



Digitalisation in Financial Services

Asset Tokenisation in the Malaysian Financial Sector

Tokenisation is reshaping financial services – how can Malaysia’s financial sector harness its potential while safeguarding stability and trust?



Foreword

This discussion paper sets out Bank Negara Malaysia's (BNM) exploratory posture on asset tokenisation¹ in the Malaysian financial sector and invites feedback from stakeholders.

This discussion paper does not seek to prescribe definitive regulatory positions. Instead, it aims to stimulate dialogue, identify opportunities and co-create a safe and sustainable roadmap for development of tokenised financial services in Malaysia.

Key Areas for Feedback

Stakeholder input is sought on the following key themes in relation to advancing tokenisation in Malaysia:

- Collaborative mechanisms to advance responsible exploration and innovation in tokenisation while ensuring alignment with monetary and financial stability objectives.
- Priority tokenisation use cases Malaysia should explore, and potential benefits.
- Allocation of responsibilities and risks among participants in tokenised ecosystems.
- Infrastructure or policy enablers that are critical to scale tokenisation safely and inclusively.
- Safeguards to uphold resilience and trust in the financial system as tokenisation evolves, including ensuring compliance with existing legal and regulatory obligations.

Call for Feedback

BNM invites feedback from all industry participants, including financial service providers (FSPs), government agencies, industry associations, technology service providers, consumer groups, non-governmental organisations, academic institutions and other interested parties to review this discussion paper and provide written feedback on the issues discussed. In submitting your feedback, please note the following:

- Please provide written feedback on the discussion paper, including suggestions on areas to be clarified or elaborated and any alternative proposals that BNM should consider. In addition to providing general feedback, respondents are expected to respond to the specific questions set out throughout this discussion paper.

¹ For the avoidance of doubt, unless otherwise explicitly stated, references to 'asset tokenisation' or 'tokenisation' in this discussion paper should be understood as relating specifically to financial services or tokenised financial services.

- BNM highly encourages feedback to be supported by appropriate justification, rationale and evidence to facilitate our assessment. We kindly request respondents to specify the applicable paragraphs and provide sufficient examples or illustrations.
- For FSPs, responses are expected to encompass insights from all relevant functions, including but not limited to Innovation and Product Strategy, Information Technology, Compliance, Risk Management and Operations.
- By submitting feedback, comments or proposals in response to this discussion paper, respondents acknowledge and agree that BNM may reproduce, publish or otherwise use the content of such submissions, in whole or in part, in any form and for any purpose it deems appropriate. BNM is not obligated to seek permission from, or provide attribution to, the respondents. BNM will not publish or disclose the names or identifiable details of respondents unless explicit consent is provided or disclosure is required by law.

All responses to the discussion paper are to be submitted electronically via email to tokenisation@bnm.gov.my by **1 March 2026**. The email must be titled "Asset Tokenisation in the Financial Sector: Feedback from [name of institution/individual]".

If you have any queries on the discussion paper, you may direct them to the BNM Asset Tokenisation Team at tokenisation@bnm.gov.my.

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Part 1: Introduction

- 1.1 In recent years, asset tokenisation has emerged as a potential key enabler of innovation in the financial sector. By enabling the digital representation of claims or assets on programmable platforms, it creates new opportunities to enhance efficiency, drive product innovation and expand market access. While initially rooted in crypto-native markets, the underlying technology – such as distributed ledger technology – is now being actively explored by financial institutions² for a broader range of use cases.
- 1.2 Globally, there is growing momentum to advance asset tokenisation within the financial sector. It is estimated that the value of tokenised assets could reach USD16 trillion by 2030, potentially accounting for approximately 10% of global gross domestic product (GDP)³. Leading global financial institutions are actively developing platforms to support the issuance, settlement and management of tokenised real-world assets⁴.
- 1.3 Regulators in key jurisdictions are also facilitating safe experimentation and innovation in this space. For example, Project Ensemble by the Hong Kong Monetary Authority and Project Guardian by the Monetary Authority of Singapore reflect a broader shift toward enabling asset tokenisation use cases to drive innovation in the financial sector.
- 1.4 Asset tokenisation offers transformative features, including atomic settlement, composability and programmability, all of which have the potential to significantly enhance the financial sector's ability to meet more demanding customer expectations for speed, efficiency and transparency. However, realising these benefits requires close collaboration among industry participants, regulators and technology providers, alongside a commitment to maintaining the safety and soundness of Malaysia's financial system.
- 1.5 This discussion paper forms part of BNM's broader efforts to harness emerging technologies in unlocking value for Malaysia's financial sector and economy. In collaboration with relevant stakeholders, BNM aims to explore and advance asset tokenisation use cases, driving digitalisation of financial services through new and innovative financial solutions that were previously unfeasible due to technological

² 'Financial institutions' (FIs) include licensed banks, Islamic banks, investment banks and development finance institutions.

³ See BCG (2022). The analysis cited does not include crypto assets.

⁴ For example, J.P. Morgan's Kinexys Digital Assets platform enables on-chain settlement, while BlackRock's tokenised money market fund (BUIDL) has grown to nearly USD3 billion in assets under management since its launch in March 2024.

and operational limitations. This aligns with the Financial Sector Blueprint 2022-2026, which seeks to futureproof key financial market infrastructures and foster a more vibrant digital financial ecosystem.

- 1.6 BNM's focus is on exploring the potential benefits and implications of tokenising real-world assets (RWA) in financial services, particularly on use cases with tangible benefits to the financial sector and Malaysia's economy. To guide this effort, this discussion paper is structured to set out BNM's approach and seek feedback across the following areas:
- i) **Part 2: Overview and Approach** – Outlines BNM's intended outcomes and overall approach for tokenisation exploration.
 - ii) **Part 3: Co-creation Roadmap** – Outlines the roadmap for tokenisation exploration over the next three years.
 - iii) **Part 4: Exploration Scope** – Outlines the key principles for identifying viable asset tokenisation use cases.
 - iv) **Part 5: Use Case Design Considerations and Early Regulatory Perspectives** – Provides guidance on design parameters for exploration of tokenisation use cases.
- 1.7 Given the nascent and rapidly evolving nature of this subject, it is important to note that many of the key considerations and policies, both locally and globally, are still developing. As such, this discussion paper is intended to be exploratory in nature, serving as a basis for dialogue and collaborative refinement as the ecosystem matures.

Part 2: Overview and approach

What is asset tokenisation?

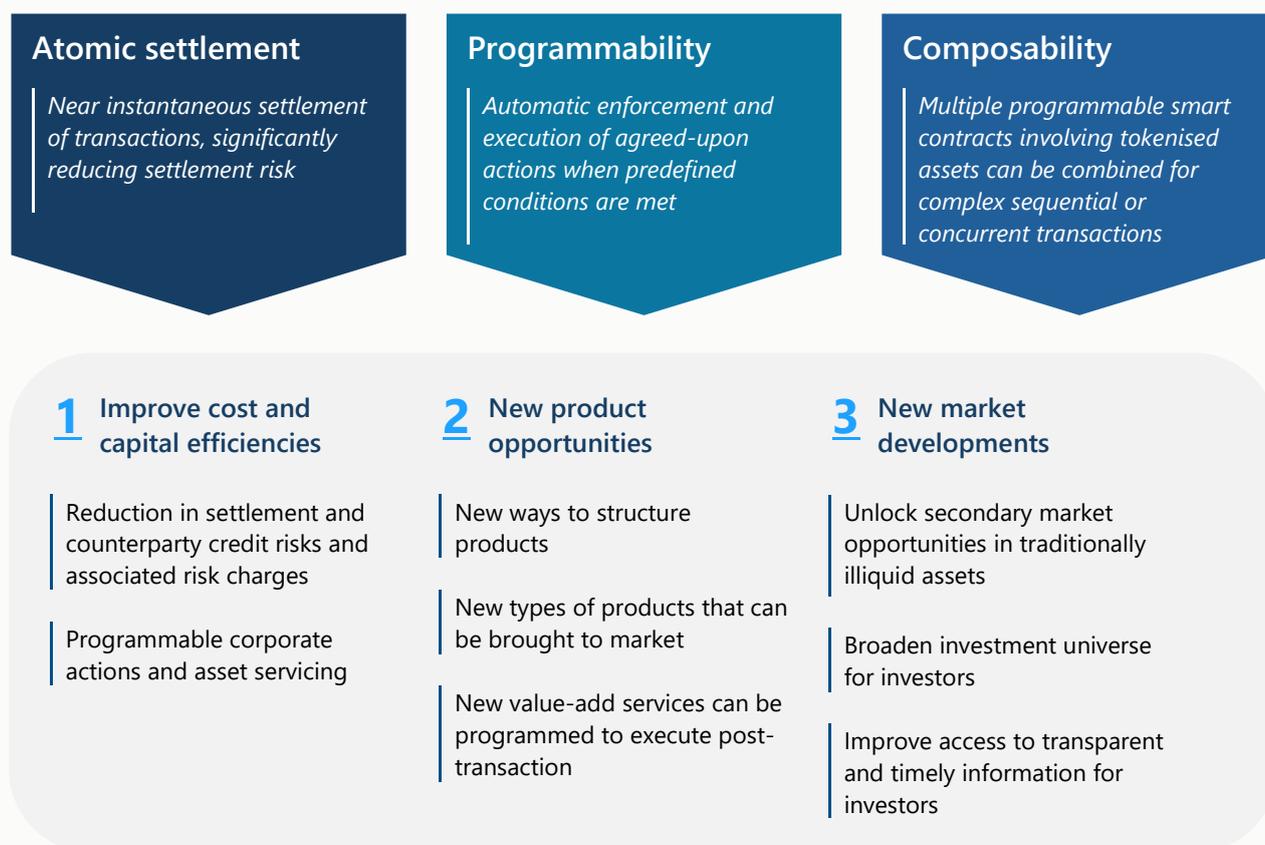
- 2.1 Tokenisation refers to the process of creating and recording digital representations of traditional real-world assets on programmable platforms, commonly utilising distributed ledger technology (DLT)⁵. These platforms enable multiple participants – including issuers, investors, payers and payees – to issue, trade and settle transactions across various asset types on a shared infrastructure.
- 2.2 The following features of tokenisation offer several potential transformative benefits for financial services:
- i) **Atomic settlement:** Transactions can be settled near-instantaneously, eliminating multi-day settlement cycles and reducing settlement risk. This improves efficiency and strengthens liquidity management.
 - ii) **Programmability:** Tokenised assets can be embedded with smart contracts⁶ that automatically enforce and execute agreed actions once predefined conditions are met. This could streamline processes, reduce manual intervention, improve transparency and strengthen execution certainty.
 - iii) **Composability:** Multiple smart contracts can be combined to enable complex, multi-step transactions. This opens new possibilities for structuring financial products and services that are difficult to implement using current systems. For example, the layering and automatic execution of multiple contracts⁷ within a single instrument in the context of Islamic finance may improve operational efficiency and reduce Shariah non-compliance risks.

⁵ BIS (2024c).

⁶ BIS (2020).

⁷ For example, in structuring a sukuk involving *ijarah* and *wakalah* contracts.

Figure 1 Features and benefits of tokenisation



Source: Bank Negara Malaysia

Advancing Malaysia's tokenisation journey

- 2.3 Regulators and financial institutions around the world are actively engaging in tokenisation initiatives to harness their potential and deepen understanding of the implications. These efforts reflect growing global momentum to explore tokenisation as a pathway to more efficient, transparent and innovative financial services.
- 2.4 Against this backdrop, BNM sees strong value in accelerating tokenisation exploration to ensure Malaysia's financial sector remains competitive and efficient. Moreover, tokenisation presents an opportunity to advance national priorities by enabling innovative new solutions in support of sustainability, Islamic finance and digital economy objectives. By acting early, Malaysia can shape the development of tokenised financial services in a way that is inclusive, forward-looking and anchored in public interest.

2.5 For the avoidance of doubt, it is important to distinguish the tokenisation of real-world assets from cryptocurrencies or unbacked tokens with no underlying economic value. BNM’s exploratory work on asset tokenisation should not be construed as an endorsement of cryptocurrencies or unbacked tokens for use as payment instruments, financing activities or collateral within the financial system. BNM’s focus remains on responsible risk-aware innovation where safeguarding monetary stability, financial stability, financial integrity and consumer protection remains paramount.

Approach and intended outcomes

2.6 Building on the broader overview of tokenisation and its potential benefits, this section outlines intended outcomes shaping BNM’s approach in exploring tokenisation within the Malaysian financial sector. This approach is intended to guide innovation in a purposeful, safe and inclusive manner, grounded in public interest. It remains open to refinement as our exploratory journey progresses.

2.7 First, in the context of Malaysia’s financial sector, exploration of tokenisation should be anchored to a clear objective: to facilitate responsible innovation in use cases that deliver tangible, real-world economic benefits⁸. The focus is on addressing persistent gaps and frictions in Malaysia’s ecosystem such as improving access to financing for small and medium enterprises (SMEs)⁹, enhancing market efficiency and enabling new forms of innovative financing. This clarity of purpose is vital to ensure tokenisation evolves as a catalyst for meaningful transformation, rather than a vehicle for speculative activity, excessive leverage or regulatory arbitrage. Without such focus, tokenisation initiatives risk being diverted toward use cases that lack economic substance, fragment market liquidity or introduce new operational and conduct risks. Crucially, the promise of tokenisation lies not in merely digitalising existing systems, but in enabling new ways of structuring financial relationships and transactions that were previously unfeasible due to technological or operational constraints.

2.8 However, the advantages of tokenisation are not inherent; tangible real-world value must be substantiated rather than presumed. This requires a deeper understanding across all stakeholders of where and how tokenisation can meaningfully resolve pain points. The financial sector should develop clarity on the type of problem statements

⁸ Beyond addressing real-world economic challenges, responsible innovation must remain cognisant of potential risks, with a focus on anticipating and mitigating possible harms.

⁹ SMEs as defined in SME Corporation Malaysia’s Guideline for SME definition – SMECorp (2024).

tokenisation is well-suited to address and recognise where other simpler digital innovations may offer more effective or lower-risk solutions.

- 2.9 Second, as tokenisation introduces new actors, roles and interdependencies, its exploration must be accompanied by efforts to strengthen industry readiness. Tokenisation arrangements raise questions around custody, access, interoperability, governance, risk management and the nature of economic incentives that underpin financial services, many of which could diverge from traditional financial structures. These complexities cannot be addressed in isolation. Instead, they call for a coordinated and proactive approach that enables stakeholders to collectively surface implementation challenges, assess emerging risks and shape safeguards that are fit for a potential tokenised financial system.
- 2.10 Therefore, BNM supports collective exploration through a co-creation approach, which emphasises active engagement between key stakeholders such as financial service providers (FSPs)¹⁰, fintechs and regulatory authorities to jointly shape the future of tokenised financial services. We look forward to interest and support from the financial sector in developing tokenisation use cases and encourage active participation in proof-of-concept (POC) and pilot initiatives. BNM will continue to play a facilitative role in supporting this journey, including through dialogue, knowledge sharing and efforts to promote alignment on emerging practices and safeguards.
- 2.11 Third, exploration of tokenisation must be undertaken in a way that reinforces the foundation of monetary and financial stability, as well as financial integrity. These are distinct but interlinked objectives that underpin trust in the financial system. From a regulatory perspective, this means ensuring that tokenised arrangements do not compromise the singleness of money¹¹, safety and soundness of the financial system or weaken safeguards against illicit activities. It is critical for all stakeholders to assess and better understand how tokenisation may introduce or amplify vulnerabilities from the outset. This includes implications on leverage, operational fragilities and complex interdependencies arising from tokenisation arrangements which may not be fully addressed by existing institutional or regulatory frameworks.
- 2.12 Through exploratory initiatives, BNM seeks to deepen understanding across the ecosystem on how various tokenised arrangements align with the intended outcomes

¹⁰ "Financial service providers" (FSPs) include licensed banks, Islamic banks and investment banks (banks), insurance and takaful operators (ITOs), development finance institutions (DFIs) and eligible electronic money issuers (EMIs).

¹¹ A principle that ensures all forms of money issued by public or private institutions are interchangeable at par and hold the equivalent value within the monetary system.

or give rise to potential risks and vulnerabilities, with a view to refine our regulatory and developmental approach accordingly.

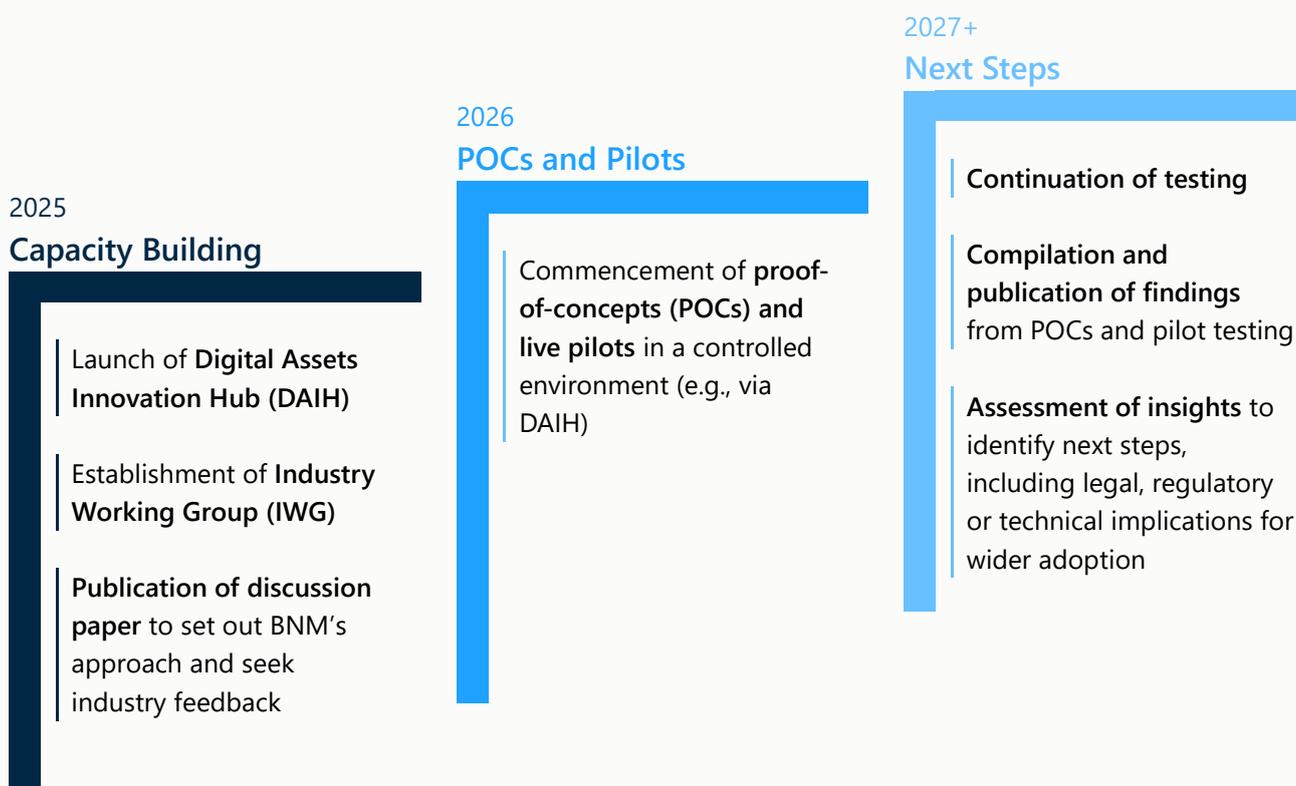
Part 3: Co-creation Roadmap

- 3.1 To realise the intended outcomes for Malaysia's tokenisation journey, BNM aims to adopt a co-creation approach, where regulators, industry participants and other stakeholders jointly explore and shape the use of tokenisation. This approach offers a structured yet flexible pathway to ensure innovation aligns with public interest and BNM policy objectives. This is particularly relevant in the context of tokenisation, where the implications span across legal, operational and systemic dimensions.
- 3.2 This co-creation approach is envisioned to take place over a three-year horizon, beginning with conceptual validation through proof-of-concepts and progressing to live testing via pilots. Insights and data gathered during this period will be instrumental in identifying regulatory gaps, surfacing legal impediments and refining policies for a potential tokenised financial system.

Digital Asset Innovation Hub (DAIH)

- 3.3 In 2025, BNM launched the Digital Asset Innovation Hub (DAIH) to serve as the overarching collaborative platform for capacity building, discovery and exploration of tokenisation use cases. The DAIH provides an inclusive environment where stakeholders can jointly explore practical applications of tokenisation, while surfacing key insights to inform future policy and regulatory development. Under the DAIH, BNM has accelerated engagement with key stakeholders, starting with the establishment of the Asset Tokenisation Industry Working Group (IWG) for banking institutions. In parallel, BNM is considering mechanisms to facilitate testing activities in future phases. These may include the establishment of a controlled environment to support live experimentation of digital asset solutions for real-world use cases.
- 3.4 BNM aims to provide greater clarity on key elements of the DAIH soon, including participation criteria and the potential initial use cases for exploration. Stakeholders who wish to obtain further information or express interest to participate are invited to contact BNM DAIH at dainnohub@bnm.gov.my.

Figure 2 Indicative Co-creation Roadmap of Tokenisation Exploration



Source: Bank Negara Malaysia

Asset Tokenisation Industry Working Group (IWG)

3.5 In May 2025, BNM established an industry working group on asset tokenisation to facilitate FSPs' collective exploration, serving as the inaugural initiative under the DAIH. The IWG's objectives include:

- i) **Identify and drive exploration of tokenisation use cases** that have the potential to demonstrate tangible economic benefits. As the technology evolves, the IWG may play a key role in aligning industry standards in specific areas, such as interoperability across a future tokenised ecosystem;
- ii) **Facilitate collective capacity building** by serving as a platform for regular knowledge exchange to build necessary operational, technological and risk management capabilities; and
- iii) **Evaluate potential risks to financial and monetary stability as well as regulatory gaps and legal impediments** to support future development of regulatory policies in the context of tokenisation for the Malaysian financial sector.

- 3.6 The initial phase of the IWG will focus on laying the foundational structure to support a more comprehensive, industry-led approach as testing activities scale up. In the early stages, the IWG will be chaired by BNM to provide strategic direction and facilitate discussions among IWG members, with the Securities Commission Malaysia (SC) serving as a key partner. As tokenisation exploration progresses, industry participants will be expected to assume a leading role in steering the IWG's activities.
- 3.7 Since its formation, the IWG has convened several workshops and knowledge sharing sessions with industry participants. Notable feedback from these engagements has highlighted the importance of establishing alignment on standards at an early stage through active participation from both regulatory bodies and industry stakeholders in exploratory initiatives.
- 3.8 FSPs are not precluded from pursuing tokenisation exploration independently, including proof-of-concepts or live testing. However, such initiatives must remain compliant with existing regulatory requirements. Where appropriate, BNM encourages use case explorations to be explored through the DAIH, particularly where they align with the principles outlined above.

For feedback

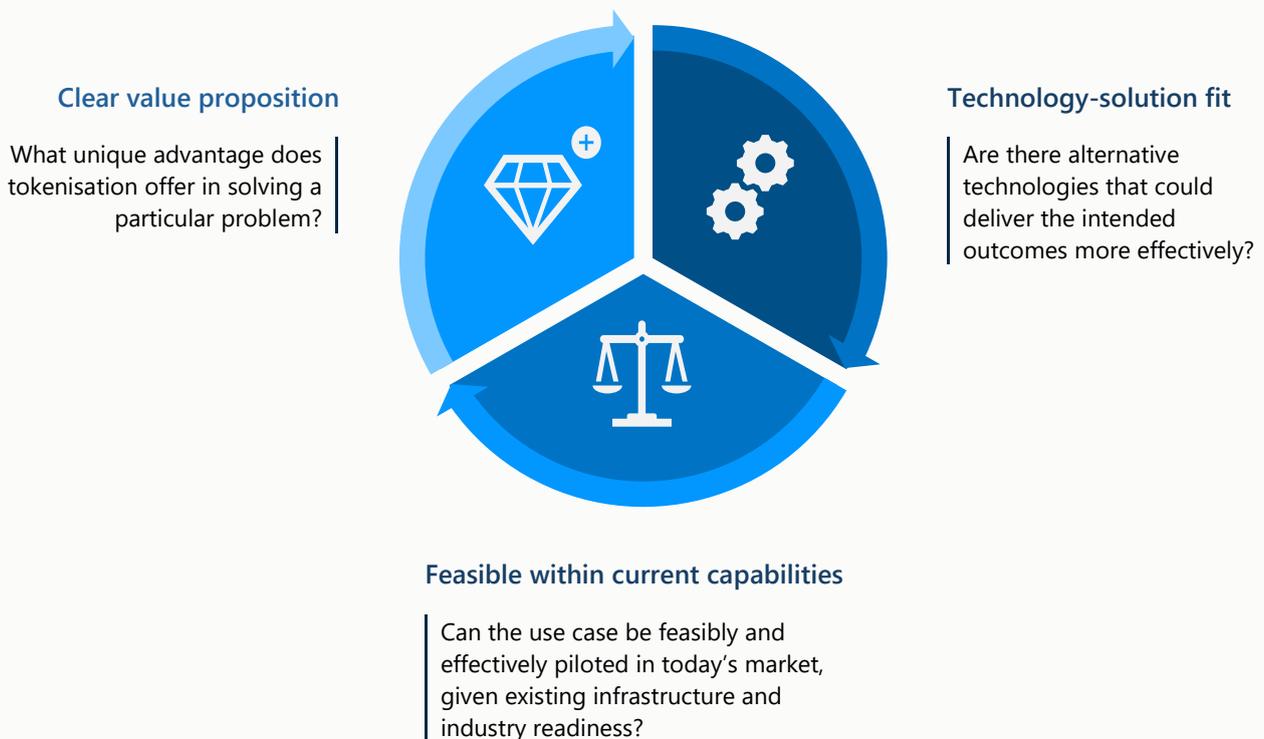
1. What are your views on BNM's co-creation approach for asset tokenisation exploration? How can co-creation be structured to better support alignment between innovation and regulatory objectives?
2. What practical challenges and key enablers does your institution anticipate in implementing asset tokenisation initiatives? What factors would help accelerate industry readiness to scale tokenisation responsibly?
3. What expectations should be set for each stakeholder group (including regulators, financial institutions and technology providers) in supporting the development of a tokenised ecosystem?
4. For institutions pursuing tokenisation initiatives independently, what forms of support or guidance from BNM would be most beneficial?

Part 4: Exploration Scope

Guiding principles for identifying use cases

4.1 Tokenisation presents opportunities to enhance financial markets, but not all use cases are equally viable or beneficial. FSPs should, at minimum, consider the following guiding principles when identifying suitable tokenisation use cases for exploration.

Figure 3 Guiding principles for selecting use cases



Source: Bank Negara Malaysia

- i) **Clear value proposition:** Use cases should introduce clear and tangible economic benefits through tokenisation features such as atomic settlement, composability and programmability. For instance, tokenisation may bring more benefit in areas involving frequent transactions, such as real-time simultaneous asset transfers, by enabling instantaneous settlement and contingent transfer of claims.

- ii) **Technology-solution fit:** Tokenisation is not a universal remedy for all market frictions. Its application should be guided by a clear understanding of the underlying problem and the comparative advantage of other available technologies. For example, some frictions related to transparent data exchange, verification and standardisation could be addressed by other more cost effective and scalable solutions such as Application Programming Interfaces (APIs), standardised messaging protocols or Open Finance. Assessing the suitability of tokenisation should therefore involve a broader evaluation of the digital innovation landscape.
- iii) **Feasible within current capabilities:** Use cases should consider existing operational, legal and regulatory practicalities, including resources required. In the short term, tokenising well-understood financial assets, such as mortgages, may offer a more practical path forward given their compatibility with existing regulatory and legal frameworks. As capabilities and confidence grow, there may be greater scope to explore more novel asset classes such as property deeds which could potentially require broader changes beyond the financial sector.

Use case examples

- 4.2 BNM has identified several high-potential use cases for exploration. Nevertheless, FSPs and other ecosystem stakeholders are welcome to surface other potential use cases in line with the guiding principles above. BNM invites the joint identification of areas of mutual interest, recognising that collaboration is essential to advancing meaningful and inclusive innovation.

Supply chain financing¹²

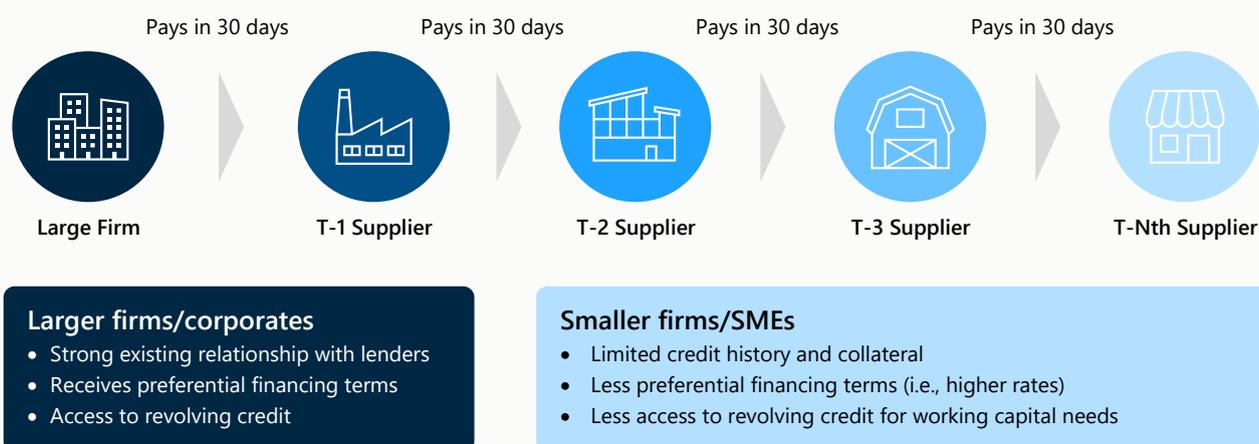
- 4.3 **Problem statement:** Small and medium enterprises (SMEs)¹³ in the supply chain with limited credit histories and collateral may struggle to access affordable working capital financing to bridge cash flow needs for daily operations. Nevertheless, these SMEs often form part of a larger supply chain, where goods ultimately flow to large anchor buyers, who correspondingly generate invoice payables that flow to the rest of the supply chain.

However, it is difficult to attribute orders and invoice payables from large anchor buyers to SMEs in the supply chain due to the sequential nature of payment flows from one supplier to another. This fragmented flow of invoice payables limits SMEs' opportunity to leverage the creditworthiness or promise to pay from anchor buyers as collateral or guarantees to obtain financing.

¹² See Project Dynamo – BIS (2023e).

¹³ SMEs as defined in SME Corporation Malaysia's Guideline for SME definition – SMECorp (2024).

Figure 4 Traditional supply chain payment flows (Illustrative)



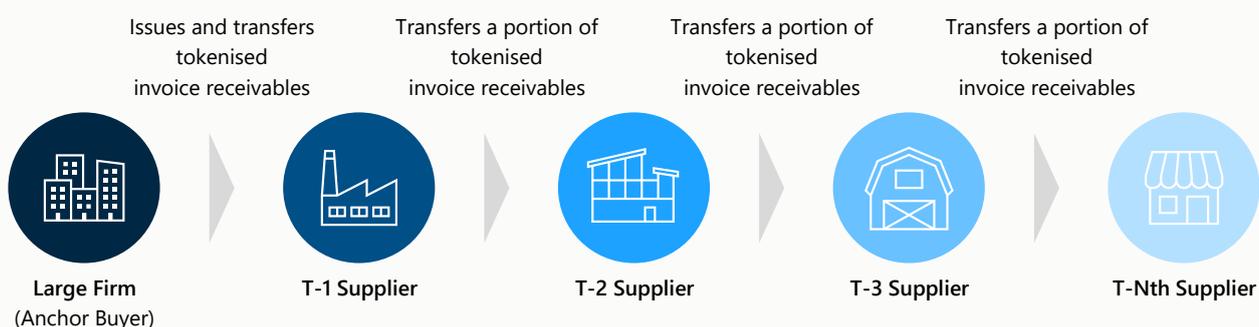
This diagram is a simplified illustration intended for conceptual purposes only.
Source: Adapted from Project Dynamo (BIS, HKMA) – See BIS (2023e)

4.4 Value proposition of tokenisation: Access to financing for SMEs may be improved through the programmability and transferability of tokenised invoice receivables on a programmable platform.

Tokenising a claim on the future payment from an anchor buyer allows for the transfer of the creditworthiness of the anchor buyer to SMEs in the supply chain. As suppliers receive these tokens as invoice receivables from anchor buyers, they may choose to use these tokens as collateral for financing, transfer the same tokens to their suppliers (who may be SMEs) as invoice payables or receive payment upon maturity of the token.

This may encourage institutional investors and lenders to provide affordable invoice financing to these SMEs since they are collateralised by tokens bearing the same credit risk as larger anchor buyers. In addition, these tokens would also carry verifiable real-time information about the underlying transaction to facilitate credit assessment and monitoring.

Figure 5 Tokenised invoice receivables (Illustrative)



Delivery of goods programmatically triggers **activation** of the tokenised invoice receivable, with the issuer (i.e., anchor buyer) undertaking to pay the token holder after a set duration (e.g., 30 days).

Once the tokenised invoice receivable is activated, the holder (i.e., supplier or SME) has several options for managing the token, depending on their liquidity needs and financing strategy.

Hold to maturity	Refinance using the token	Transfer downstream
Retain the token until maturity to receive payment directly from the anchor buyer, in accordance with the original payment terms.	Use the token as collateral to obtain financing from lenders or institutional investors, leveraging the anchor buyer's creditworthiness embedded in the token.	Transfer the token to downstream suppliers as a form of invoice payable, enabling liquidity to cascade through the supply chain.

This diagram is for illustrative purposes only. Participants are encouraged to innovate on its structure and flow to suit their specific context and objectives.

Source: Adapted from Project Dynamo (BIS, HKMA) – See BIS (2023e)

Treasury and liquidity management¹⁴

4.5 Problem statement: In traditional financial markets, there is often a time lag between trade execution and settlement. Trades may pass through multiple intermediaries and systems, each introducing dependencies and operational complexities. The same batch processing and reconciliation routines that enable netting can delay the finality of settlement. These operational frictions, combined with settlement windows and

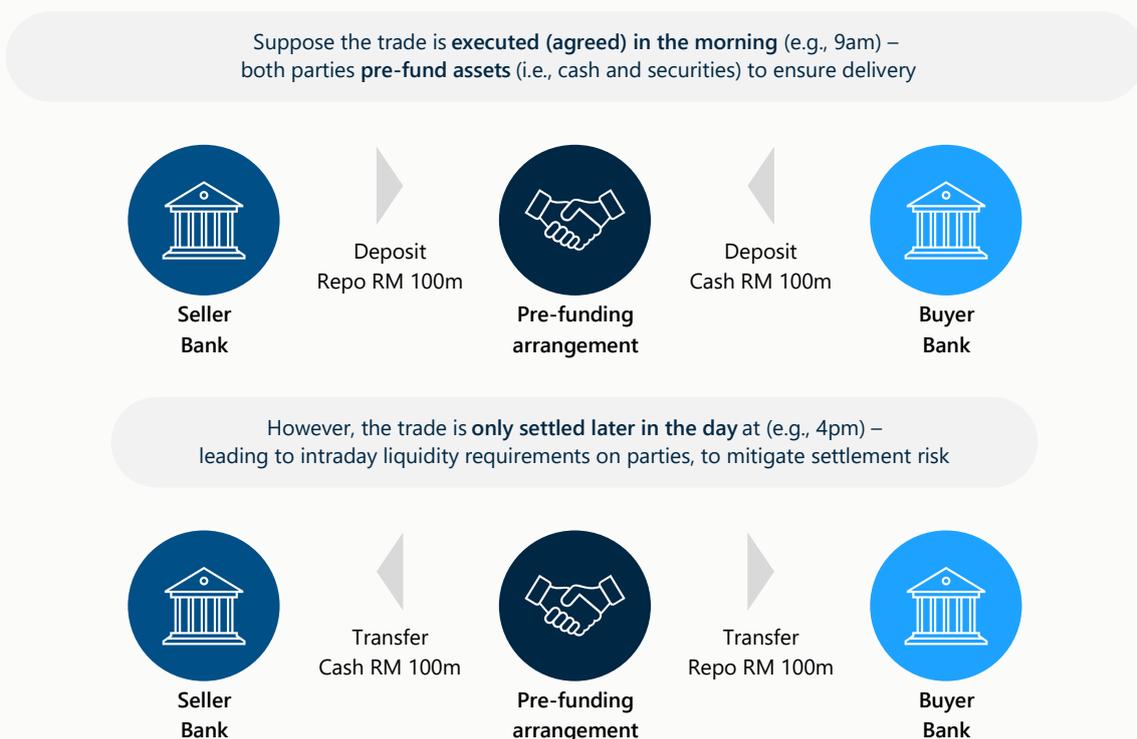
¹⁴ See Project Guardian – MAS (2023), Optimizing Intraday Liquidity Management – UBS (2024).

cut-off times heighten exposure to settlement risk¹⁵, where a counterparty may fail to deliver funds or securities as agreed.

To mitigate these risks, financial institutions generally maintain sufficient liquidity to ensure timely settlement of obligations. This often involves holding substantial liquidity buffers, including pre-funding arrangements, collateral reserves or access to committed credit lines. These buffers, while essential for managing payment and settlement risk, can come at an opportunity cost: capital that could otherwise be deployed for lending, investment or other productive uses.

Even when an institution maintains a daily net positive liquidity position, timing mismatches between incoming and outgoing payments to fund clearing can still create intraday liquidity shortfalls. This necessitates firms to set aside additional liquidity buffers or rely on costly short-term funding solutions to bridge gaps, adding inefficiencies to capital management.

Figure 6 Simplified example of a traditional pre-funded DvP process (Illustrative)



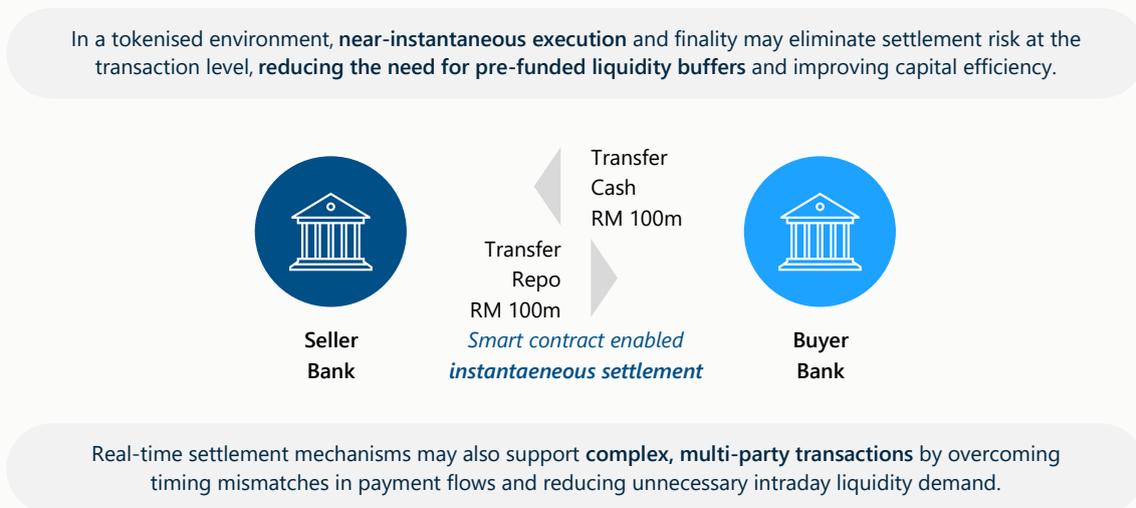
This diagram is a simplified illustration intended for conceptual purposes only.

Source: Adapted from various sources – See MAS (2023), UBS (2024)

¹⁵ See BIS (2002) for an account of the implications of settlement risk.

- 4.6 **Value proposition of tokenisation:** Tokenisation could enable near-instantaneous atomic settlement of transactions, significantly reducing or negating settlement risk and consequently the need for pre-funding. Institutions can leverage smart contracts to facilitate transactions revolving around representations of financial instruments and money on a programmable platform. In doing so, there is the potential to:
- i) Enable real-time Delivery versus Payment (DvP) and Payments versus Payment (PvP) settlements, reducing settlement risk and freeing up liquidity that would otherwise be tied up in pre-funding;
 - ii) Reduce operational complexity and costs, potentially through minimising reliance on certain intermediaries; and
 - iii) Mitigate intraday liquidity mismatches¹⁶, allowing institutions to settle transactions as they occur rather than maintaining excess buffers to account for timing gaps in cash flows.

Figure 7 Simplified example of a tokenised DvP process (Illustrative)



This diagram is for illustrative purposes only. Participants are encouraged to innovate on its structure and flow to suit their specific context and objectives.

Source: Adapted from various sources – See MAS (2023), UBS (2024)

¹⁶ Adopting atomic settlement comes with potential trade-offs such as the loss of netting efficiencies, whether on a bilateral or multilateral basis. Atomic settlement means that each transaction is settled individually, which may significantly increase the total volume of gross settlement. Thus, atomic settlement may not be beneficial for all scenarios.

4.7 BNM also encourages exploration of use cases in the following areas:

- i) **Islamic finance:** Tokenisation may offer new avenues to enhance the operational efficiency and Shariah compliance of Islamic financial instruments and transactions. For example, atomic or near-instantaneous settlement in certain use cases (such as foreign exchange) could enable the simultaneous exchange of assets and funds, in compliance with Shariah principles. Programmable tokenisation models could also enable conditional transfer of ownership or claims based on contractual fulfilment, which may be relevant for structures or arrangements such as *murabahah* (cost-plus financing contract), *ijarah* (lease/hire contract) and *wa`d* (unilateral binding promise). In addition, tokenisation may help address longstanding challenges in the secondary market development for Islamic instruments (such as for sukuk or investment accounts¹⁷).
- ii) **Sustainability and climate finance**¹⁸: Tokenisation may allow for financial transactions contingent on the digital tracking and recording of non-financial data (e.g., data of the environmental impact of bond-funded asset or activities) on programmable platforms. This can include data on carbon emissions reductions, renewable energy generation or compliance with sustainability-linked performance targets.

The immutability and programmability of tokenised instruments may allow for automated verification and conditional execution based on sustainability criteria. For example, a sustainability-linked sukuk could be programmed to adjust its profit rate based on verified environmental, social and governance (ESG) performance metrics, or a green bond could include smart contract conditions that release funds only when certain environmental milestones are met.

Such features not only improve operational efficiency but also strengthen the integrity of sustainability claims, reducing the risk of greenwashing. By making impact data more accessible and verifiable, tokenisation can help build trust among investors and stakeholders, thereby supporting the growth of sustainable finance markets.

- iii) **Programmable payment tokens (PPT)**¹⁹: The programmability feature of tokenisation allows for the embedding of specific conditions directly within tokens. The programming logic then informs when the underlying tokenised asset can be released and utilised. This functionality support highly customisable

¹⁷ See Discussion Paper on Investment Account – BNM (2024).

¹⁸ See Project Genesis 2.0 – BIS (2022b).

¹⁹ See Project Orchid – MAS (2022b).

payment structures (e.g., conditional disbursement of social assistance based on verified eligibility criteria) and allows for the predefinition of rules governing payment execution. Such capabilities can surpass the current provider-based systems, offering greater flexibility, transparency and efficiency in transaction design.

- iv) **24/7 trade payments:** Tokenisation could potentially enhance Malaysia's trade and export-import sectors by enabling real-time cross-border payments beyond traditional banking hours²⁰. This supports liquidity, reduces settlement delays and enhances efficiency in trade transactions.

4.8 The intersection of tokenisation and the above potential use cases presents a promising area for industry exploration.

For feedback

5. What are your views on the guiding principles for identifying use cases? Are there any other guiding principles that should be considered?
6. What tokenisation use cases in financial services is your institution considering for exploration or implementation?
7. Does your institution recognise the potential for tokenisation to enhance the delivery of financial services, either within the use cases and areas outlined above, or in other areas of interest? What specific problem statements do you believe tokenisation can meaningfully address and how can tokenisation resolve such problems?
8. Are there opportunities for tokenisation to benefit underserved segments or strategic sectors that drive inclusive and sustainable development in line with national priorities?
9. What are the key barriers currently preventing industry participants from independently pursuing tokenisation exploration?

²⁰ Traditional banking hours typically exclude weekends and public holidays, during which cross-border payment processing may be limited.

Part 5: Use Case Design Considerations and Early Regulatory Perspectives

- 5.1 While the previous section outlined high-level principles for tokenisation use cases, it is also essential to establish clear design parameters to guide their implementation. These parameters aim to ensure that exploration, especially those involving real customers and assets, is conducted in a manner that upholds monetary and financial stability, safeguards financial integrity and aligns with the intended outcomes set out in Part 2.
- 5.2 To support safe and purposeful exploration, tokenisation initiatives should be designed around principles for responsible innovation. In this regard, innovation should not be pursued merely to exploit regulatory gaps or achieve efficiency gains through regulatory arbitrage. Instead, it should aim to resolve meaningful frictions, unlock new capabilities and reinforce trust in financial services.
- 5.3 Moreover, tokenisation exploration should also embed principles of compliance-by-design. This means ensuring that projects are not only technically sound or commercially viable but also designed with regulatory compliance and risk mitigation at the outset. By embedding safeguards early, participants in exploratory initiatives can help ensure that tokenisation use cases evolve in a way that is safe, inclusive and consistent with regulatory objectives.
- 5.4 Activities that attempt to replicate or claim the ability to replicate regulated functions outside the appropriate licensing and regulatory framework, whether explicitly or implicitly, may contravene existing laws and regulations, including but not limited to those governing deposit taking and money services business, foreign exchange policies and AML/CFT/CPF and TFS²¹ rules.
- 5.5 This section sets out BNM's views on design parameters and early regulatory perspectives. It reflects our current interest for early tokenisation exploration and may evolve over time as we progress in our tokenisation journey.

²¹ Anti-Money Laundering, Countering Financing of Terrorism, Countering Proliferation Financing (AML/CFT/CPF) and Targeted Financial Sanctions (TFS).

5.6 Key design considerations that should be considered include the following:

Figure 8 Design considerations for shaping tokenisation use cases

1 Participants

Who can provide tokenised financial services and who are the other relevant ecosystem enablers?

Same activity, same risk, same regulatory outcome

Participants interested in tokenisation must comply with applicable regulations, which may depend on the activities involved. Regulated financial activities, such as deposit taking or lending, remain subject to existing rules regardless of tokenisation.

Known and accountable actors

All participants, including ecosystem enablers, must be registered legal entities with defined roles, responsibilities and governance. FSPs must ensure compliance with outsourcing and third-party requirements when engaging their services.

2 Access

What types of customers can access tokenised financial services and how might they do so?

Permissioned environments

Only authorised and KYC-ed users should access tokenised services, with safeguards for AML/CFT/CPF and TFS, customer due diligence and FEP compliance.

Contingent on capacity and readiness

Institutional participants may be better positioned to engage in early experimentation, but broader expansion to other user segments may be considered if suitable safeguards and adequate consumer awareness measures are in place.

3 Service Model

How should a tokenised financial service be structured and delivered?

Fit-for-purpose operational approach

Services may be delivered fully on-chain or via hybrid models, depending on readiness, risk and infrastructure maturity.

Participants encouraged to reimagine delivery mechanisms

Explore how tokenisation enables both traditional (e.g., order book) and novel (e.g., AMM, smart contracts) service configurations.

Compliance by design

All functions and roles, whether internal, transformed from traditional roles or outsourced, must have clearly defined responsibilities, governance and risk controls.

4 Tokenised Financial Instruments

What underlying assets can be tokenised and transacted?

Initial focus on traditional financial instruments

For example, bonds, loans, deposits, securities, etc., with an aim to preserve equivalent rights and risk profiles as traditional forms.

5 Tokenised Money

What tokenised settlement assets can be used for payments?

Open to exploring MYR-denominated tokenised deposits and stablecoins

Arrangements should preserve the singleness of money, uphold financial integrity and align with standards set by international standard setting bodies.

6 Programmable Platforms

Where and how should tokenised transactions be settled and recorded?

Technology agnostic

Choice of platform should be anchored on principles of resilience and security, inclusivity, interoperability and adaptability.

Public or private networks

Participants can explore either model provided that other considerations (e.g., permissioned access framework) are met.

Source: Bank Negara Malaysia

Consideration 1: Participants

- 5.7 Institutions seeking to participate in tokenisation explorations in the Malaysian financial sector should be mindful of existing regulatory requirements, which may vary depending on the nature of activities undertaken. Certain roles within the tokenisation value chain may fall within the scope of regulated financial services or capital market activities²². Institutions that wish to undertake such roles may be required to be licensed, approved or registered, and may be subjected to existing rules and regulations by BNM, SC or other applicable authorities. The regulated roles that may be relevant in tokenisation explorations include but are not limited to:
- i) **Financial services providers under the FSA/IFSA/DFIA²³**, including entities carrying out activities such as but not limited to deposit taking, lending, insurance and payment services, both in traditional and tokenised forms.
 - ii) **Money services businesses under the Money Services Business Act 2011**, including entities carrying out activities such as but not limited to currency exchange and remittances.
 - iii) **Capital market institutions under the Capital Markets and Services Act 2007**, including entities carrying out activities such as but not limited to facilitating issuance, dealing and trading of tokenised financial instruments which qualify as securities or derivatives.
 - iv) **Custodians and trustees**, including but not limited to entities responsible for the safekeeping of tokenised assets or their underlying real-world counterparts. These entities may also be involved in the on- and off-ramp process²⁴.
- 5.8 In addition to regulated roles, a functional tokenised ecosystem may also require complementary services provided by third-party service providers who may not fall within the existing scope of regulatory frameworks. Institutions seeking to engage their services should ensure that applicable requirements on outsourcing and third-party service providers continue to be met. These roles include but are not limited to:

²² Regulated financial services and capital market activities meaning licensed, approved or registered business, regulated activity or capital market services under BNM and SC's regulatory framework.

²³ Refers to the Financial Services Act 2013, Islamic Financial Services Act 2013 and Development Financial Institutions Act 2002.

²⁴ BIS (2023c) describes the function of 'ramps' as performing the necessary computational transformations to record claims on real or financial assets onto a programmable platform. In doing so, 'ramps' lock assets in their platform of origin as collateral for tokens that are issued on the programmable platform.

- i) **Technology and infrastructure service providers** that provide programmable platform services such as the provision of underlying DLT and the development of smart contracts, as well as other similar core and ancillary services to enable tokenisation.
- ii) **Data and analytics service providers** that provide blockchain analytics, transaction monitoring, market intelligence, blockchain oracles²⁵ and other related services.
- iii) **Security and permissioning service providers** that provide services for cryptographic key management, access control and multi-party computation.

5.9 All service providers, whether taking on regulated roles or otherwise, are expected to be registered legal entities with clearly defined responsibilities and governance arrangements. This ensures accountability and enables appropriate liability assignment in the event of operational failures.

5.10 As tokenisation continues to evolve, new roles that do not fit within traditional regulatory classifications may emerge. There may also be greater convergence between regulated financial services and services provided by fintechs and other service providers. In this regard, BNM aims to assess such developments as part of the exploratory initiatives, which must be accompanied by appropriate safeguards to ensure that the intended outcomes for tokenisation continue to be met.

For feedback

10. As tokenisation advances, what new roles do you anticipate emerging that may not be aligned with current regulatory frameworks? What other types of service providers are critical for the development of a tokenisation ecosystem?
11. Does your institution foresee any challenges in interpreting or applying existing regulatory classifications to tokenisation-related activities?
12. What regulatory or operational considerations have influenced your institution's decision to participate (or not) in certain roles within the tokenisation value chain (e.g., issuance, custody, trading)?
13. For technology and infrastructure service providers, are there any regulatory uncertainties or operational constraints that affect your ability to support tokenisation initiatives in the financial sector?

²⁵ Blockchain oracles provide the service of connecting real-world datasets (e.g., weather, market price data, etc.) on to on-chain ecosystems.

14. How could public-private partnerships play a catalytic role in developing tokenised ecosystems?

Consideration 2: Access

- 5.11 It is important to establish how various participants, such as issuers, customers, investors and borrowers, directly and indirectly interact with various tokenised financial services. This is to ensure that tokenised financial services are not inadvertently accessible to unintended or untoward actors, and that participants in tokenised ecosystems are identifiable, verifiable and subject to appropriate safeguards.
- 5.12 BNM is of the view that access should be anchored on a permissioned framework, whereby only authorised users are granted access to tokenised financial services. Participants are expected to adhere to existing regulatory requirements such as those under the Foreign Exchange Policy (FEP) notices²⁶ and customer due diligence requirements with respect to Anti-Money Laundering, Countering Financing of Terrorism, Countering Proliferation Financing (AML/CFT/CPF) and Targeted Financial Sanctions (TFS). While some blockchain-based systems offer transaction traceability, relying solely on ex-post detection and tracing may present certain challenges, particularly where identity masking, token mixers²⁷ or cross-border transactions may hinder effective enforcement. As such, while more robust and interoperable compliance mechanisms for permissionless systems are developed and proven effective, a permissioned framework remains a preferred approach, especially in the early phases of tokenisation exploration.

²⁶ FEP Notice 3 broadly covers investment in foreign currency asset by resident, which may be applicable to transfer of tokenised assets from onshore to abroad or purchase of onshore foreign currency asset.

FEP Notice 4 broadly covers payment in ringgit and foreign currency among resident and non-resident, which may be applicable to payment or transfer of tokenised assets like gold and real estate.

FEP Notice 5 broadly covers issuance of ringgit and foreign currency-denominated securities and financial instruments by resident and non-resident, which may be applicable to tokenised securities or financial instrument.

²⁷ Services that blend the cryptocurrencies or tokens of many users together to obfuscate the origins and owners of funds. Chainalysis (2022).

- 5.13 Access encompasses functions such as user authentication and credential management. Access modalities will play a critical role in shaping user interaction with tokenised financial services. These include token wallets, web API gateways, portals, client applications and access protocols such as QR codes or aggregators²⁸.
- 5.14 For example, token wallets may serve as an interface for identity verification and transaction authorisation. Exploratory initiatives in other jurisdictions have demonstrated the potential for token wallets to act as enforcement points for permissioned access, using mechanisms such as credential tokens or smart contract-based whitelisting.
- 5.15 Industry participants may also explore alternative access designs that go beyond single-user control. For example:
- i) **Multi-party control mechanisms** can introduce additional layers of governance or operational safeguards.
 - ii) **Non-custodial interfaces** may allow users to interact with tokenised services in a more intuitive and user-friendly manner, while still ensuring compliance with identity and access requirements. Such designs may support future expansion to retail customer access by enabling users to engage with tokenised services much like they do with traditional financial services, without needing to directly interact with the underlying technology.
- 5.16 Access to tokenised financial services should be guided by considerations of user readiness, implementation capacity and risk management maturity. While institutional participants such as licensed FSPs, qualified investors and regulated entities may be better positioned to engage in early experimentation, the exploratory scope is not limited to these groups. Rather it is to involve the right set of participants who possess the necessary capabilities and safeguards to support responsible and meaningful innovation. Expansion to other user segments, including retail users, may be considered if suitable safeguards and adequate consumer awareness measures are in place. Embedding financial literacy elements into tokenisation initiatives will help empower consumers to make informed decisions, mitigate risks of misuse and build trust in emerging digital financial infrastructures.

²⁸ IMF (2024).

For feedback

15. How will tokenisation affect your ability to comply with AML/CFT/CPF and TFS requirements? Are there specific challenges your institution foresees in implementing AML/CFT/CPF and TFS including Know-Your-Customer (KYC) requirements and transaction monitoring within tokenised ecosystems?
16. What factors should be considered in determining user readiness for participation in tokenised financial services? What safeguards or onboarding mechanisms would be necessary to support safe adoption by retail users?
17. Are there specific infrastructure or policy enablers that would support broader and more inclusive access over time?

Consideration 3: Service Models

- 5.17 In the context of this discussion paper, the service model²⁹ refers to the configuration of roles, functions and mechanisms that govern how tokenised financial services are delivered on a programmable platform. This includes the type of financial service provided (e.g., trading, payments, lending), the operational approach (e.g., on-chain vs. off-chain), the design of market mechanisms (e.g., order books vs. automated market makers) and supporting ancillary services (e.g., bridges, token wrappers and oracles). The design of service models also reflects how responsibilities and accountabilities are distributed across participants.
- 5.18 In exploring tokenisation, participants should determine the operational approach for delivering tokenised financial services, i.e., whether fully on-chain via smart contracts or through hybrid models involving both on-chain and off-chain components. For example, a tokenised bond issuance platform may automate issuance and transfer on-chain, while managing coupon payments and fiat settlement off-chain. Over time, as industry capabilities develop and enabling tokenisation infrastructure matures (such as credible, sound and stable forms of tokenised money), the exploration of service models could progressively extend toward full on-chain implementation.
- 5.19 Tokenisation and programmability can enable entirely new ways to structure products and services. This presents an opportunity for participants to reimagine the mechanism that governs how financial services are delivered. For example, a trading or exchange service may operate using a traditional order book or an automated market maker model (AMM)³⁰. Similarly, lending services may adopt fixed interest rates set by a central entity or dynamic rates determined algorithmically based on real-time supply and demand. At the same time, participants should remain cognisant of the potential for these new mechanisms to lead to unintended outcomes that may undermine principles for responsible financing and fair treatment of consumers, particularly for vulnerable or less digitally literate segments.
- 5.20 As service models evolve, tokenisation may shift or redistribute traditional functions such as custody, brokerage or clearing. For instance, a lending protocol could separate liquidity provision, collateral management and interest rate setting across distinct entities or smart contracts. This reconfiguration of roles may introduce new governance, accountability, risk management, consumer protection, regulatory and legal considerations. Participants should assess how responsibilities are assigned

²⁹ IMF (2024).

³⁰ An AMM takes the form of a liquidity pool which is the sole counterparty to transactions across different participants. Relevant experiments utilising AMMs include Project Mariana and Project Rialto from the BIS Innovation Hub. See BIS (2023g) and BIS (2025a).

across the value chain, especially where some functions may fall outside the regulatory perimeter.

- 5.21 In addition, ancillary services may play a key role in supporting certain tokenised use cases. These may include, but are not limited to:
- i) Cross-platform asset transfer or verification protocols³¹, which facilitate interoperability across platforms;
 - ii) Token wrapping mechanisms³², which specifies conditions upon which an underlying asset may be used or utilised;
 - iii) Blockchain oracles, which connect off-chain data sources to smart contracts and tokenised services, enabling conditional logic based on real-world events.
- 5.22 The taxonomy and role of ancillary services in tokenised ecosystems remain fluid, but exploratory initiatives globally suggest they are essential to ensuring interoperability, data integrity and operational continuity. Participants should assess the reliability, integrity and resilience of such services, particularly where service continuity or data accuracy is critical.
- 5.23 BNM encourages industry participants to explore diverse configurations of service models. Such experimentation is essential to uncover the benefits, challenges, risks and trade-offs associated with different approaches. Service models should also be evaluated not only for their functional viability, but for their ability to withstand operational disruptions and maintain continuity under stress.

For feedback

- 18. What service model design is your institution most interested to explore and why?
- 19. What principles or safeguards should guide the design of service models to ensure operational continuity and resilience under stress?
- 20. What are the most significant role reconfigurations anticipated in tokenised service models, and how might the resulting implications be managed?

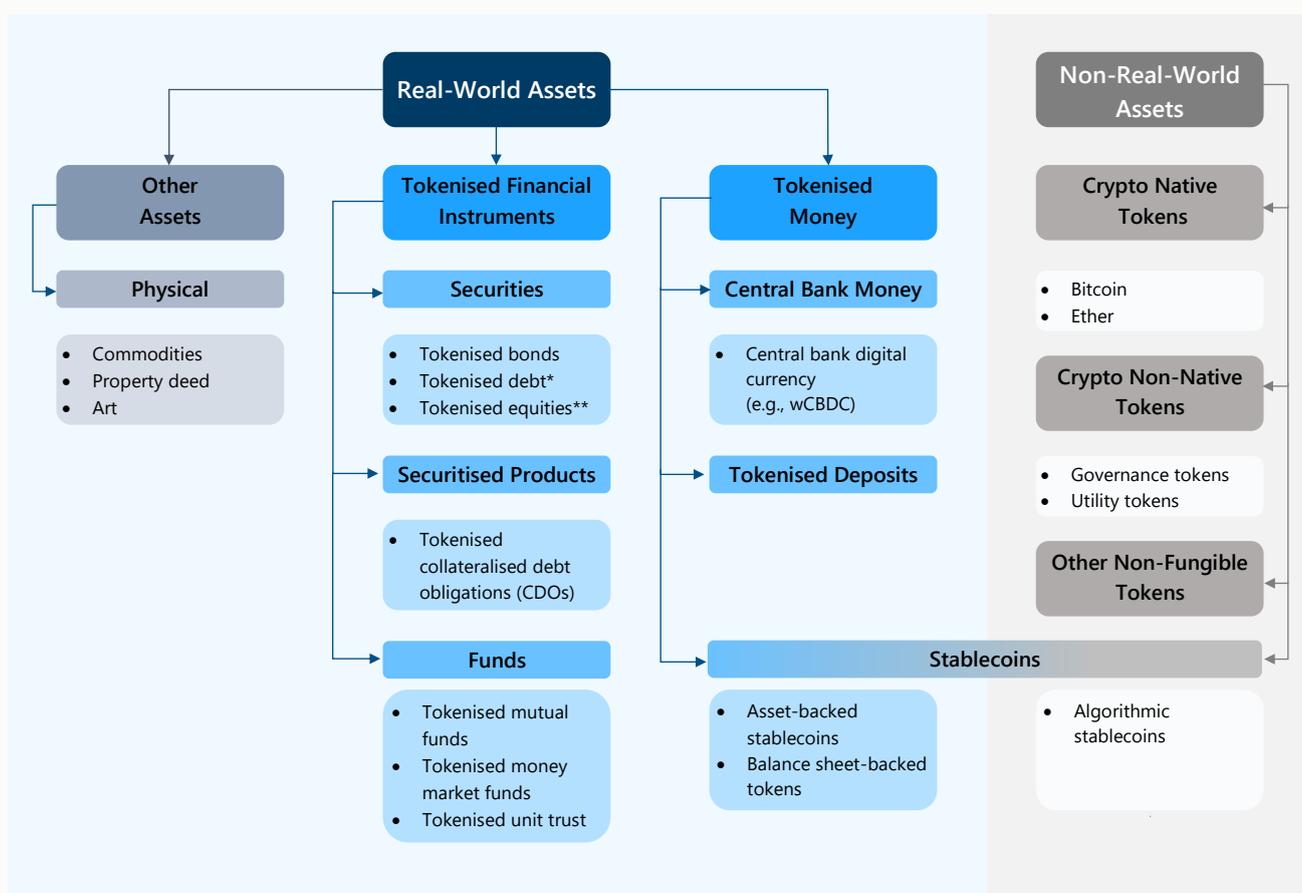
³¹ Otherwise known as 'blockchain bridges'.

³² See the use of a PBM Wrapper in Project Orchid – MAS (2022b).

Consideration 4: Tokenised Financial Instruments

5.24 At this initial phase, BNM encourages exploration of tokenised financial instruments. For the purposes of this discussion paper and exploratory initiatives, the scope of tokenised financial instruments under consideration includes bonds, loans, deposits and tokenised money (see Consideration 5).

Figure 9 Overview of digital assets



* Potentially including tokenised repos, mortgages, factoring, etc. ** Potentially including equity in public and private companies.

This diagram is intended for conceptual illustration only and does not represent an exhaustive list of digital assets. It may simplify certain elements to aid understanding and should not be interpreted as a definitive technical specification or policy position.

Source: Bank Negara Malaysia

5.25 Tokenised use cases may involve both tokenised financial instruments and tokenised money to enable end-to-end execution and settlement on a programmable platform. For example, a tokenised bond issuance may be conducted entirely on-chain (native issuance), where the bond is represented as a tokenised financial instrument and

settlement is facilitated using tokenised money such as tokenised deposits, MYR-backed stablecoins or potentially wholesale central bank digital currency (wCBDC). This integrated approach supports seamless trading, clearing and payment processes. Alternatively, some use cases may involve only tokenised money, such as in payment applications where no financial instrument is embedded.

- 5.26 Initial exploration should focus on tokenisation of financial instruments³³ that are well-established within existing regulatory frameworks that offer both meaningful and practical value. This includes instruments such as bonds/sukuk, loans, bank deposits, equities and derivatives, where tokenisation can enhance efficiency, liquidity and market access while operating within familiar legal and regulatory structures.
- 5.27 In contrast, while physical assets such as machinery and property deeds could potentially be tokenised, they may not naturally fit within existing financial market structures due to challenges related to transferability, enforceability and lack of integration with existing financial infrastructure. Operationalising such use cases would require complex arrangements with stakeholders outside the financial system, including legal, operational and custodial considerations. While we remain open to use cases that tokenise physical assets, it may be more practical to begin by tokenising financial instruments that represent claims on such assets (e.g., mortgages over a property or equity in a special purpose vehicle holding the asset). Tokenising such instruments preserve the economic substance of the underlying asset and may be easier to operate in the context of existing legal and regulatory frameworks.
- 5.28 For the avoidance of doubt, the use of unbacked tokens without underlying economic value for speculative use cases falls outside of BNM's scope of exploration. Unbacked digital-native tokens should only be used in exploratory initiatives when no alternatives exist to facilitate necessary transactions on public blockchains, for example to pay 'gas fees'³⁴. In other cases, utility and governance tokens may be utilised if they serve a clear purpose in facilitating specific use cases. The core focus of tokenisation exploration should remain on real-world assets with direct economic and financial relevance.

³³ BCBS (2022) defines 'traditional assets' as assets already captured within the Basel Framework that are not classified as cryptoassets such as cash, deposits, loans, etc.

³⁴ In the context of public permissionless blockchains, 'gas fees' are payments made by users to compensate validators for the computing power required to process and validate transactions. These are typically paid in the native token of the chain, e.g., ETH for Ethereum. Different gas fee pricing models may apply, depending on the blockchain used. See BIS (2021).

- 5.29 As tokenisation initiatives progress, it will be important to work towards ensuring that tokenised financial instruments can achieve legal and economic equivalence with their traditional counterparts, including but not limited to the following areas:
- i) **Equivalent rights and protections:** Token holders should be able to exercise the same legal rights and protections as those holding the traditional form of the asset, without needing to redeem or convert their tokens.
 - ii) **Preserving risk characteristics:** Tokenised financial instruments should aim to reflect the same credit and market risk profile as their non-tokenised counterparts. Their design should avoid introducing additional counterparty risks beyond those inherent in the underlying asset.
 - iii) **Robust on- and off-ramping processes:** Where tokenisation involves the on-chain representation of a traditional asset, a credible tokenisation process should ensure that the underlying asset is appropriately secured in custody before its tokenised representation is issued. Consequently, the underlying asset should not be available for transfer or trading until the corresponding token is removed from circulation.
- 5.30 Looking ahead, BNM is also open to exploring native issuance of tokenised financial instruments, where assets are issued directly in digital form without a prior traditional equivalent. While such models may offer benefits in terms of market efficiency, liquidity and price discovery, further exploration is needed to understand their implications for legal enforceability, investor protection and systemic risk. These considerations will be important as the tokenised ecosystem matures and as industry capabilities evolve.

For feedback

21. Does your institution agree with the focus on tokenised financial instruments (e.g., bonds, loans, deposits) for initial exploration? While the current focus is on financial instruments, does your institution see a case for exploring tokenisation of other asset types?
22. What legal or contractual mechanisms would be necessary to ensure that tokenised financial instruments confer equivalent rights and protections as their traditional counterparts?
23. What challenges does your institution anticipate in preserving the risk characteristics of tokenised instruments, particularly in terms of credit, market, liquidity or settlement risk?

24. For Islamic finance use cases, are there any Shariah considerations or concerns regarding the implementation of asset tokenisation?
25. What safeguards or operational processes would be needed to support robust on- and off-ramping of tokenised financial instruments?
26. Under what conditions would your institution consider issuing financial instruments natively on-chain (i.e., without a traditional equivalent)? What legal, operational or market infrastructure would need to be in place to support native issuance in a safe and effective manner?

Consideration 5: Tokenised Money

- 5.31 While the form of money within a tokenised ecosystem may be reshaped by technological advancements, its foundation must remain anchored in trust and public confidence. In Malaysia, BNM affirms that the Ringgit shall continue to serve as the unit of account for domestic transactions. In addition, the finality of settlement must remain anchored on central bank money³⁵.
- 5.32 BNM remains committed to preserving the two-tier monetary system, where the central bank supports settlement finality and trust in the unit of account, while financial institutions facilitate credit intermediation that supports broader economic activity. This foundational structure underpins the 'singleness of money' principle³⁶, which ensures that all forms of money, including tokenised money issued by public or private institutions, are interchangeable at par and hold the equivalent value within the monetary system.
- 5.33 Therefore, whether within the current monetary system or a future tokenised ecosystem, central bank money must continue to serve as the ultimate settlement asset to ensure that money continues to be fit-for-purpose³⁷. Other forms of

³⁵ Central bank money refers to the liabilities of the central bank, which serve as the ultimate risk-free and most liquid settlement asset in a well-functioning monetary system. It exists in the form of currency in circulation, reserves and settlement balances held by commercial banks and other eligible institutions at the central bank. By providing a common and trusted basis for the finality of payments, central bank money underpins confidence in the monetary system and upholds the 'singleness of money'.

³⁶ The principle of 'singleness of money' is critical to monetary and financial stability, as it ensures that all money in an economy always has the same value and functions on an unambiguous unit of account.

³⁷ BNM has been actively exploring the potential of wholesale CBDC (wCBDC) as a tokenised form of central bank money for domestic wholesale payments. This initiative is part of a holistic approach to futureproof Malaysia's wholesale payment system, RENTAS.

tokenised money which are issued by regulated financial institutions, such as tokenised deposits and stablecoins, can play a complementary role as a key enabler for a competitive and efficient financial sector³⁸.

5.34 To facilitate settlement in a tokenisation arrangement, participants may wish to explore the following forms of private money:

- i) **Tokenised deposits**³⁹, which are issued by regulated financial institutions, represent a digital form of commercial bank money backed by the fiat currency deposited with the issuing banks on programmable platforms. Tokenised deposits may be issued as a non-bearer liability, which does not involve a direct transfer of claims. In principle, this model maintains the current two-tier monetary system and therefore preserves the singleness of money. In the context of such a tokenised arrangement, central bank money (e.g., wCBDC or settlement via RENTAS⁴⁰) would remain as the ultimate settlement asset. Issuers of tokenised deposits, such as regulated financial institutions, remain subject to the full spectrum of prudential, conduct and operational regulatory requirements, consistent with those applicable to their existing activities. Furthermore, in determining the optimal design of tokenised deposits, interoperability remains a key consideration to ensure seamless integration within the broader financial ecosystem and efficient settlement across different networks.
- ii) **Stablecoins**, in its current form, are purported to maintain a stable value by pegging their value to a reference asset such as a fiat currency or commodities⁴¹. However, as the majority of stablecoins in the market may be traded, the price of stablecoins may deviate from par, thus posing challenges to ensure the singleness of money. In addition, unlike tokenised deposits, most stablecoin models currently represent a transferable claim on the issuer, akin to a digital bearer instrument.

Recognising stablecoins' potential to enable efficient payment transactions in a

³⁸ While both central bank money and commercial bank money are able to settle transactions, as the ultimate risk-free asset, central bank money bears zero risk as a settlement asset and functions as a trust anchor for settlement finality.

³⁹ For the purposes of this document, 'deposit' refers to a sum of money accepted or paid on terms under which it will be repaid in full, with or without interest or any other consideration in money or money's worth, either on demand or at a time or in circumstances agreed by or on behalf of the person making the payment and the person accepting it. This definition is in accordance with Section 2(1) of the Financial Services Act 2013 and Section 2(1) of the Islamic Financial Services Act 2013, and excludes money paid bona fide.

⁴⁰ The Real Time Electronic Transfer of Funds and Securities (RENTAS) System is a real time gross settlement system (RTGS) for the transfer and settlement of high value ringgit denominated interbank funds and scripless securities transactions.

⁴¹ The majority of stablecoins in circulation today is USD-backed.

tokenised ecosystem, BNM is open to exploring MYR-denominated stablecoin models that could uphold the singleness of money and demonstrate qualities in line with expectations set by international standard-setting bodies (e.g., Financial Stability Board), which include but are not limited to, credible value stabilisation and reliable redemption mechanisms⁴².

BNM remains cognisant of the risks associated with the growing prevalence of stablecoins, including their use for illicit activity and challenges in enforcing anti-money laundering regulations. As highlighted in a report by the Bank for International Settlements (BIS), stablecoins have surpassed bitcoin as the preferred asset among criminals in the crypto ecosystem since 2022. By 2024, stablecoins were estimated to account for approximately 63% of all illicit cryptocurrency transactions⁴³. In addition, the ability of stablecoins to circulate freely across borders presents a challenge for monetary sovereignty and may undermine the effectiveness of foreign exchange regulations. Furthermore, the credit risk of private issuers presents a key challenge, as the ability of a stablecoin to maintain value and honour redemption claims is contingent on the issuer's financial soundness. These risks warrant careful consideration and the implementation of appropriate safeguards to ensure monetary and financial stability as well as financial integrity.

⁴² See FSB (2023b). Other qualities include effective risk management, clear lines of accountability, transparent and comprehensive information disclosures.

⁴³ See BIS (2025e).

Figure 10 General differences between tokenised deposits and stablecoins⁴⁴

	Tokenised deposits	Stablecoins
Description	Digital representation of existing bank deposits (M1) held by depository institutions on programmable platforms	Digital representation of asset that aims to maintain a stable value relative to reserve asset, such as fiat, on programmable platforms
Issuer (and liability of)	Regulated commercial banks	Regulated commercial banks or other private non-bank entities
Ownership and transferability	Holder/non-bearer instrument	Bearer instrument
Underlying value	Bank liabilities held on balance sheet, and may be subject to similar requirements as existing traditional deposits	Underlying assets or fiat reserves and may be subject to value stabilisation and redemption mechanisms

Source: Bank Negara Malaysia

5.35 Participants must ensure that the use of any form of tokenised money complies with existing AML/CFT/CPF and TFS measures and FEP requirements. These safeguards are essential to uphold the integrity and security of financial transactions, as well as ensuring stability of the Ringgit's value.

⁴⁴ See BIS (2023d), BIS (2024c), BIS (2024d) and BIS (2025c) for a comparative overview of tokenised deposits and stablecoins, particularly with respect to how claims flow across bearer and non-bearer liability structures.

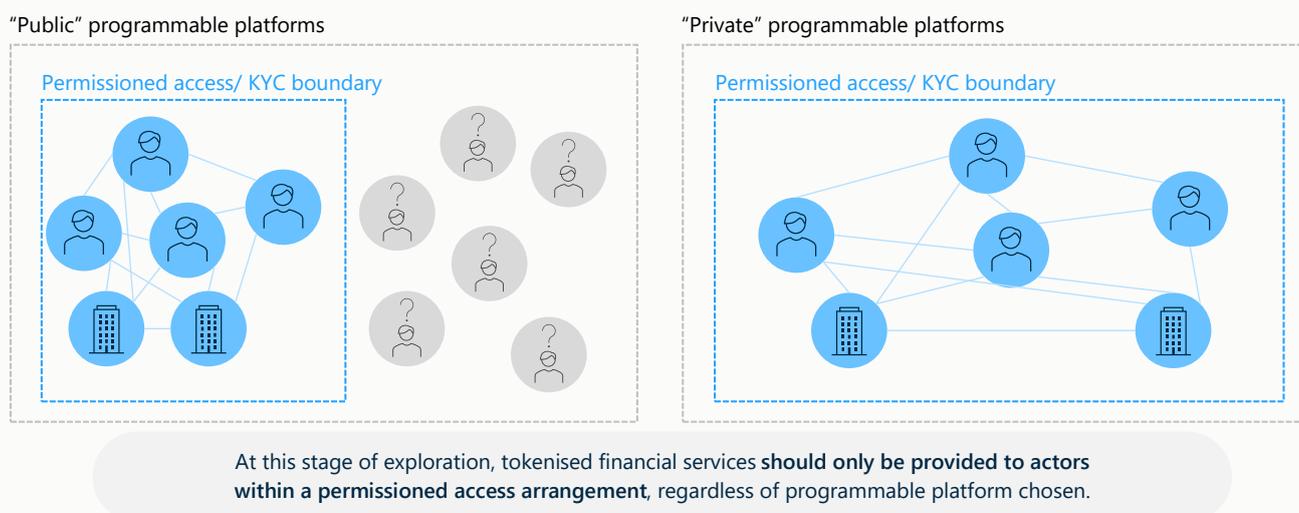
For feedback

27. What are the key regulatory, operational or legal considerations your institution foresees in issuing or using tokenised deposits? Are there specific interoperability or infrastructure challenges that may affect the adoption of tokenised deposits across platforms?
28. What are your views on the potential operational or regulatory challenges associated with the introduction of tokenised deposits, particularly in relation to liquidity risk management and applicable prudential requirements? Are there specific frameworks, thresholds or supervisory expectations that may require adaptation to accommodate such instruments within existing risk management practices?
29. What are your views on the potential role of MYR-denominated stablecoins in supporting tokenised financial services? What use cases would benefit most from their adoption? What safeguards or conditions would be necessary to support such testing?
30. Beyond MYR-denominated stablecoins, what are the potential opportunities, risks and challenges arising from the use of foreign-currency denominated stablecoins? What safeguards would need to be in place to ensure continued compliance with existing regulations, including BNM FEP notices?
31. How does your institution view the comparative roles of tokenised deposits and stablecoins in supporting a tokenised financial ecosystem? Under what conditions would one be preferred over the other?

Consideration 6: Programmable Platform

- 5.36 The programmable platform serves as the foundational infrastructure that enables the recording, validation and execution of transactions in a tokenised arrangement. Today, most common programmable platforms for tokenised arrangements utilise DLT, though alternative approaches may be developed in the future.
- 5.37 BNM is technology-agnostic regarding the choice of the programmable platform, but such infrastructures should be anchored on the following principles:
- i) **Resilient and secure:** Ensures a robust ecosystem that preserves the continuity of critical services and is resilient against cyber threats and other adverse situations.
 - ii) **Inclusive:** Accounts for diverse stakeholders and applications in the financial landscape.
 - iii) **Interoperable:** Facilitates interaction between different systems, platforms and participants.
 - iv) **Adaptable:** Able to accommodate emerging developments, including new technologies and operating models.
- 5.38 In determining the appropriate programmable platform for tokenisation exploration, participants should evaluate all considerations in Part 5 and may adopt either a public or private network arrangement. Participants should demonstrate that appropriate safeguards are in place to address key risks and that these measures are aligned with the principles outlined in paragraph 5.37.
- 5.39 Public programmable platforms are typically permissionless, allowing unrestricted access and participation. They offer high transparency and foster innovation through open collaboration. However, such openness may introduce challenges related to data confidentiality, transaction finality and regulatory compliance. To address these concerns, permissioned access controls can be layered onto public programmable platforms, enabling only verified and authorised participants to interact with specific components of the network. This hybrid approach allows organisations to balance openness with governance, ensuring compliance and safeguarding sensitive information while retaining the benefits of a decentralised infrastructure.
- 5.40 On the other hand, private programmable platforms are inherently permissioned, with access and participation restricted to approved entities, and operate under the control of a single entity or consortium. These platforms may offer enhanced control over transaction validation, data confidentiality and regulatory oversight. Some tokenisation projects in other jurisdictions have utilised private programmable platforms for use cases involving sensitive financial data and to address compliance requirements.

Figure 11 Permissioned access arrangements can exist on all programmable platforms



This diagram is a simplified illustration intended for conceptual purposes only.

Source: Bank Negara Malaysia

- 5.41 As the design and deployment of programmable platforms continue to evolve, their role within financial market infrastructures is becoming increasingly strategic. While current implementations are mostly built on decentralised infrastructures, it is possible that future iterations may adopt more centralised models that support programmable transactions.
- 5.42 Against the backdrop of rapid innovation, BNM has embarked on plans to modernise RENTAS to ensure it remains resilient and adaptable to emerging challenges and opportunities. This includes facilitating interoperability between RENTAS with other financial market infrastructures and ledgers (e.g., programmable platforms) via APIs. This connectivity intends to ensure RENTAS is ready to support an ecosystem where settlement may be completed with tokenised money, potentially comprising tokenised deposits, MYR-denominated stablecoins or wCBDC, and enable efficient mobilisation of liquidity between real time gross settlement systems (RTGS) and other future programmable platforms.
- 5.43 BNM is also exploring the potential of a common programmable platform to support broader industry testing and to facilitate interoperability across platforms. Such an initiative would aim to promote efficiency, foster a level playing field for industry exploration and serve as a critical building block for public-private collaboration at the infrastructure level.
- 5.44 Participants are encouraged to carefully evaluate their risk appetite, operational readiness, the unique characteristics of the assets being tokenised and other earlier

design considerations to determine the most suitable programmable platform arrangement for exploratory initiatives.

For feedback

32. What principles or features does your institution consider most critical when selecting or designing a programmable platform for tokenisation use cases?
33. What are the key factors – such as governance, interoperability, compliance, cost or vendor maturity – that would influence your institution’s choice of public or private programmable platform?
34. What are the benefits, risks and challenges in implementing a permissioned access framework on public programmable platforms?
35. Would your institution support the development of a common programmable platform for industry testing and collaboration? What features or governance arrangements would be important to ensure neutrality and inclusivity?
36. How does your institution evaluate the long-term scalability and integration potential of a programmable platform within your existing infrastructure and business model?

Other considerations

- 5.45 BNM welcomes industry feedback on other factors relevant to tokenisation exploration beyond those already outlined above. While this section highlights certain additional areas for input, it is not exhaustive, and participants are encouraged to identify and raise any additional pertinent issues.
- i) **Legal status:** Participants should consider that the legal status and treatment of tokenised assets and smart contracts remain unclear in many jurisdictions. One example of this uncertainty is whether certain tokenised assets reflect a legal claim or property right and how this compares with their non-tokenised equivalent. These legal risks may be more pertinent in cross-border transactions, as different jurisdictions may have varying legal and regulatory approaches.
 - ii) **Accounting and prudential treatment:** Participants should also assess the accounting and prudential treatment of tokenised assets, including how they are classified, valued and reported under applicable accounting standards and prudential regulations. This is particularly important for financial reporting and regulatory compliance.

- iii) **Governance challenges:** Participants should ensure proper governance over the tokenisation arrangement, whether at the platform level (e.g., infrastructure providers) or transactional level (e.g., issuers, custodians and users). This includes establishing clear responsibilities, managing conflicts of interest and ensuring effective oversight.
- iv) **Operational, technology and cyber risks:** Participants should implement robust risk management and cybersecurity safeguards to mitigate operational disruptions and cybersecurity threats, including digital fraud, arising from tokenisation. Participants should also consider the different cyber risks based on the use of proprietary versus open-source software, as well as interconnections between different token arrangements that may introduce additional vulnerabilities.

For feedback

- 37. What are your views regarding these design considerations? Are there other design considerations that might be relevant?
- 38. What regulatory requirements need to be clarified to facilitate safe and effective tokenisation exploration and adoption? Are there existing regulatory or legal constraints that could hinder the implementation or scaling of tokenisation use cases?
- 39. How will tokenisation affect your ability to comply with technology-related regulatory requirements such as the policy document on Risk Management in Technology (RMiT)?
- 40. Are there any other barriers that would prevent participation in tokenisation exploration and adoption?

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