracles                  | Stale or manipulated data                                    | Repeatable inputs when source governance and suspension rules are sound.           |

Note: These are proposed mechanisms and design conditions, not observed effects from a digital-zakat experiment.

### Implications for Financial Planning and Wealth Management

and protocol records, distinguishing evidence of an asset from assumptions about its recovery.

### Digital Wealth Inventory and Client Discovery

The first task is to identify assets and claims attributable to the client. The proposed inventory records the platform or chain, asset, quantity, custody arrangement, beneficial owner, acquisition purpose, restrictions, valuation source and any related liabilities or rewards. It should reconcile platform statements

The inventory must include relevant non-digital wealth where the adopted assessment requires aggregation. Combining wallets without combining eligible off-chain holdings can leave an incomplete base. Conversely, access to a household account does not authorise counting every balance as one person's property. Table 5 converts these distinctions into a proposed advisory sequence.

**Table 5**

Proposed digital zakat advisory protocol

| <b>Step</b>             | <b>Adviser action</b>                                                            | <b>Documented output</b>                        |
|-------------------------|----------------------------------------------------------------------------------|-------------------------------------------------|
| 1 Identify              | Map relevant digital and non-digital assets, platforms and claims.               | Dated inventory and coverage limits.            |
| 2 Attribute ownership   | Separate key control, legal title, beneficial ownership and access restrictions. | Ownership and custody record.                   |
| 3 Classify              | Identify underlying rights, purpose of holding and duplicate representations.    | Asset classification and reconciliation.        |
| 4 Establish treatment   | Record the applicable Shariah and institutional approach; refer disputed cases.  | Authority, provisions and unresolved questions. |
| 5 Value                 | Apply documented dates, currency and defensible price sources.                   | Valuation record and uncertainty assessment.    |
| 6 Assess                | Apply the authorised nisab, hawl, aggregation and deduction rules.               | Calculation and rule version.                   |
| 7 Plan liquidity        | Identify a feasible payment source without assuming locked assets are exempt.    | Cash-flow and liquidity plan.                   |
| 8 Authorise and execute | Confirm instructions, amount, recipient and exception handling.                  | Authorisation and payment record.               |
| 9 Reconcile             | Check settlement, fees, receipt and treatment of failed or duplicate transfers.  | Reconciliation and exception log.               |
| 10 Review               | Update holdings, rules, permissions and family circumstances.                    | Revised assessment and succession instructions. |

## Valuation Policy and Liquidity

The adviser should distinguish the portfolio's displayed market value, realisable value and zakat assessment base. They may differ because of ownership, eligibility, timing or deductions. A planning haircut used in a liquidity stress test is not automatically an allowable reduction in the zakat base. Borrowing, encumbrances and inaccessible assets likewise require a stated treatment rather than a blanket deduction or exclusion.

A liquidity plan can consider reserves, payment timing and the consequences of selling positions under adverse conditions. It should address market falls, redemption delays, slashing, smart-contract failure and transaction costs without promising that those events can be eliminated. Automating payment does not ensure that funds will be available or that the correct asset will be sold.

## Long-Term and Retirement Planning

Equation (1) is a simple wealth-flow identity illustrating how payment enters a planning projection:

$$W_{t+1} = W_t(1 + r_t) - C_t - Z_t \quad (1)$$

where,  $W_t$  is beginning-of-period investable wealth;  $r_t$  is the nominal total portfolio return over the period, net of investment fees but before consumption and zakat;  $C_t$  is consumption and other non-zakat outflows;  $Z_t$  is the zakat payment made at the end of the period; and  $W_{t+1}$  is closing wealth. All wealth and flow amounts use the same reporting currency. The return is a decimal rate, not a cash amount. The simplified timing assumes that returns accrue before both outflows and omits external inflows, taxes and intra-period timing differences. More detailed projections should include those flows explicitly.

Equation (1) is a planning identity, not a jurisprudential formula.  $Z_t$  must be assessed separately using the eligible wealth base, applicable rate, adopted

nisab reference and relevant time conditions.  $W_t$  and the assessable base need not be equal. For an illustration using a lunar-year assessment, the return interval must also be stated consistently; an annual Gregorian return should not silently be treated as a lunar-year return.

**Illustrative example.** Suppose opening wealth is RM100,000 and the return over the assumed lunar-year interval is 5%. Non-zakat outflows of RM10,000 occur at the end, leaving RM95,000 before zakat. Assume, solely for this example, that this entire remaining amount is assessable, the applicable hawl condition is met, the adopted threshold is RM30,000 and the applicable rate is 2.5%. The payment is RM2,375 and closing wealth is RM92,625. The threshold is a hypothetical input, not the actual Malaysian nisab. The example shows a payment on the assumed full eligible base, not only on the amount above the threshold. A different approved classification, timing or base would change the assessment.

## Professional Responsibilities

The proposed framework requires financial-planning competence alongside sufficient technical understanding to identify when specialist advice is needed. Advisers should document the limits of their valuation, legal and Shariah expertise and explain the basis of recommendations. Product providers' claims, software output and regulatory registration should be checked for their actual scope. None substitutes for client-specific assessment.

## Digital Estate Planning and Intergenerational Transfer

Technical access and legal entitlement may diverge after death. A documented entitlement is of limited practical use if assets cannot be discovered or recovered; possession of a key does not itself establish an heir's entitlement. A secure estate plan therefore identifies the assets, the relevant rights and a

controlled access process without placing private keys or recovery phrases in an unsecured will.

Possible recovery arrangements include institutional procedures, carefully governed multi-signature access and encrypted instructions held

through an appropriate process. Each requires assessment of privacy, unauthorised access, continuity and the authority of the person executing it. No recovery design is universally suitable, and automated transfers should not bypass the applicable estate-administration process.

**Table 6**

Digital estate planning risks and responses

| <b>Risk</b>                    | <b>Potential consequence</b>                                  | <b>Proposed response</b>                                                           |
|--------------------------------|---------------------------------------------------------------|------------------------------------------------------------------------------------|
| Unknown wallet or protocol     | Assets omitted from the estate                                | Maintain a secure, current inventory and a controlled discovery process.           |
| Lost credentials               | Assets inaccessible                                           | Document and test an appropriate recovery arrangement without exposing secrets.    |
| Unclear beneficial ownership   | Disputes or incorrect distribution                            | Retain contracts, title records and evidence of ownership and authority.           |
| Locked or illiquid positions   | Difficulty meeting estate liabilities or making distributions | Record restrictions and consider separate liquidity subject to applicable law.     |
| Unrecorded rewards or claims   | Incomplete valuation                                          | Include accrued entitlements and protocol claims without duplicate recognition.    |
| Post-death automatic execution | Unintended or unauthorised transfer                           | Review permissions, delegated authority and available emergency controls.          |
| Uncertain unpaid zakat         | Dispute over obligations                                      | Retain assessments and receipts; apply the relevant legal and scholarly treatment. |

Intergenerational education should address security, risk and responsibility alongside technical familiarity. Research involving children should distinguish learning outcomes from actual financial transactions and comply with appropriate consent and safeguarding procedures. The framework does not presume that young users are either more competent or less committed than older users.

### Malaysia As an Institutional Illustration

Malaysia offers a setting in which market oversight, Shariah assessment and zakat administration need to be distinguished. Securities Commission Malaysia's Guidelines on Digital Assets cover specified activities, including initial exchange offerings and digital asset custodians (SC, 2024). Its 20 May 2026 announcement confirms revisions to the Guidelines on Recognized Markets for digital asset exchanges (SC, 2026). These instruments concern capital-market activities; they do not create a single national rule for every digital-zakat question.

The SAC resolution discussed earlier has an expressly limited scope. Zakat assessment and collection also involve the relevant state religious institutions. A service should identify which institution's guidance applies to the client and distinguish that guidance from market regulation. Lembaga Zakat Selangor's dedicated cryptocurrency guidance provides an example of asset-specific public information (Lembaga Zakat Selangor, n.d.); it should not be treated as automatically applicable in every state or jurisdiction.

Bank Negara Malaysia's Financial Sector Blueprint 2022–2026 provides broader financial-sector policy context (Bank Negara Malaysia, 2022). It does not, by itself, certify a token, platform or automated zakat tool. Any pilot must identify the permissions applicable to its actual functions rather than rely on a general innovation-policy statement.

**Table 7**

Malaysian stakeholders and boundaries of responsibility

| <b>Stakeholder</b>                              | <b>Relevant role or proposed contribution</b>                                                                    |
|-------------------------------------------------|------------------------------------------------------------------------------------------------------------------|
| Securities Commission Malaysia                  | Capital-market oversight within its jurisdiction, including the relevant digital asset operators and activities. |
| SC Shariah Advisory Council                     | Shariah resolutions within the SC's remit; not a substitute for every zakat authority's guidance.                |
| Relevant state religious and zakat institutions | Applicable assessment, collection, distribution and public guidance.                                             |
| Financial planners                              | Client inventory, valuation, liquidity and succession advice within competence and authorisation.                |
| Exchanges and custodians                        | Statements, transaction histories, ownership information and applicable estate procedures.                       |
| Islamic fintech providers                       | Proposed aggregation, calculation and payment tools with documented limits and governance.                       |
| Professional and educational bodies             | Training, competence development and independent evaluation.                                                     |

## Policy and Industry Recommendations

The immediate priority is transparent asset-specific guidance that identifies where opinions agree and where they differ. A common data structure can improve communication without forcing different authorities to adopt an unsupported uniform ruling. It should record rule versions, valuation assumptions and unresolved cases, with a route to human review.

Interoperability should use only the information needed for assessment and reconciliation. Access controls, informed data sharing and retention limits are proposed safeguards. Private keys, recovery phrases

and sensitive beneficiary identities should not be placed on a public ledger as proof of transparency. An immutable transaction record can support an audit without revealing unnecessary personal information.

Controlled pilots should test whether users understand the calculation, whether the system includes the correct assets and whether exceptions are handled appropriately. Evaluation should include failed payments, stale prices, de-pegging, incomplete inventories and incorrect ownership attribution. Permission to conduct a pilot must not be portrayed as approval for unrestricted deployment or proof of Shariah validity.

**Table 8**

Stakeholder recommendations and evaluation criteria

| <b>Stakeholder</b>            | <b>Proposed action</b>                                                                         | <b>Outcome to evaluate</b>                                         |
|-------------------------------|------------------------------------------------------------------------------------------------|--------------------------------------------------------------------|
| Financial advisers            | Use consolidated, ownership-sensitive inventories and documented valuation policies.           | Completeness, explainability and client understanding.             |
| Zakat institutions            | Publish asset-specific guidance and clarify how disputed or uncertain cases are referred.      | Consistency of assessments and resolution of queries.              |
| Fintech developers            | Provide user authorisation, comprehensible calculations, exception controls and audit records. | Error rates, comprehension and effective control before execution. |
| Regulators                    | Clarify applicable permissions, custody duties and information requirements.                   | Compliance with the relevant scope and quality of records.         |
| Shariah councils and scholars | Document the basis and limits of digital-asset interpretations.                                | Clarity of the adopted rules and treatment of disagreement.        |
| Educational institutions      | Develop age-appropriate digital-wealth and zakat learning materials.                           | Knowledge and decision quality, not presumed cohort traits.        |

## Future Research Agenda

The propositions require empirical testing. Studies should distinguish asset type, interface design,

automation level and institutional setting. Payment completion alone is an incomplete outcome: a completed transfer can reflect an incorrect base, an unsuitable recipient or misunderstood instructions.

Relevant measures include inventory completeness, valuation error, rule comprehension, perceived agency and appropriate settlement.

Experiments can vary the interface while holding the portfolio and rule set constant. Observational research should account for experience, wealth, education and religiosity without interpreting adjusted

correlations as causal effects. Linkage to wallet or payment records requires informed consent and safeguards, and cannot be assumed to reveal all beneficially owned assets. Niyyah's religious validity should be assessed through appropriate scholarship rather than treated as directly observable from a behavioural scale.

**Table 9**

Proposed empirical research agenda

| Question                                  | Design                                                                                   | Measures and limits                                                                               |
|-------------------------------------------|------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------|
| How do users recognise eligible wealth?   | Survey and interviews with adult digital-asset holders; reconcile a consented inventory. | Knowledge, complexity and omissions; distinguish self-report from verified coverage.              |
| Does fragmentation increase errors?       | Randomised task with identical assets in fragmented or consolidated views.               | Omission and double-counting rates; control total value and ownership.                            |
| Do reminders improve timely action?       | Consented field trial with independently checked assessments.                            | Correct payment completion and timing, not clicks alone.                                          |
| How does automation affect agency?        | Compare manual, assisted and default execution in a controlled setting.                  | Comprehension, authorisation and perceived agency; no direct claim to measure religious validity. |
| How are difficult assets assessed?        | Delphi study and interviews with qualified planners, scholars and institutions.          | Document disagreement, valuation rules and recovery assumptions.                                  |
| What supports tool acceptance?            | Survey or usability study with explicit system features.                                 | Trust, privacy concerns and understanding; intention is not actual compliance.                    |
| Do experiences differ by age or cohort?   | Longitudinal or age-appropriate comparative research.                                    | Separate age, period and cohort effects; no Beta financial-behaviour claims at present.           |
| How does institutional coordination work? | Multi-stakeholder case study in a specified jurisdiction.                                | Responsibilities, information flows and treatment of exceptions.                                  |

## Limitations

The framework is a non-systematic synthesis and is vulnerable to source-selection bias. It contains no original dataset, validated instrument, implemented payment system or demonstrated intervention effect. General behavioural research supplies theoretical motivation but does not establish the proposed relationships in digital zakat. Technical documentation describes particular architectures and may change.

The normative analysis does not adjudicate competing legal or Shariah positions. Nisab, holding periods, classification and payment arrangements need an explicit local basis. Malaysia is an illustration rather than evidence of uniform institutional practice. Generational references are prospective, and commercial cohort labels cannot support causal or demographic conclusions. These limits should guide

both the strength of the article's claims and the design of subsequent research.

## Conclusion

Zakat planning for programmable wealth requires identification of economic rights, transparent asset classification, defensible valuation and an authorised assessment and payment process. The conceptual framework links these tasks to possible behavioural effects of fragmented displays, automation and institutional guidance. Its central distinction is between the rules governing an obligation and the technology used to implement them. A stablecoin may serve as a reporting or settlement instrument where accepted, but does not replace the authorised nisab basis; a smart contract may execute instructions, but cannot independently establish ownership, intention or beneficiary eligibility.

The proposed taxonomy and advisory protocol integrate digital holdings with liquidity, long-term planning and succession. Their effectiveness remains to be tested. Future work should evaluate errors and understanding alongside payment outcomes, specify the applicable jurisdiction and scholarly position, and avoid attributing unobserved financial behaviour to Generations Alpha and Beta. Transparent limits, human review and accountable institutions remain necessary components of any operational implementation.

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## Appendix

Source to proposition map

Table A1 Evidence boundaries for the conceptual propositions

| Propositions                             | Principal sources                                                                         | Supported foundation and proposed extension                                                                                       |
|------------------------------------------|-------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------|
| P1–P3                                    | Thaler (1999)                                                                             | Mental accounting is the foundation; wallet abstraction, omissions and the value of verified aggregation are proposed extensions. |
| P4–P6                                    | Prelec and Loewenstein (1998); Johnson and Goldstein (2003); Parasuraman and Riley (1997) | Payment design, defaults and automation reliance inform hypotheses; none tests digital zakat or establishes niyyah.               |
| P7                                       | Kahneman and Tversky (1979); Gorton and Zhang (2023)                                      | Reference-dependent choice and stablecoin fragility motivate research; selective zakat valuation is not an established result.    |
| P8                                       | SC (2020, 2024, 2026); FATF (2021); European Parliament and Council (2023)                | Sources establish bounded institutional context; their effects on disclosure or perceived legitimacy remain untested.             |
| Technical conditions across propositions | FSB (2023); ethereum.org (n.d.-a-c); Uniswap (n.d.)                                       | Technical vulnerabilities and functions inform design; they do not certify the proposed system or determine Shariah treatment.    |

Note. This is a conceptual traceability map, not a record of a systematic search, a quality appraisal or proof that the propositions have been confirmed.