صندوق النقد العربي
ARAB MONETARY FUND

# Tokenizing Real-World Assets

## Policy Pathways for Real Estate Tokenization in the Arab Region

POLICY NOTE

**Ahmed Elayyan**

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**Tokenizing Real-World Assets – Policy Pathways for Real Estate Tokenization in Arab Region – Policy Note**

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## Abstract

Tokenization, the digital representation of real-world assets (RWAs) on distributed ledger technologies, has emerged as a promising mechanism to enhance market efficiency, liquidity, and inclusiveness, particularly in asset-intensive sectors such as real estate and commodities. International experience demonstrates that tokenization can reduce transaction frictions and expand access to investment through fractional ownership, yet its global adoption remains nascent and uneven. Early pilots across several advanced and emerging economies underscore that successful implementation depends on clear regulatory frameworks, robust technological infrastructure, and effective public–private collaboration.

In the Arab region, the regulatory landscape for digital assets is fragmented. While a limited number of jurisdictions have begun exploring tokenized real estate and commodity initiatives, many countries have yet to clarify the legal status of tokenized assets or establish enabling frameworks. At the same time, the region's significant reliance on real estate and commodities presents a strategic opportunity to leverage tokenization for economic diversification, financial inclusion, and modernization of financial market infrastructures. Addressing gaps in regulation, payments, custody, and settlement systems, alongside improving investor confidence and awareness, remains critical.

This policy note surveys international best practices and global policy debates to inform a regional perspective on asset tokenization. It assesses the potential benefits and challenges of tokenizing real estate and commodities in the Arab context, reviews regulatory approaches adopted by leading jurisdictions, and proposes policy pathways for Arab countries. These pathways encompass regulatory and supervisory options, infrastructure and market-readiness measures, and safeguards to preserve financial stability while enabling responsible innovation.

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## Abbreviations

| | |
|---|---|
| AI | Artificial Intelligence |
| AMF | Arab Monetary Fund |
| AML | Anti-Money Laundering |
| ART | Asset-Referenced Token - EU MiCA terminology |
| CBDC | Central Bank Digital Currency |
| CFT | Combatting the Financing of Terrorism |
| DAO | Decentralized Autonomous Organization |
| DeFi | Distributed Finance |
| DLD | Dubai Land Department |
| DLT | Distributed Ledger Technology |
| DRR | Digital Regulatory Reporting |
| DSS | The UK "Digital Securities Sandbox" pilot |
| DTI | Digital Token Identifier |
| DvP | Delivery versus Payment |
| EMT | Electronic Money Token - EU MiCA terminology |
| ERC | Ethereum Request for Comment |
| FAQ | Frequently Asked Question |
| FATF | The Financial Action Task Force |
| FCA | The UK Financial Conduct Authority |
| FINMA | The Swiss Financial Market Supervisory Authority |
| Fintech | Financial Technology |
| FSB | Financial Stability Board |
| FSMA | Financial Services and Markets Act 2000 (FSMA) |
| GDP | Gross Domestic Product |
| ID | Identity |
| IMF | International Monetary Fund |
| IOSCO | International Organization of Securities Commissions |
| ISIN | International Securities Identification Number |
| ISO | International Organization for Standardization |
| ITIN | International Token Identification Number |
| ITSA | International Token Standardization Association |
| KYC | Know Your Customer |
| LEI | Legal Entity Identifier |
| MiCA | Markets in Crypto-Assets Regulation |
| MiFID | The Markets in Financial Instruments Directive |
| NFT | Non-Fungible Token |
| OECD | Organisation for Economic Co-operation and Development |
| PPP | Public-Private Partnership |
| REES | The Real Estate Evolution Space initiative by DLD |
| REIT | Real Estate Investment Trust |
| RTGS | Real Time Gross Settlement |
| RWA | Real-World Asset |
| SDX | SIX Digital Exchange |
| SME | Small and Medium Enterprises |
| SPV | Special Purpose Vehicle |

| | |
|---|---|
| SupTech | Supervisory Technology |
| VARA | The Virtual Assets Regulatory Authority - Dubai |

## Executive Summary

Tokenization is the process of digitally representing real-world assets (RWAs) on distributed ledgers. In sectors such as real estate and commodities, tokenization is increasingly recognized – as highlighted in the World Bank's (2023) Infrastructure Tokenization Report – as a mechanism to enhance efficiency and liquidity, reduce transactional frictions, and broaden investment access by enabling fractional ownership of high-value assets.

Globally, the tokenized assets market remains relatively small, and countries such as the United Kingdom, Singapore, South Africa, the Philippines, and several EU member states have begun piloting tokenized real estate and gold projects, demonstrating the concept's viability. However, these early experiments also highlight the prerequisites for success:

- clear regulatory frameworks,
- robust technological infrastructure, and
- effective public-private partnerships.

At present, the region's regulatory landscape for digital assets is fragmented, with some jurisdictions (notably the UAE) exploring tokenized real estate and gold pilots, while others have yet to clarify legal status or even restrict virtual assets activities.

For the Arab region's policymakers and regulators; the opportunity is twofold. First, economic diversification and inclusion given the macro weight of real estate and commodities. Second, leverage this momentum to modernize the regulatory frameworks via addressing the regulatory and infrastructural gaps that currently hinder wider adoption.

Key financial market infrastructure, from payment systems to custodial services, must also be upgraded or integrated with distributed ledger technology (DLT) to handle tokenized assets seamlessly. Low investors' confidence and awareness further highlight the need for capacity building and investor education.

This policy note, first, surveys international best practices, drawing on recent analyses by the IMF, OECD, World Bank, FSB, and the AMF, to inform a regional strategy. Second, it examines the potential benefits of tokenizing real estate and commodities, candidly assesses the challenges in the Arab context, and reviews how leading jurisdictions are regulating and facilitating tokenization. Third, the note outlines policy pathways for Arab countries, including regulatory options, infrastructure and market readiness measures, and approaches to safeguard financial stability.

## Introduction

Tokenization offers a tool to democratize real estate investment. By fractionalizing property ownership into digital tokens recorded on distributed ledgers, households and investors can access smaller, more affordable stakes in real estate, lowering entry barriers for first-time buyers and diversifying investment opportunities.

Although still modest in scale, the tokenized RWA market – excluding stablecoins – grew by approximately 85% year-over-year, reaching $15.2 billion by December 2024[2]. This growth spans diverse asset classes, including private credit, commodities, real estate and treasuries. Looking ahead, forecasts point to rapid expansion, with estimates suggesting that the asset tokenization market could reach $18.9 trillion by 2033 (Ripple and Boston Consulting Group).

In USA, spending within the housing market accounted for 16.2% of GDP in 2024. According to Federal Reserve of St. Louis, as of fourth quarter 2023, the bottom 50% of households hold just over 50% of their assets in real estate; the top 1% and 0.1%, hold 13.1% and 9% of their total assets in real estate, respectively. In UAE, the total value of real estate transactions reached approximately $243 billion by the close of 2024, with over 331,300 transactions documented[3]. In KSA, the total number of all real estate transactions in 2024 (all sectors) grew by 37% to 236,690 deals, totaling $71.4 billion[4]. In Egypt, the property transactions totaled roughly 1 trillion EGP for 2024[5]. This is about double the value recorded in 2023.

Real estate is a major asset class (and store of value) in most Arab economies. However, the Real estate asset class is structurally illiquid in some markets, with affordability challenges stemming from supply rigidities, rising borrowing costs, and higher prices induced by speculative demand.

International financial organizations have highlighted tokenization's potential benefits, noting that it could improve market efficiency and transparency, lower costs, and democratize access to investments. At the same time, tokenization remains in an initial stage of adoption worldwide. At the regional level, the UAE has launched pilot projects exploring the tokenization of real estate.

Despite this promise, significant barriers currently hinder the full adoption of tokenization in the Arab region. Legal and regulatory uncertainty is a key issue, as few countries in the region have a comprehensive legal and regulatory framework in place for tokenized assets. Market infrastructure is another concern. This includes that the digital platforms, custodial services, and settlement mechanisms needed for a tokenized asset ecosystem are not yet widely available or integrated with legacy financial systems in the region. Moreover, awareness and trust remain low among many investors and institutions, who may be unfamiliar with DLT or skeptical due to the volatility of crypto assets, given that most tokenization started in crypto assets.

These contextual factors set the stage for a deeper examination of tokenization's potential, the challenges to overcome, and the policy actions that can facilitate safe and effective adoption in Arab countries. Accordingly, this policy brief examines the potential of real

[2] As reported by InvestaX – 2024: The Year of Institutional Real World Asset Tokenization.

[3] As reported by Emirates News Agency in January 2025, mortgage transactions alone surpassed $62.4 billion, comprising more than 50,000 transactions, excluding mortgages in Ajman.

[4] As reported by Knight Frank – Saudi Arabia Residential Market Review in Winter 2024-25.

[5] As reported by Invest Gate – Egypt's Coastal Real Estate: From Holiday Retreats to Investment Powerhouse report in 27th August 2025.

estate tokenization, outlining its advantages and value propositions while identifying legal and regulatory, infrastructural, and market-readiness challenges in the Arab region.

The brief is structured as follows: the first section introduces RWA tokenization, providing its definition, taxonomy and lifecycle management framework; the second section explores the potential of real estate tokenization and its associated benefits; the third section reviews international experiences and best practices; the fourth section assesses the Arab region's readiness for tokenization; and the final section outlines policy options and pathways tailored to Arab countries.

# 1. RWA Tokenization

This section introduces the foundational concepts of RWA tokenization, beginning with the definition and taxonomy of tokens and their classification by function, interchangeability and origin. It then situates RWA tokens within the broader digital asset landscape, explaining their distinctive link to tangible assets such as real estate and commodities. Finally, it outlines the lifecycle management framework governing RWAs establishing the basis for their safe and effective integration into regulated financial systems.

## 1.1 Tokens Definition

Token, a.k.a. Crypto Asset, represents digitally recorded unit on a shared ledger that can embody rights, value or access and can be transferred or managed by rules encoded in software.

Tokenization refers to the process of issuing or representing ownership of assets in digital token form on a distributed ledger. In practice, any real or financial asset, such as real estate properties, commodities, equities and bonds, can be tokenized into a digital asset that grants similar rights as the underlying asset.

## 1.2 Tokens Taxonomy

Tokens may be native and existing solely on-chain or non-native that digitally represent an off-chain asset or claim. They may be fungible (i.e., interchangeable or identical units) or non-fungible (i.e., unique units). In all cases, a token's state, such as ownership, is maintained on the ledger, and its behavior can be programmable via smart contracts, whether or not it represents an external asset or issuer liability.

Globally, international bodies generally classify tokens based on their economic function, while also noting distinctions in interchangeability and whether tokens carry an issuer's liability or underlying asset. OECD and IOSCO commonly distinguish three primary functional categories: 1) payment or exchange tokens, 2) utility tokens, and 3) security or asset. The IMF and FSB further emphasize whether tokens are fungible vs. non-fungible[6] tokens and native vs. non-native[7] or asset-backed tokens, as these affect their treatment in financial systems.

Under the EU's Markets in Crypto-Assets Regulation (MiCA), Crypto Assets are classified into specific categories for regulatory purposes focusing on the economic function and stabilization mechanism of tokens. The UK's regulatory approach to Crypto Asset classification, as set out by the Financial Conduct Authority (FCA), also categorizes tokens by their regulatory character and economic function. The UK scheme distinguishes whether tokens fall within the regulatory perimeter or are unregulated.

[6] Fungible tokens are interchangeable units with identical value and characteristics (e.g., one token is equivalent to any other of its kind), while non-fungible tokens are unique and distinguishable, each representing a specific asset or claim.

[7] Native tokens derive their value intrinsically from the network they operate on (e.g., Bitcoin or Ether), while non-native tokens represent off-chain assets or claims (e.g., tokenized RWA) and derive their value from an external reference.

The figure below illustrates the token taxonomy according to their key characteristics.

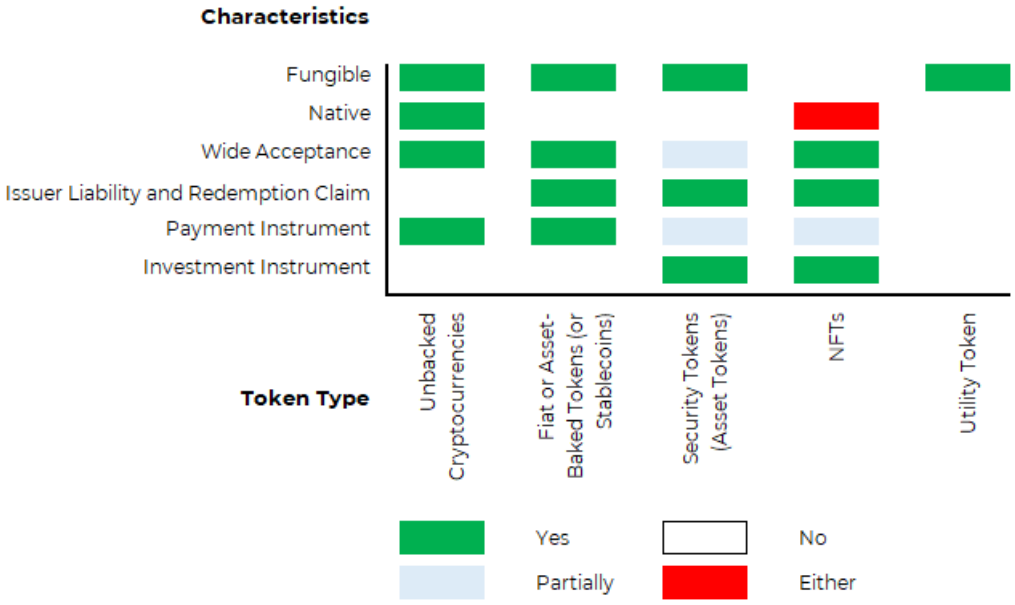


**Figure** 1 – Token Taxonomy

Also, **Appendix A** details a taxonomy of tokens based on international bodies, EU MiCA and UK FCA definitions.

## 1.3 The Context of RWA Tokens

RWA tokens can be considered as divisible on-chain units, and distinguished from purely native Crypto Assets by the fact that they are backed by off-chain tangible assets or financial claims. For example, a token might represent a share in a commercial building or a quantity of a precious metal. These shares are recorded in ledger (i.e., chain) that ensures a secure and transparent record of ownership and transfers.

RWA tokens, such as those representing ownership in real estate, backed by a pool of property loans, or linked to physical gold, are generally classified as security tokens. Both IOSCO and the OECD stress that such asset-backed tokens should fall under securities regulation and oversight to protect investors and market integrity.

## 1.4 The Lifecycle Management of RWA Tokens

For RWA tokenization to gain regulatory confidence, a lifecycle management framework must be established. Such framework must embed compliance into every stage, where investors are verified through on-chain and unique identities tied to KYC/AML checks, ensuring only eligible holders can access the token. These on-chain identities use cryptographic proofs to enable authentication without exposing personal data.

Issuance then proceeds with tokens minted against verifiable assets, allocated exclusively to validated investors, and always backed by custodial records to preserve the 1-to-1 link with the underlying.

Transfers and secondary trading should never bypass oversight. Each transaction must trigger automated identity and compliance checks before settling. Finally, redemption needs to involve the custodian, with tokens burned as the investor receives the underlying asset or cash equivalent, keeping supply and custody perfectly aligned.

One of the technical practiced protocols in the domain of RWA tokenization lifecycle management is Ethereum ERC-3643 standard. ERC-3643 is an open-source suite of smart contracts that enables the issuance, management and transfer of permissioned tokens which ensures that only eligible investors can hold and transfer these tokens. Adopting such technical standards and protocols strengthens market infrastructure and technological readiness by enabling interoperability and ensuring seamless cross-platform and cross-border functionality.

**Appendix B** illustrates a walkthrough of security tokens based on ERC-3643-like principles.

## 2. The Potential of Real Estate Tokenization

Tokenizing real estate can unlock a range of benefits that address longstanding inefficiencies in these asset classes. Key potential advantages include:

- **Enhanced Liquidity and Tradability**

  Many real estate investments are traditionally illiquid where properties often take weeks to sell. Tokenization allows such assets to be traded on digital platforms in near real-time, improving market liquidity (OECD Business and Finance Policy Papers, No. 75). By representing an asset as divisible tokens, ownership stakes can change hands quickly without the frictions of full asset transfer.

  The study by Leung et al. (2023) analyzed a sample of 28 tokenized bonds issued by 23 different issuers between 2018 and early 2023. These bonds span multiple jurisdictions, primarily in Asia and Europe, and include both institutional-only and retail-accessible offerings. The study found that tokenized bonds can achieve tighter bid-ask spreads and greater liquidity than conventional bonds, with reductions of 5.3% in bid-ask spreads[8].

- **Fractional Ownership and Wider Participation and Financial Inclusion**

  Tokenization makes it feasible to fractionalize high-value assets into smaller units, lowering the investment threshold for participation, and allowing retail investors to buy in at a few hundred or thousand dollars instead of needing millions. This democratizes access to asset classes that were previously off-limits to many investors. A wider range of investors, including individuals and small institutions, can thus gain exposure to real estate portfolios, supporting financial inclusion and portfolio diversification.

- **Efficiency Gains via Automation and Disintermediation**

  By using smart contracts, many manual and intermediary processes can be automated and streamlining issuance, trading and settlement.

  For instance, token transactions can settle almost instantaneously on-chain, as opposed to the days it might take in traditional property trades. Automated compliance checks can be embedded in token smart contracts, reducing administrative overhead. While tokenization may not eliminate all intermediaries, it reduces the costs and frictions of intermediation processes like record-keeping, escrow and transfer verification.

[8] Narrower bid-ask spread indicates that the asset is easier to trade meaning that the market has more liquidity and trading efficiency.

Leung et al. (2023) further found that tokenized bonds can achieve reductions in underwriting fees and yield spreads, representing 25.8% in average underwriting fees and 23.9% in yield spreads[9].

- **Transparency and Security**

  Distributed ledgers provide cryptographic security and an immutable audit trail of transactions. This can protect against fraud and unauthorized transactions, and increase transparency in markets that are often opaque. For real estate, recording token trades and ownership changes on-chain increases trust in property transactions.

- **Integration with Innovative Financial Applications**

  Once assets are tokenized and recorded on-chain, RWA tokens will have greater financial flexibility and interoperability by turning into programmable money-like instruments that can interact with the broader digital asset ecosystem. This means tokenized real estate assets could be used in decentralized finance (DeFi) applications or as collateral in lending platforms. A potential future use of RWA tokens is embedding them in smart contracts to back stablecoins or to settle trades, thereby enhancing the utility and liquidity of the underlying asset.

## 3. Review of International Experience

Globally, regulators have adopted a variety of approaches to address tokenization, ranging from adapting existing laws to crafting new legal frameworks. A review of international experience reveals several best practices and guiding principles that can inform the Arab region's strategy:

I. **Technology-Neutral Regulatory Principles**

As discussed before, security tokens are tokens connected to financial rights, such as the right to receive payments (e.g., bonds) or voting and dividend rights (e.g., shares). Not all tokens are securities. Tokens can include various rights and only those with financial content (e.g., investment rights) qualify as securities.

In most jurisdictions where tokenized markets are developing, policymakers have adopted a technology-neutral regulatory stance, grounded in the principle of "same activity, same risk, same regulation". This approach ensures that financial activities are governed by consistent rules based on their underlying function and risk profile, irrespective of the technological medium, whether conducted through conventional financial infrastructure or facilitated via DLT (OECD (2021), "Understanding the Tokenisation of Assets in Financial Markets").

[9] Lower underwriting fees may indicate more efficient or competitive issuance processes, thus, more capital-raising efficiency. A lower yield spread suggests that investors are willing to accept lower returns showing more confidence and pricing power, possibly due to perceived liquidity and transparency.

### II. Regulatory Clarity Through Guidance and Definitions

In the early stages of token markets, many jurisdictions published guidelines or interpretive notes to explain the regulatory treatment of tokens. This included defining when a token is considered a security, a payment instrument, or another asset class.

By providing definitions, authorities in jurisdictions like France, the UK, and Singapore gave industry a roadmap of which regulations would apply. For instance, France's "Blockchain Order" (2017) recognized the use of DLT for recording unlisted securities, and the subsequent Pacte Law (2019) created a framework for digital asset service providers, clarifying licensing and oversight for token issuances. Germany's Electronic Securities Act (2021) similarly allowed electronic versions of debt securities in place of paper certificates.

### III. Frameworks where Necessary

A number of leading jurisdictions went further by enacting comprehensive, tailor-made legislation for crypto-assets and tokenization:

- Liechtenstein's Token and Trusted Technology Service Provider Act (Blockchain Act) of 2020 was one of the first holistic laws, covering the token economy end-to-end (token creation, ownership rights, service provider roles, etc.).
- Switzerland's DLT Act (2020) amended various existing laws (civil, financial market, and insolvency law) to explicitly recognize tokenized securities and trading facilities, providing legal certainty on ownership and transfer of digital securities without intermediaries.

These frameworks provide a clear legal underpinning for tokenization, which, in turn, has attracted businesses to set up token markets in those countries. For instance, the Swiss law enabled the launch of the SIX Digital Exchange (SDX) as a fully regulated venue for trading and settling tokenized securities. Luxembourg and Malta have also positioned themselves with crypto-asset laws aimed at fostering tokenization-friendly environments.

While not all countries need a standalone "tokenization law," the lesson is that where existing law is insufficient to address novel features (like purely digital shareholder registers or native tokens), legislating those specifics can greatly boost certainty and confidence.

### IV. Regulatory Sandboxes and Pilot Programs

Many jurisdictions have employed regulatory sandboxes or pilot regimes to safely experiment with tokenization business models under the regulator's oversight, with temporary relaxations of certain requirements but strong safeguards without risking broader market stability.

The UK is piloting a Digital Securities Sandbox (DSS) that creates a modified regulatory environment for DLT-based trading of financial instruments. Emerging markets like South Africa and the Philippines have also set up sandboxes specifically allowing tokenized asset trials. The sandbox tests often inform subsequent regulatory changes.

In addition, live pilot projects with public sector involvement have been used. The European Union's DLT Pilot Regime (effective 2023) lets market infrastructures experiment with DLT-based trading/settlement within a controlled framework exempt from certain EU rules, to gather evidence for future policymaking. Singapore's Project Guardian, led by the Monetary Authority of Singapore in partnership with industry, is another best-practice example, it pilots tokenization of bonds and foreign exchange on public blockchains to study DeFi applications under monitored conditions.

## V. Ensuring Investor Protection, Market Integrity, and AML/CFT Compliance

Across the regulatory approaches, core financial safeguards extend to tokenized markets. Best practices dictate that token issuers and intermediaries follow strict KYC and AML procedures.

Most jurisdictions require that issuers of security tokens register or qualify for exemptions just as they would for traditional securities offerings, to ensure investors receive necessary disclosures.

Several countries adopt a cautious approach to retail access until regulations catch up, such as having limited token offerings to certain thresholds or requiring that offerings be done via licensed platforms to protect consumers. In the U.S. Aspen token case, a tokenized real estate offering of the St. Regis Aspen Resort, the offer was restricted to accredited investors under a private placement exemption.

Market integrity is also a focus. Jurisdictions are extending insider trading, market manipulation and fraud provisions to token markets. Importantly, regulators like FINMA (Switzerland) and the Monetary Authority of Singapore have provided guidance on how AML/CFT rules apply to crypto and token service providers, mandating transaction monitoring and reporting for token transfers similar to bank transfers. The FATF has released regulatory requirements (the "Travel Rule") for Virtual Asset Service Providers to collect, hold and transmit specific information about the originators and beneficiaries of virtual asset transfers.

## VI. International Cooperation and Harmonization

Tokenization can cross borders because of its digital nature. Tokens can easily be issued in one jurisdiction and sold to investors in another. This leads regulators to recognize the need for cross-border coordination to prevent regulatory arbitrage and fragmentation.

The FSB in 2024 called on authorities to share information and close data gaps in monitoring tokenization activities, as well as to examine how tokenization fits within different legal frameworks. The IOSCO and the BIS have also been studying tokenized securities markets to develop common principles.

On the regulatory front, the MiCA regulation represents a major harmonization effort. It creates an EU-wide regime for crypto-assets and service providers, meaning any token offerings outside of already-regulated securities will follow the same rules across all EU member states. While MiCA largely excludes tokenized traditional securities, which remain under existing securities law; the EU in parallel launched the DLT pilot regime to evaluate adjustments needed in trading/tokenizing traditional instruments.

### VII. Public Sector Leadership and Collaboration with Industry

Public sector participation or observation in tokenization pilots means that regulators can better understand the technology and risks, leading to smarter and effective regulation.

It is notable in jurisdictions having advanced tokenization that they have proactive involvement or support by public authorities, often in partnership with private firms. The Slovenian government's 2024 tokenized sovereign bond issuance is one of the government-led pilot projects that have served as proofs of concept and signaled official endorsement of the technology. In Singapore, multilateral public-private working groups have been established to identify use cases and set standards for tokenization. Project Guardian is a case in point. The Swiss Project Helvetia is another example of a public-private partnership. The Swiss National Bank worked with the SIX Digital Exchange to test settling tokenized assets with central bank money, delegating certain tasks to the private platform while retaining oversight.

In summary, the global experience suggests that clear and adaptive regulation, strong safeguards, sandbox experimentation, and public-private collaboration form the recipe for fostering tokenization in a safe and sustainable manner.

## 4. Assessing the Arab Region's Readiness

This section highlights the key challenges and gaps across the Arab region that influence the readiness for RWA tokenization.

A structured benchmarking model was used to assess Arab countries, starting with a crawling agent for public content[10], including regulatory frameworks, Fintech portals, official statements, and international reports, followed by GPT-powered thematic analysis[11]. Each country was evaluated across defined analytical dimensions, using a scoring and weighting system to compute an aggregated score. Based on these scores, countries were then grouped, with the process applied iteratively to each case.

The assessment and benchmarking are structured around four core dimensions reflecting legal soundness, infrastructural capacity, institutional engagement and market maturity.

- The legal and regulatory framework dimension serves as the foundation, encompassing the formal recognition and classification of tokenized assets, the clarity of supervisory mandates and the integration of compliance requirements such as AML/CFT, data governance, and investor protection.
- The market infrastructure and technology readiness dimension evaluates the availability and resilience of DLT, the robustness of custody and settlement mechanisms, the degree of interoperability with international standards and the presence of secure and scalable cross-border settlement systems.
- The institutional and policy engagement dimension measures the extent of public–private collaboration, the use of regulatory sandboxes and pilot programs and the participation of financial institutions and ecosystem partners in tokenization initiatives.

[10] A crawling agent for public content is an automated tool that systematically collects data from open online sources for use in analysis or benchmarking.

[11] GPT-powered thematic analysis refers to the use of GPT, which is one of Large Language Models (LLMs), to identify and categorize recurring topics, patterns, or themes within large volumes of unstructured text data.

- The financial market maturity dimension captures the depth, liquidity and investor diversity of domestic capital markets, which collectively determine the scalability and long-term viability of tokenized asset ecosystems.

The figure below illustrates these key dimensions.

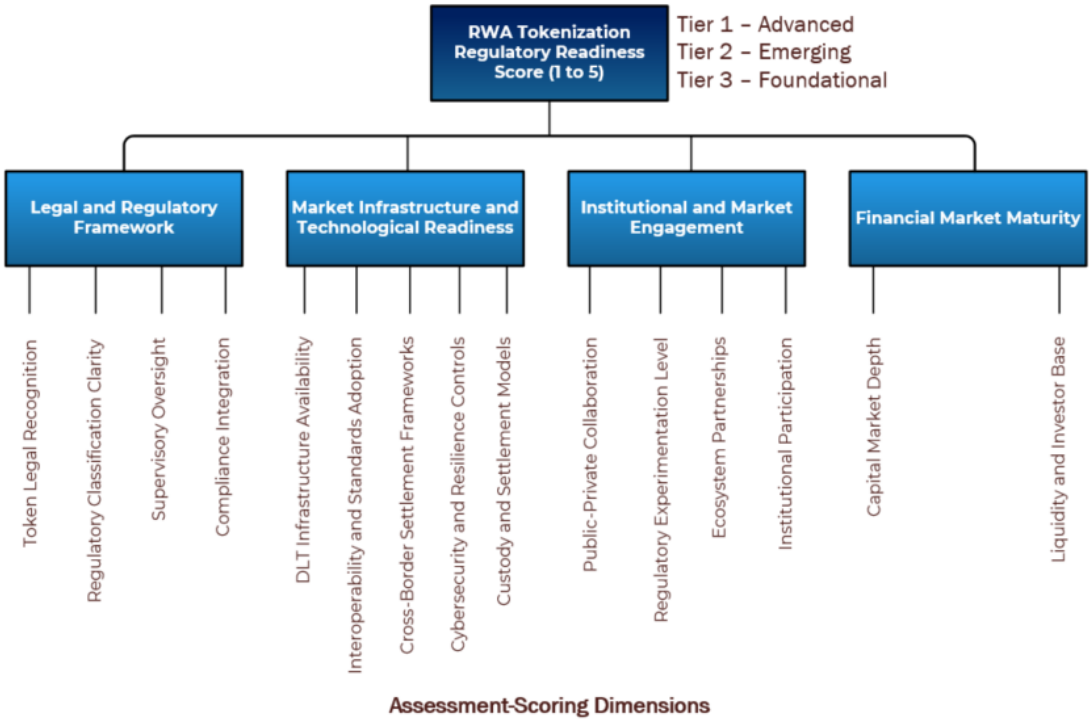


**Figure 2** – Assessment / Scoring Dimensions

Together, these dimensions provide a framework for benchmarking jurisdictions' preparedness to regulate, operationalize and expand RWA tokenization within a sound and sustainable financial architecture. **Appendix C** details the application of the benchmarking model to Arab countries, based on the collected and analyzed data, as well as the weighting scheme for computing the final maturity score (i.e., readiness index).

Based on the computed maturity scores, Arab countries were categorized into three main tiers: **Advanced,** characterized by comprehensive frameworks and active markets for tokenized assets; **Emerging,** marked by partial regulatory coverage, early infrastructure efforts and early experimentation or sandboxing; and **Foundational,** representing the exploratory stage with unclear classification, and limited infrastructure and institutional capacity.

The Advanced tier (UAE and Bahrain) reflects jurisdictions that have already implemented comprehensive legal and supervisory frameworks, established dedicated virtual-asset regulators and licensing regimes, and launched live pilot projects for tokenized securities, real estate and payments. Both countries exhibit strong institutional coordination between regulatory bodies and innovation hubs, enabling real experimentation.

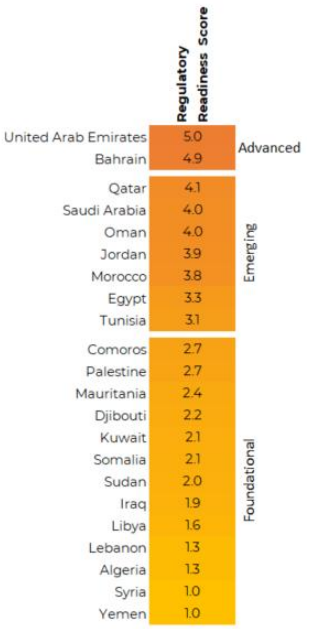


**Figure 3** – Arab Countries Regulatory Readiness Scores

The Emerging tier, including Qatar, Saudi Arabia, Oman, Jordan, Morocco, Egypt and Tunisia, represents economies that have substantial regulatory progress but limited operational pilots. These countries are transitioning from policy formulation to implementation. They have issued consultation papers, drafted crypto-asset laws or created Fintech sandboxes that admit blockchain use-cases. Their focus has been on building supervisory capacity, establishing legal clarity for digital assets and integrating DLT into financial-market infrastructure. However, experimentation remains controlled and fragmented across sectors, suggesting the need for deeper coordination and private-sector participation to translate regulations into production-level tokenization.

Finally, the Foundational tier, covering more the 50% of the Arab countries, illustrates the early or exploratory stage of development. These jurisdictions typically lack formal legal frameworks for virtual assets and rely on conventional financial laws or prohibitive stances. While some have introduced digital-finance or e-transaction laws and initiated Fintech sandboxes, the regulatory coverage for tokenized assets remains minimal. Infrastructure and supervisory capacity are limited, and experimentation – if any – occurs through donor-driven Fintech projects rather than structured national programs.

## Positioning the UAE Among Global Tokenization Leaders

In the Arab region, the UAE clearly leads in RWA tokenization readiness. Its regulatory and market environment aligns closely with global benchmarks set by advanced jurisdictions such as the United States, Singapore and Switzerland.

The Dubai's Virtual Assets Regulatory Authority (VARA) has introduced a purpose-built licensing framework for virtual assets, whereas Singapore and Switzerland have integrated tokenization regulation into existing financial legislation. This modular, activity-specific approach has enabled Dubai to position itself as a dedicated jurisdiction for tokenized finance within a shorter time frame.

On infrastructure, the UAE is integrating blockchain into real estate systems, mirroring Singapore's Project Guardian (tokenized deposits and bonds) and Switzerland's Project Helvetia, which has enabled wholesale CBDC settlement of tokenized securities (World Bank, 2023).

The U.S. leads in tokenized asset volume, approaching $20 billion on-chain (CryptoSlate, April 2025), while Singapore and Switzerland have executed high-profile tokenized issuances. Although the UAE currently accounts for roughly 1% of global tokenized assets (BINARYX, March 2025), it is rapidly advancing, reinforcing its role as a regional leader and emerging global hub for tokenized finance.

### Use Case: Dubai's Prypco Mint

Dubai's Prypco Mint platform digitizes real estate into blockchain-based security tokens that represent fractional ownership. The underlying technology is built on the XRP Ledger. The ledger is integrated with the Dubai Land Department (DLD) registry to ensure that on-chain and official land records remain synchronized. The initiative is government-led and licensed by the Virtual Assets Regulatory Authority (VARA), operating under a controlled pilot phase limited to UAE ID holders and AED transactions.

Dubai launched this government-led initiative within a Real Estate Tokenization Sandbox under the Real Estate Evolution Space (REES) initiative, involving DLD, VARA, the Central Bank and Dubai Future Foundation. A notable legal innovation is the issuance of blockchain-based Property Token Ownership Certificates, linking digital tokens directly to property rights.

The initiative is licensed by the VARA, operating under a controlled pilot phase limited to UAE ID holders and AED transactions. VARA oversees the platform's licensing and compliance with virtual-asset laws, coordinating with the Securities and Commodities Authority, Central Bank, and law-enforcement to ensure AML/KYC alignment. The pilot builds on Dubai's 2022 Virtual Asset Law and allows regulators to refine land-registry and investor-protection rules before scaling up.

Converting property into tradeable digital shares enables near-instant peer-to-peer trading. By smart contracts; transferring title and settlement can be automated, reducing legal and broker costs and cutting transaction times from weeks to minutes. In one exit window, 2,800 fractional units worth 82,000 USD changed hands, with 90% reinvested. This can be considered as an evidence of active secondary-market liquidity. Lower investment thresholds attract new domestic and foreign investors. Early pilots drew participants from 44 nationalities, and officials estimate tokenized assets could reach 7% of Dubai's property transactions.

This tokenization model enhances investment accessibility in Dubai's real estate market by lowering entry barriers and widening participation. With a minimum investment of just 2,000 AED, retail and first-time buyers can now access high-value properties previously limited to institutional or wealthy investors. One project drew 224 investors, 70% of whom were new to Dubai's property market, while another sold out in under two minutes with participants from 35 countries.

Also, this model is fostering greater inclusivity, particularly among younger generations, who can now diversify their portfolios across multiple properties at low cost while sharing ownership expenses like maintenance and service fees. Looking ahead, the platform's roadmap envisions opening participation to overseas investors, enabling fractional cross-border property ownership within Dubai's transparent and regulated framework.

# 5. Policy Options and Pathways for Arab Countries

This section discusses what policy options and pathways that are tailored to Arab countries and regulators can consider to bridge the gaps while capturing the benefits of tokenization and mitigating risks.


**Figure 4** – Policy Options and Pathways

## I. Clear Legal and Regulatory Frameworks

Developing a comprehensive and clear legal framework and regulatory guidelines for tokenized assets is a top priority. Policymakers should update legal definitions to recognize tokenized financial instruments and property rights, ensuring that digital tokens representing real estate, commodities, or securities have a sound basis in law.

This may involve amending securities laws to allow token-based asset issuance and transfer, recognizing the legal equivalence of tokenized ownership to traditional forms. Key elements of the framework should include:

- the legal status of security tokens and utility tokens
- the enforceability of smart contracts, for instance, confirming that a token transfer is a valid transfer of the underlying asset or rights
- rules for token issuance, such as disclosure requirements, investor eligibility, etc.

To build investor confidence, legal framework should clarify the rights of token holders, such as their claim on underlying assets and treatment in case of default or bankruptcy of an issuer or intermediary, and in insolvency. Also, legislators might

need to update laws on secured transactions and collateral to account for pledging digital tokens as collateral.

In addition, modernizing taxation regulations should be considered to avoid uncertainty by defining how token transactions are taxed. For example, ensure that transferring a real estate token triggers the same tax obligations as transferring the property deed, or adjust stamp duties for digital transfers if needed.

Regulators should aim for “technology-neutral” rules to maintain market integrity and stability by treating tokenization as an evolution of market infrastructure rather than an unregulated space. This includes applying the same regulatory outcome to tokenized activities as conventional ones and adapting requirements only where necessary to accommodate technical differences.

Given the potential cross-border nature of investment in the region, Arab authorities should also coordinate regionally on core definitions and principles. This can be done through the AMF or a task force of regional regulators to develop harmonized frameworks that facilitate cross-country token offerings and reduce regulatory arbitrage. Over the long term, harmonization could be a desirable goal that may involve adopting common standards, such as a shared classification of tokens, or mutual recognition of licensed token service providers across jurisdictions.

In addition, implementing clear legal frameworks means ensuring that courts and arbitration forums are prepared to handle disputes involving digital tokens, smart contracts, and cross-jurisdictional transactions. Enforcement mechanisms for regulations in the token space should also be established. Regulators will need powers to investigate and sanction misconduct in token markets, possibly including new forms of misconduct such as manipulation of smart contract code.

The IMF’s legal analysis of digital tokens highlights that traditional legal concepts often need reinterpretation or extension to cover digital token arrangements, and establishing those foundations is crucial for long-term confidence.

## Fragmented Ownership Challenge

The World Bank's 2023 report on infrastructure tokenization notes that while some property tokens grant ownership rights with voting and decision-making powers, others are limited to passive income claims such as dividends or profit shares. The report further highlights that the absence of a globally recognized governance framework complicates the management of tokenized assets. A key challenge that emerges from this is fragmented ownership, which can impede investors from making strategic decisions, such as redeveloping an asset. For example, if a parcel of land is tokenized and widely held by fractional owners, reaching consensus to develop it into a real estate project may become impractical.

To address this, several solutions can be implemented. One approach is to use a legal wrapper, such as a Special Purpose Vehicle (SPV), Real Estate Investment Trust (REIT) or fund structure, where token holders own shares in the entity rather than the asset itself. This entity, governed by a formal charter or

management agreement, appoints an asset manager or board empowered to make operational and development decisions, thereby preventing decision-making gridlock.

Another approach involves embedding programmable governance rules via smart contracts, such as quorum thresholds, weighted voting, time-bound decision windows and delegated voting rights. These mechanisms can be further institutionalized through a Decentralized Autonomous Organization (DAO) or a cooperative legal structure, enabling automated and transparent execution of collective decisions under codified rules[12].

### II. Regulatory and Supervisory Capacity

Regulators and central banks in the region should invest in capacity building and expertise development related to digital assets and DLT. This includes training existing staff, hiring specialists or consulting experts in areas like smart contract auditing and cybersecurity.

As tokenization continues to evolve rapidly, regulators are encouraged to establish dedicated Fintech units or innovation offices to stay informed of global developments and maintain active engagement with the industry on technical and operational issues. In parallel, effective oversight of tokenized RWA markets requires the deployment of advanced digital and supervisory technologies that strengthen real-time visibility, compliance enforcement and risk management. These technologies may include:

[12] DAO is a new type of organizational structure powered by DLT technology, operating without a central management team or traditional hierarchy. However, DAO regulation is a major challenge and legal wrappers often used.

- Supervisory technology (SupTech) tools for on-chain monitoring and anomaly detection, and blockchain analytics platforms that enable transaction tracing and liquidity assessments across distributed ledgers.
- Digital regulatory reporting (DRR) and machine-readable rules that can automate compliance checks.
- On-chain KYC/AML frameworks, including decentralized identity and verifiable credentials, to ensure that only eligible participants interact with tokenized assets.
- Smart contract auditing tools that can detect vulnerabilities and enforce regulatory constraints within programmable assets.
- Regulator-operated DLT nodes and AI-powered risk scoring systems that can further support supervisory capacity by enabling proactive surveillance and early identification of systemic risks.

Capacity building should extend to legal and judicial understanding. Judges and legal practitioners may need exposure to how tokenized asset disputes, such as ownership claims and fraud cases, should be handled under existing laws until new laws are enacted.

AMF, international organizations, and standard-setters can support these efforts by providing technical assistance on Fintech regulation. Collaboration with academia and industry can also help. This can be done by running joint workshops or simulation exercises on tokenization scenarios. The World Bank has recommended that emerging economies pursue such capacity building so that decision-makers can effectively create and enforce the appropriate frameworks. Overtime, increased in-house expertise will enable regulators to more confidently approve legitimate tokenization ventures and to address potential problems early.

## III. Public-Private Partnerships (PPPs) and Industry Engagement

Given that tokenization lies at the intersection of finance and technology, public-private collaboration is essential for successful implementation. Policymakers should actively engage with banks, Fintech companies, technology providers and investors to design tokenization initiatives. One avenue is to form working groups or advisory committees that include industry players to discuss tokenization use-cases and jointly develop standards such as technical standards for interoperability or best practices for custody of tokenized assets.

Public-private partnership models can also be used to build infrastructure, co-develop a regional tokenization platform, or build an exchange. The public sector might contribute by way of convening power, regulatory clarity, or even seed funding, while the private sector contributes technology and innovation.

In the Arab region, governments could consider supporting a pilot tokenization of a government-owned asset, such as land, in partnership with a tech firm and investors, as a flagship project.

Ultimately, PPPs help align the incentives and expertise of both sectors, accelerating learning and scaling. International reports have noted that close cooperation between authorities and industry is a hallmark of jurisdictions that have achieved novel tokenization projects.

## IV. Financial Market Infrastructure and Supporting Technology

A key policy pathway is to upgrade and integrate the necessary market infrastructure to support tokenized asset markets. Central banks and securities regulators should evaluate how existing systems, such as payment settlement systems, central securities depositories and trading platforms, can connect with or incorporate DLT. One approach is to enable DvP (delivery-versus-payment) settlement for tokens. For example, linking a token platform with national payment systems so that token trades can settle with immediate finality in domestic currency.

Authorities might consider promoting or developing a regulated digital settlement asset for tokens. This could be a central bank digital currency (CBDC) or, in the interim, approving a well-regulated stablecoin to serve as the cash leg for token transactions. The absence of a reliable on-chain settlement asset has been cited by the FSB as an impediment to scaling tokenization.

In parallel, regulators should mandate interoperability. Tokenization platforms should ideally adhere to common standards such that they can interface with each other and with traditional systems. This could involve ISO standards for digital asset messaging or use of standard APIs for data exchange. Investment in digital identity and authentication infrastructure is also part of readiness. Implementing robust digital identity frameworks will facilitate efficient KYC for token platforms and potentially enable on-chain identity solutions for compliance.

Policymakers might allocate incentives for financial institutions to modernize legacy systems that hinder DLT integration. As the OECD observes (OECD, 2025), significant upfront investment may be required to overhaul outdated legacy systems before institutions can comfortably adopt on-chain processes. Governments could support this via providing tax incentives for tech upgrades.

Another element is to examine sector-specific infrastructure. For real estate tokenization, this means digitizing land and property records and possibly using blockchain for land registry functions. For commodity tokenization, ensuring that commodity warehouses or vaults have digital interfaces and credible audit mechanisms to link physical assets with tokens is crucial.

In short, market readiness requires both regulatory enablement and the physical/digital infrastructure to operationalize token trading and settlement. Policymakers should craft roadmaps identifying which infrastructure pieces need development and work with industry to implement them.

## V. Regulatory Sandboxes and Pilot Programs

Regulators may establish regulatory sandboxes or innovation hubs for tokenization projects to proceed cautiously under supervisory relaxation. In a sandbox, approved entities could pilot tokenizing a specific asset with a limited number of investors under regulatory oversight but with temporary relaxations of certain rules. This provides a safe environment to identify what regulatory adjustments might be needed permanently. Pilot projects under controlled real market conditions and in collaboration with industry are also valuable. For example, a central bank could facilitate a pilot where a tokenized bond is issued and settled using DLT, to study end-to-end processes.

Sandboxes should have clear objectives and guardrails to protect consumers such as caps on investment amounts and disclosure to participants about risks. The insights collected on technological performance, custody structure, investor behavior, regulatory gaps, and legal enforceability of tokenized rights can inform the scaling up of tokenization.

Additionally, pilots can help showcase to the broader market how tokenization works, thus building familiarity. Policymakers might prioritize use-cases aligned with national goals, for example, tokenizing renewable energy infrastructure investments or affordable housing projects, where there is both public interest and economic benefit in attracting diverse investors.

## VI. Investor Education and Protection Measures

To bridge the confidence gap and protect participants, Arab regulators should institute strong investor protection measures alongside tokenization. This could include conducting public awareness campaigns about the nature of tokenized investments, explaining that while they offer new opportunities, they also carry risks and are subject to regulations.

Regulators can publish guides or FAQs for investors on tokenized real estate or commodities, outlining what due diligence to perform. Moreover, disclosure requirements should be enforced for token offerings. Issuers must provide clear information on what asset backs the token, the rights of token holders and any fees or lock-up periods. In the case of real estate tokens, for example, investors should be informed how rental income or property sale proceeds will flow to them, and what governance rights – if any – they have in the property management.

Many jurisdictions also impose limits on how much retail investors can invest in high-risk products; Arab regulators could consider investment limits or accreditation requirements in the initial phase of token market development, relaxing them gradually as the market matures.

Ensuring market integrity will involve surveillance of token trading to detect manipulation or fraud. Regulators might need to invest in blockchain analytics tools to monitor activity on public blockchains if those are used. Additionally, robust custody and safekeeping rules are needed to protect token holders' assets. For example, regulators can require token custodians or exchanges to segregate client assets and have cyber safeguards. Given the prevalence of cyber-attacks in the crypto space, cybersecurity standards for any licensed tokenization platform should be high on the agenda. The goal should be to provide investors nearly the same level of confidence as they would have transacting in traditional markets. This confidence, once established, will help the tokenization market grow in a healthy manner.

As the IMF Fintech Note 2025/001 suggests, appropriate regulations play an important role in mitigating tokenization's potential downsides and need to be adapted accordingly.

## VII. Financial Stability Implications

Policymakers must remain observant about the financial stability dimension of tokenization. As recommended by the FSB, authorities should collect data and monitor the growth of tokenized asset markets so they have early warning of any systemic issues. This might involve requiring periodic reports from firms operating tokenization platforms on volumes, investor concentrations, leverage and liquidity conditions.

Central banks and other prudential regulatory authorities in the region should incorporate tokenization-related scenarios into their risk assessments. For example, they should evaluate how a stress event, such as a sharp decline in real estate values, could be amplified when such assets are tokenized and traded continuously across global markets.

Particular attention should be given to liquidity mismatches, where tokenized RWAs appear highly liquid on-chain while the underlying assets remain inherently illiquid or slow to redeem. Policymakers can mitigate these risks by establishing clear redemption terms, liquidity buffers, and disclosure requirements that reflect the actual liquidity profile of the underlying assets.

In parallel, authorities should develop contingency plans for extreme incidents, whether stemming from operational failures, such as the failure of a major tokenization platform, or from insolvency and custody-related disruptions, to ensure coordinated investor protection and effective asset recovery.

Cross-border coordination will be essential since token markets do not respect national boundaries. Arab regulators should participate in international forums and information-sharing arrangements concerning crypto-assets to stay informed of emerging risks. They should also develop cooperative oversight arrangements if a token trading platform in one country serves investors in another, similar to how securities regulators coordinate on cross-border stock exchanges.

The principle is to ensure that innovation does not outpace the ability of regulators to safeguard stability. This can be achieved by iterative adjustments; as tokenization grows, regulators can tighten or recalibrate rules such as introducing capital requirements for token issuers or intermediaries if they become systemically important, or limiting risky leveraged token products. It is worth noting that currently, the FSB assesses tokenization's global scale as too small to pose systemic risk. This provides a window for Arab regulators to put frameworks in place before token markets become significant in size.

Arab countries should adopt phased and flexible approaches to tokenization, considering that jurisdictions will progress at different speeds depending on their market maturity. Some may begin with pilot projects in financial centers to provide models for others, while all should maintain open dialogue with industry and learn from international peers to refine their strategies. Achieving true readiness for tokenizing RWAs requires a holistic upgrade of the market ecosystem, aligning legal certainty, deploying modern technical systems, integrating legacy processes and building market capacity. Countries in the region are encouraged to develop a Tokenization Implementation Roadmap that sequences infrastructure and capacity-building milestones, assigning clear roles to stakeholders such as central banks (for payment integration) and stock exchanges (for trading venue

development). By proactively preparing the regulatory, technical, and institutional foundations; Arab economies can position themselves to lead and benefit from the growth of tokenized asset markets rather than respond reactively later.

## Summary of Infrastructure and Market Readiness Considerations

Implementing tokenization at scale will require careful attention to the underlying infrastructure and market readiness. This goes hand-in-hand with the policy and regulatory measures discussed above. Key considerations include:

1. **Robust and Interoperable DLT Infrastructure**

   At the core of tokenization is the distributed ledger technology itself. Arab countries must decide whether to utilize public, permissionless blockchain networks or permissioned (consortium) DLT platforms for tokenized markets, or a combination of both.

   Permissioned networks could offer more control and easier compliance since participants are known, whereas public networks, like Ethereum, provide broader accessibility but pose challenges in governance and compliance.

   In either case, a guiding principle is to strive for interoperability, which means the ability for different platforms and networks to communicate or transact with each other. A lack of interoperability leads to fragmented liquidity and duplicated effort.

   International experience shows that focusing solely on purpose-built DLT systems without integrating with the traditional infrastructure can be counterproductive. For instance, if trades are recorded on blockchain but still have to be mirrored in existing databases, or if trading venues multiply without connecting, efficiency gains are lost. The infrastructure strategy should thus emphasize integration points such as aligning DLT platform operating hours with RTGS operating hours for seamless token settlements, or enabling smart contracts on the DLT to trigger events in legacy systems like updating a land registry entry or warehouse receipt off-chain when a token transfer occurs.

   Interoperability standards and protocols could be promoted to ensure that tokenized assets adhere to formats that service providers across the region can handle.

2. **Custody, Exchange and Settlement Systems**

   A full tokenization ecosystem requires secure custody solutions for digital tokens, exchanges or trading venues to match buyers and sellers, and settlement mechanisms that ensure tokens and payments exchange hands with finality.

**Custody:** Traditional custodians, such as banks and central securities depositories, will need to adapt to safekeeping private keys or partnering with tech firms that provide custody-as-a-service. Regulations should allow licensed custodians to handle tokenized assets. Many jurisdictions mandate that token custody be done by entities meeting certain capital and operational standards. Utilizing regulated custodians mitigates risks of hacking or loss that have impacted some crypto exchanges.

Arab regulators might encourage major financial institutions to pilot digital asset custody, potentially in consortium, to leverage their risk management experience.

**Exchanges/Trading Platforms:** While peer-to-peer trading on DLT is possible, organized marketplaces for token trading improve liquidity and oversight. These could be new platforms or extensions of existing stock or commodity exchanges in the region. Regulatory frameworks should cover these platforms as they would any exchange or alternate trading system, ensuring fair trading rules, price transparency and surveillance for abuse.

It's crucial that trading infrastructure be scalable. Scalability of underlying blockchain throughput and transaction fees is a technical constraint to consider; some projects may opt for a private DLT to achieve higher throughput, whereas others on public chains must contend with network congestion and fees.

**Settlement and Payments:** For a token marketplace to function smoothly, on-chain payment leg settlement is needed. As noted, one solution is introducing a CBDC or an approved stablecoin to serve as a cash token. Central banks in the region should evaluate the feasibility of a wholesale CBDC that can be used by financial institutions on DLT platforms, even if a full retail CBDC is far off. A wholesale token for interbank settlement can facilitate DvP for token trades. Absent a CBDC, regulators could allow a fiat-backed stablecoin, with stringent safeguards and reserve audits, to operate.

Another aspect is the connection to existing payment rails. If an investor without crypto wallets wants to buy a token, there should be convenient means to transfer money from their bank into the token environment and vice versa when cashing out. Thus, integrating banks and payment service providers into the tokenization platforms is part of infrastructure readiness. One of the possible options to achieve this is open banking.

The Buna Regional Payment Platform, operated by the AMF, can play a pivotal role in enabling cross-border settlement and payments within the emerging tokenization market across the Arab region. By providing a multi-currency, near real-time payment system that connects central banks and commercial banks in member countries, Buna ensures instant, transparent and cost-efficient cross-border transfers. Moreover, Buna's adherence to international standards (ISO 20022) creating a bridge between traditional financial rails and blockchain networks, positioning it as a potential regional settlement backbone for tokenized finance in the Arab world.

3. **Data Standards and Transparency Infrastructure**

   Tokenization will generate data that regulators and market participants need to interpret. Such data includes ownership records, transaction histories and smart contract code. Establishing data standards is therefore important. This might involve requiring that token issuers provide a certain standardized disclosure (i.e. metadata) embedded in the token or published in machine-readable form, such as what asset it represents and rights it conveys, and identification codes linking token to underlying asset registries.

   International efforts are advancing toward globally unique identifiers for digital assets. The International Token Identification Number (ITIN), developed by the industry-led International Token Standardization Association (ITSA), and the Digital Token Identifier (DTI), published as ISO 24165-1:2025 by the International Organization for Standardization (ISO), are key initiatives. The DTI was issued through the same ISO technical committee responsible for the International Securities Identification Number (ISIN) and the Legal Entity Identifier (LEI). These identifiers serve a similar function to the ISIN, providing standardized and interoperable identification for digital tokens across markets.

   Furthermore, blockchain analytics capabilities could be part of regulator infrastructure tools to monitor on-chain activity for compliance, with privacy considerations respected. Since public blockchains are transparent in transactions but pseudonymous, regulators might invest in tools that de-anonymize patterns, where legally permitted, or at least flag suspicious flows.

   Transparency for investors is equally vital. Platforms should provide accessible views into the real-time market data of token trading and perhaps information on the underlying asset's status.

4. **Legacy System Integration and Transition Planning**

   Most financial systems will continue to run traditional processes in parallel with new DLT-based processes for some time. Integration layers or middleware are thus a key part of infrastructure.

   Banks and exchanges might use APIs or enterprise blockchain solutions to bridge their core databases with the DLT networks. Policymakers should encourage a gradual transition strategy where DLT is introduced in phases, possibly starting with backend processes, such as clearing and settlement, before front-end processes, such as trading and customer interfaces.

   The OECD notes that some benefits of tokenization may only materialize at scale and that without a clear business case or cost-benefit evidence, institutions may be reluctant to migrate fully to DLT. To address this, authorities and industry could jointly conduct cost-benefit analyses or pilot comparisons between DLT and traditional processes. If evidence shows, say, a 50% reduction in settlement time and cost for tokenized trades, that could justify further investment. Conversely, if certain tokenization benefits can actually be achieved by simpler tweaks to existing systems (e.g., fractional ownership could also be done via traditional securitization), stakeholders need to evaluate the marginal gains of using DLT. Avoiding hype-driven investments in infrastructure is important. The focus should be on where DLT adds tangible value.

Each country or market should identify specific pain points in real estate or commodity markets that infrastructure upgrades via tokenization would solve – for example, lengthy property title transfers, illiquid secondary markets for SME shares, etc. – and target those in design.

Additionally, consider regional infrastructure collaboration. Perhaps, a shared platform for certain commodities trading tokens could be more efficient in aggregating liquidity than each country building its own, especially for smaller markets.

5. **Market Education and Readiness of Participants**

Beyond physical infrastructure, human and institutional readiness is part of the equation. Financial institutions in the region (banks, asset managers, exchanges) need to prepare their strategies for tokenization – whether to incorporate it into their offerings, how to train their staff and advise clients, etc. Regulators can facilitate this by hosting industry roundtables, publishing discussion papers, or even doing joint "dry runs" of a tokenized issuance with volunteer institutions to practice. Investors likewise need education (as noted in section 5). Industry associations (banking federations, Fintech hubs) could develop self-regulatory standards or codes of conduct for tokenization that complement official regulations, helping to propagate best practices quickly among market players. The region's sovereign wealth funds and public investment funds, which are significant in scale, could also play a role in market readiness – for example, by investing in or sponsoring tokenization platforms, or by being early anchor investors in tokenized offerings (signaling credibility to the market). Such involvement would necessitate those institutions themselves becoming comfortable with the concept through internal capacity building.

## Conclusion

The tokenization of RWAs represents one of the significant financial innovations of the current decade that could transform the structure of markets, enhance liquidity and democratize investment access. Yet, as the analysis shows, realizing this potential requires more than technological readiness. It demands a coherent alignment of legal certainty, regulatory adaptability, infrastructure modernization, and cross-sector coordination.

Empirical and conceptual studies from the IMF, OECD, and World Bank converge on a central point: tokenization can improve market efficiency by reducing frictions across the asset lifecycle (issuance, trading and settlement) through programmability, shared ledgers and automation. However, these benefits remain largely theoretical and localized in pilot environments. Market adoption is still constrained by fragmented regulatory frameworks, limited interoperability, liquidity shortages and the absence of standardized identification and custody mechanisms. Moreover, as highlighted by the FSB, if tokenized markets were to scale without adequate oversight, new forms of liquidity, leverage and interconnectedness risks could emerge, potentially amplifying systemic vulnerabilities.

For emerging and developing economies, including those in the Arab region, tokenization holds particular promise as a catalyst for financial inclusion, asset mobilization and sustainable financing. Real estate and commodities tokenization could open traditionally illiquid markets to a broader investor base while improving transparency and traceability. Yet, successful implementation depends on tailored regulatory approaches, strong public-private collaboration and the establishment of robust digital and payment infrastructures, including potential integration with wholesale CBDCs and instant payment rails.

Ultimately, tokenization should not be viewed merely as a technological innovation, but as a policy and institutional transformation that requires a clear legal foundation for digital ownership, enforceable smart contracts, harmonized AML/CFT standards and regional interoperability. Policy makers should therefore pursue phased experimentation through sandboxes, pilot programs and public-private consortia, ensuring that innovation proceeds in tandem with risk management and market trust.

In sum, the path forward is evolutionary rather than revolutionary. With careful design, tokenization can become a cornerstone of more efficient, inclusive and resilient financial markets, bridging traditional and digital finance while anchoring growth in transparency, accountability and shared prosperity.

# References


- InvestaX. 2024: The Year of Institutional Real World Asset Tokenization. Accessed " https://www.investax.io/blog/2024-real-world-asset-tokenization-market-recap"
- Knight Frank. (2024-2025). Saudi Arabia Residential Market Review. Accessed " https://content.knightfrank.com/research/1063/documents/en/saudi-arabia-residential-market-review-winter-2024-25-11991.pdf".
- Invest-Gate. (2025). Egypt's Coastal Real Estate: From Holiday Retreats to Investment Powerhouse. Accessed "https://invest-gate.me/features/egypts-coastal-real-estate-from-holiday-retreats-to-investment-powerhouse"
- Congress.Gov. (2025). Introduction to U.S. Economy: Housing Market. Accessed "https://www.congress.gov/crs_external_products/IF/PDF/IF11327/IF11327.13.pdf".
- Federal Reserve Bank of St. Louis. (2024) Comparing household assets across the wealth distribution. Accessed "https://fredblog.stlouisfed.org/2024/04/comparing-household-assets-across-the-wealth-distribution".
- ArabianBusiness. (2025). UAE real estate: Property market transactions hit $243bn in 2024. Accessed "https://www.arabianbusiness.com/industries/real-estate/uae-real-estate-property-market-transactions-hit-243bn-in-2024".
- Carapella et al. (2023), Tokenization: Overview and Financial Stability Implications, Finance and Economics Discussion Series, Federal Reserve Board, December.
- RWA.XYZ. Tokenized Treasuries. Accessed "https://app.rwa.xyz/treasuries".
- Ripple and Boston Consultancy Group. Approaching the Tokenization Tipping Point. (2025). Accessed " https://ripple.com/reports/approaching-tokenization-at-the-tipping-point.pdf"
- Agur, Villegas-Bauer, Mancini-Griffoli, Peria, Tan. Tokenization and Financial Market Inefficiencies. FINTECH NOTE. (2025). Accessed https://www.imf.org/en/Publications/fintech-notes/Issues/2025/01/29/Tokenization-and-Financial-Market-Inefficiencies-561256
- OECD. (2025). TOKENISATION OF ASSETS AND DISTRIBUTED LEDGER TECHNOLOGIES IN FINANCIAL MARKETS: Potential impediments to market
- OECD. (2021). Policy Note: Understanding the tokenization of assets in financial markets
- Development and Policy Implications. Accessed "https://www.oecd.org/en/publications/tokenisation-of-assets-and-distributed-ledger-technologies-in-financial-markets_40e7f217-en.html"
- The World Bank. (2023). Infrastructure Tokenization: Does blockchain have a role in the financing of infrastructure. Accessed "https://documents.worldbank.org/en/publication/documents-reports/documentdetail/099200503082329768/p17425408f3aa00580a2620810813ed0370"
- FSB. (2024). The Financial Stability Implications of Tokenization. Accessed "https://www.fsb.org/uploads/P221024-2.pdf?utm_source=chatgpt.com".
- IMF. (2024). THE ECONOMICS OF HOUSING.
- José M. Garrido. IMF. (2023). Digital Tokens: A Legal Perspective
- ESMA. (2024) Markets in Crypto-Assets Regulation (MiCA). Accessed "https://www.esma.europa.eu/esmas-activities/digital-finance-and-innovation/markets-crypto-assets-regulation-mica".
- OICU-IOSCO. (2023). Policy Recommendations for Crypto and Digital Asset Markets – Final Report. Accessed "https://www.iosco.org/library/pubdocs/pdf/IOSCOPD747.pdf".
- UK FCA. (2025). Regulating cryptoasset activities. Accessed "https://www.fca.org.uk/firms/cryptoassets-information".
- Consultancy-me.com. (2025). UAE's emerging tokenized real estate scene calls for thinking around taxation. Accessed "https://www.consultancy-me.com/news/11186/uaes-emerging-tokenized-real-estate-scene-calls-for-thinking-around-taxation".
- Government of Dubai – Land Department. Real Estate Tokenization. Accessed "https://dubailand.gov.ae/en/eservices/real-estate-tokenization/#/".
- ArabianBusiness. (2025). Dubai takes major tokenised real estate project step with world-first investment. Accessed " https://www.arabianbusiness.com/industries/real-estate/dubai-tokenised-real-estate-certificate".
- BINARYX. (2025). The 8 Best Countries for Crypto and RWA Tokenization: A 2025 Guide for Investors and Entrepreneurs. Accessed " https://www.binaryx.com/blog/the-8-best-countries-for-crypto-and-rwa-tokenization-a-2025-guide-for-investors-and-entrepreneurs"
- CryptoSlate. (2025). Tokenized assets in US near $20B as DTCC launches AppChain for real-time tokenized asset management. Accessed " https://cryptoslate.com/tokenized-assets-in-us-near-20b-as-dtcc-launches-appchain-for-real-time-tokenized-asset-management"

# Appendices

## Appendix A – Taxonomy of Tokens

| Token Type | Characteristics | International Bodies | EU MiCA | UK FCA |
|---|---|---|---|---|
| **Payment Tokens (Unbacked Cryptocurrencies)** | Fungible, native, function as high-risk and volatile medium of exchange or store-of-value instruments, and do not represent a claim on any party | No inherent regulation in international standards beyond calls for AML and monitoring of systemic risk. According to IMF BPM7, decentralized cryptocurrencies without liabilities are now categorized as non-produced nonfinancial assets | Classified as "other crypto-assets", and not subject to authorization or prudential regulation | Classified as "exchange tokens", and explicitly defined and understood to be outside the regulatory perimeter |
| **Fiat or Asset-Baked Tokens (Stablecoins)** | Fungible, non-native, function as medium of exchange or store-of-value instruments, carry an issuer liability and redemption claim, with a stabilization mechanism such as 1-to-1 fiat peg, commodity backing or algorithmic reserve | The FSB and IMF stress they should be subject to robust oversight given their promise of stability and potential payment system role | Regulates stablecoins via Electronic Money Tokens (EMTs), that represent single-fiat stablecoins, and Asset-Referenced Tokens (ARTs), that maintain a stable value by referencing multiple currencies, commodities or a basket of assets | Historically, a stablecoin backed by funds and offering redemption can be regulated as e-money. Algorithmic stablecoin, backed by commodities or other crypto assets are unregulated stablecoin. By Financial Services and Markets Act 2023; digital settlement asset is defined as a digital representation of value or rights, whether or not cryptographically secured. |
| **Utility Tokens** | Fungible, prepaid voucher-like that are only accepted by the issuer (or limited network), and do not confer ownership or investment rights; instead, grant holders digital access to current or prospective products or services | OECD see these tokens as part of crypto-innovation that typically doesn't fall under financial regulation | Treated as non-securities and not regulated as financial instruments | Pure utility tokens are unregulated |
| **Security Tokens (Asset Tokens)** | Fungible, non-native (often issued by a specific entity and backed by off-chain assets or cash flows), function as financial instrument that represent investment instruments or ownership of assets, similar to traditional securities, or otherwise derive value from real-world assets | IOSCO treat these tokens as securities or investment products in substance, and global regulators consistently advise that they be brought under securities laws | Governed by MiFID II and other existing EU securities laws. They may require prospectuses or authorized issuances and cannot be traded on any random platform or directly peer-to-peer in the wild | Subject to FSMA/Securities regulation |
| **Governance Tokens** | Fungible, grant holders voting or decision rights in a DAO governance ecosystem, and function as governance proposal in a community-based control rather than a payment or pure investment. These tokens have no claim on assets or guaranteed returns. Their value stems from the influence they confer and the expectation that successful governance may enhance the platform's value, and thus the token's market price. If a governance token gave some profit or fee claim, it might be argued to be a security | Not a formal legal category yet and considered part of the broader crypto ecosystem | Do not explicitly mention governance tokens and could be just crypto-assets outside specific categories | No separate category; a pure governance token (voting only) with no other rights would likely be seen as either a utility token or just an unregulated token |
| **NFTs** | Unique, non-interchangeable, and represent collectibles, singular assets or specific rights. Each NFT has a distinct value and identity. NFTs serve as proof of authenticity and ownership of a one-of-a-kind item. They are not used as general payment instruments due to their non-fungibility. An NFT can either be native, such as in-game item, or an RWA token if it tokenizes a unique real-world asset. However, NFT ownership can be transferred, allowing NFTs to be sold and traded | Do not function like fungible payment or investment tokens, unless they are used for fractional investment schemes | Not treated as regulated financial instruments by default as they are defined as crypto-assets that are unique and non-fungible | Not treated as regulated financial instruments by default, and no separate rules for NFTs. If an NFT grant ownership of an underlying asset, general property and fraud laws apply. If an NFT were structured to give a revenue stream or a share in a common enterprise, it could potentially be a security |

## Appendix B – ERC-3643-like Token Lifecycle Management

Policymakers in the Arab region are advised to encourage lifecycle management frameworks, as they ensure regulatory safeguards, market integrity, and investor protection are maintained across the full token lifecycle.

In another regard, Ethereum Request for Comment (ERC) standards define the technical specifications that enable secure, interoperable and consistent creation and management of digital tokens on the Ethereum blockchain. These standards, such as ERC-20, ERC-1400 and ERC-3643, form the backbone of most tokenization frameworks, supporting both fungible and permissioned asset models.

Adopting ERC-like frameworks can help regulators and market participants establish a unified technical foundation for tokenized finance, ensuring interoperability across platforms, reducing fragmentation and accelerating the safe integration of RWA tokenization into regulated financial systems. The flow below outlines the key steps within the ERC-3643-like token lifecycle management framework.

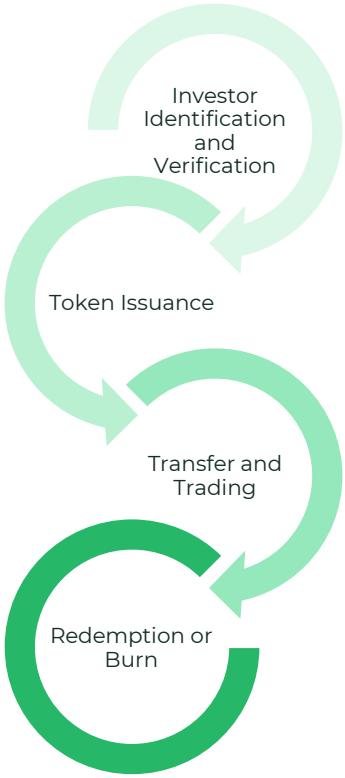


**Figure 5** – ERC-3643-like Token Lifecycle

The key steps of the ERC-3643-like token lifecycle management:

1. **Investor Identification and Verification**

   The investor identification and verification process under ERC-3643 begins with the creation of an On-Chain Identity (ONCHAINID). Each investor is assigned a dedicated identity smart contract deployed on the blockchain, which acts as their digital representation and the anchor of their compliance status. This ONCHAINID can be controlled by one or more addresses, whether held directly by the investor, a custodian, or an authorized institution acting on the investor's behalf.

   Once the ONCHAINID is established, it is linked to verified information in the form of cryptographically signed claims. These claims serve as attestations of the investor's credentials, such as KYC level, accredited-investor status or jurisdiction of residence, and are issued by trusted entities like regulated KYC providers, banks, or financial institutions. Because each claim is verifiable on-chain; the system ensures authenticity and prevents forgery. The token issuer then connects the investor's ONCHAINID to the Identity Registry, a smart contract that manages the list of verified participants authorized to hold or transfer the token. Only compliant investors recorded in this registry can participate in token transactions.

   Continuous compliance and dynamic updates should be maintained. If an investor's status changes, such as the expiration of KYC documentation or loss of accreditation, the claim issuer can modify or revoke the related claim, automatically updating the investor's ONCHAINID. Before any token issuance or transfer; the system performs a pre-trade verification by checking the investor's active claims in the Identity Registry. Transactions proceed only if all compliance criteria are met; otherwise, they are automatically blocked, ensuring ongoing regulatory adherence throughout the investor's lifecycle.

2. **Investor Identification and Verification**

   The token issuance process should begin with the deployment of the token contract, where the issuer or an authorized agent uses a Token Factory smart contract to create the digital framework that will govern the asset. This step establishes the token's technical architecture while embedding compliance and identity features that distinguish it from ordinary fungible tokens. Deployment essentially builds the "container" for the asset on-chain but does not yet generate the actual tokens in circulation. Once deployed, the token is bound to the Identity Registry, linking it to the database of verified ONCHAINIDs so that only approved investors can participate from the first issuance. The issuer then configures the compliance module, defining rules around jurisdictions, investor types, holding limits and lock-up periods. These rules can be modular and updated without redeploying the token, allowing flexibility as regulations evolve.

   After the contract is live, the process moves to token minting, which is distinct from deployment. While deployment creates the governing contract, minting produces the actual token units that represent ownership of the underlying asset. Each minted token is allocated to investors who have passed compliance checks in the Identity Registry. Real-time validation ensures that tokens cannot be issued to unverified or restricted parties. The token contract can also link to off-chain legal documentation, such as asset certificates, anchoring the digital representation to its real-world legal basis and ensuring enforceability.

   Once minted, tokens become active and transferable under continuous compliance supervision. Issuers may distribute them directly, through custodians or on permissioned

marketplaces. Any additional issuance can be managed through subsequent minting events, applying the same verification and compliance standards.

### 3. Transfer and Trading

The transfer and trading process begins when an investor (the sender) initiates a transaction to transfer tokens to another verified participant (the receiver). This transfer may occur directly between wallets, through a licensed custodian, or via a regulated exchange. Before any transaction proceeds, the system performs an identity verification check by confirming that both the sender and receiver possess valid and active ONCHAINIDs listed in the Identity Registry. If either participant is unregistered, has expired KYC documentation, or holds invalid claims, the transaction must be immediately blocked to prevent non-compliant transfers.

Once identities are validated, the compliance module automatically applies the issuer's predefined rules before authorizing execution. These may include jurisdictional restrictions, investor category limitations, maximum holding thresholds to prevent concentration risk and lock-up conditions prohibiting transfers within specified periods. This pre-trade verification ensures that every transfer adheres to applicable regulatory and issuer requirements.

At the decision stage, if all compliance rules are satisfied, the system approves and executes the transaction on-chain; otherwise, the transfer request is rejected, and the tokens remain with the sender. When approved, the transfer execution is completed through the blockchain's settlement mechanism, moving tokens from the sender's wallet to the receiver's and recording the transaction immutably. Following this update, the receiver becomes the new recognized owner in the Identity Registry, automatically entitled to associated corporate rights thereby ensuring full traceability and continuous compliance across the token's lifecycle.

### 4. Redemption or Burn

The redemption process governs how an investor exits their position in a tokenized asset while ensuring full regulatory and operational integrity. The process begins with a redemption request, where the investor chooses to surrender their token through the issuer, a licensed custodian or a regulated marketplace. This request signals the intent to convert the digital token back into its real-world equivalent value or asset.

Before processing, the system performs an identity and compliance verification similar to that used during transfers. It confirms that the investor remains an authorized and compliant holder within the Identity Registry, ensuring that only legitimate participants can initiate redemption. Once verified, the issuer or custodian proceeds with the return of the underlying asset or value, which may take the form of a cash payout, physical asset delivery or a corporate action such as a share buyback. This step ensures that investors receive the agreed-upon equivalent of their tokenized holdings while maintaining transparency and traceability.

Following settlement, the redeemed tokens are burned, meaning they are permanently removed from circulation on the blockchain. This step eliminates the risk of duplication or double-spending and ensures that the on-chain token supply remains exactly aligned with the off-chain assets held in custody. The Identity Registry and compliance modules are automatically updated to reflect that the investor no longer holds the tokens, and any related are terminated. Finally, the blockchain retains an immutable audit trail of the burn event, allowing issuers and regulators to verify that all redeemed tokens were properly

retired and that the one-to-one linkage between digital and physical assets remains intact.

**Custodians**

It is important to shed light on the role of the custodian. The custodian plays a central role in ensuring trust, compliance and asset integrity throughout the token lifecycle. During investor identification, custodians may hold wallets and ONCHAINIDs on behalf of investors who do not interact directly with the blockchain. This arrangement allows institutional or less technologically experienced investors to participate in tokenized markets while maintaining full regulatory compliance.

In the token issuance phase, custodians verify the existence and safekeeping of the underlying RWAs, such as real estate deeds, loan portfolios or gold reserves. They maintain the essential one-to-one correspondence between the tokens minted on-chain and the assets held off-chain. In certain cases, custodians may even receive the newly minted tokens first, holding them in trust before allocating them to verified investors, thus reinforcing asset-backed integrity.

During transfers and trading, custodians often act as intermediaries, facilitating settlements and ensuring that all participants meet compliance requirements. They may also operate permissioned marketplaces restricted to verified entities and handle regulatory reporting, reconciliation, and disclosure obligations. Finally, in the redemption or burn stage, custodians ensure that investors redeeming their tokens receive the correct underlying asset or value while simultaneously confirming that the redeemed tokens are permanently burned on-chain. This dual role safeguards both the legal enforceability of investor rights and the technical integrity of the blockchain ledger.

## Appendix C – Benchmarking Implementation

### Methodology of Work

This study applies an AI-powered, iterative thematic analysis framework to assess RWA tokenization readiness across Arab countries and build a benchmarking model. The approach integrates public content crawling and scraping with structured qualitative evaluation. The flow diagram below outlines the key steps of the assessment framework.

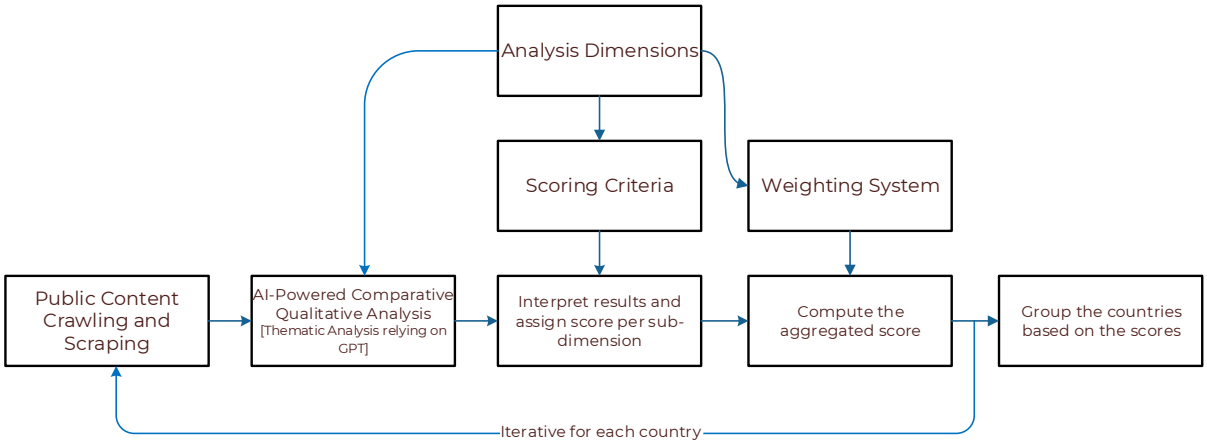


**Figure 6** – Benchmarking Framework

### Key Steps

1. Public Content Retrieval

   Relevant public data is sourced through systematic web crawling and scraping, ensuring coverage of both regulatory and market-led developments.

2. AI-Powered Thematic Analysis

   Using GPT-based analysis, the content is thematically interpreted across predefined analysis dimensions (e.g., legal recognition, infrastructure, market activity).

3. Scoring Criteria Application

   Each sub-dimension is qualitatively assessed and assigned a score based on the identified insights.

4. Weighting System

   A customized weighting model is applied to reflect the relative importance of each dimension.

| | Dimension | Weight |
|---|---|---|
| Regulatory Readiness | Legal Regulatory Recognition | 10% |
| | Regulatory Classification Clarity | 8% |
| | Supervisory Oversight | 7% |
| | Compliance Integration | 10% |
| Market Infrastructure and Technological Readiness | DLT Infrastructure Availability | 7% |
| | Custody and Settlement Models | 6% |
| | Interoperability and Standards Adoption | 7% |
| | Cross-Border Settlement Frameworks | 5% |
| | Cybersecurity and Resilience Controls | 5% |
| Institutional and Market Engagement | Public–Private Collaboration | 6% |
| | Institutional Participation | 6% |
| | Regulatory Experimentation Level | 5% |
| | Ecosystem Partnerships | 3% |
| Financial Market Maturity | Capital Market Depth | 8% |
| | Liquidity and Investor Base | 7% |

   The weights are calibrated to balance regulatory preconditions, technological infrastructure, institutional engagement, and financial market maturity:

   a. **Regulatory Readiness (35%)** is weighted highest as legal recognition, classification clarity and supervisory oversight are foundational for any compliant tokenization effort. Without clear regulatory frameworks, other components cannot operate securely or at scale.
   b. **Market Infrastructure and Technological Readiness (30%)** emphasizes the technical backbone required for tokenization. DLT infrastructure, interoperability and cybersecurity are critical for operational viability and system trustworthiness.
   c. **Institutional and Market Engagement (20%)** assesses the ecosystem's activation level. While essential for adoption and scaling, it builds upon the foundational regulatory and technical layers.
   d. **Financial Market Maturity (15%)** reflects how the environment is investable. Liquid markets and diverse investor bases are necessary for RWA tokenization to translate into tangible capital markets impact.

5. Score Aggregation

   Dimension-level scores are aggregated to generate a composite readiness score per country.

6. Country Grouping

   Based on total scores, countries are grouped into readiness tiers (i.e. Advanced, Emerging and Foundational).

7. Iterative Execution

   The process is repeated for each country using consistent analysis logic to ensure comparability.

**Outcomes**

The application of the benchmarking framework to Arab countries produces the final scores by dimension, shown in the matrix below.

| | Dimension | Saudi Arabia | United Arab Emirates | Qatar | Kuwait | Oman | Bahrain | Algeria | Iraq | Libya | Egypt | Morocco | Jordan | Tunisia | Lebanon | Palestine | Syria | Sudan | Yemen | Mauritania | Somalia | Djibouti | Comoros |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Regulatory Readiness | Legal Regulatory Recognition | 3 | 5 | 4 | 1 | 4 | 5 | 1 | 1 | 1 | 2 | 4 | 4 | 3 | 1 | 2 | 1 | 2 | 1 | 2 | 1 | 2 | 3 |
| | Regulatory Classification Clarity | 3 | 5 | 4 | 1 | 4 | 5 | 1 | 1 | 1 | 2 | 4 | 4 | 3 | 1 | 2 | 1 | 2 | 1 | 2 | 1 | 2 | 3 |
| | Supervisory Oversight | 4 | 5 | 4 | 2 | 4 | 5 | 2 | 2 | 2 | 3 | 3 | 4 | 3 | 2 | 3 | 1 | 2 | 1 | 2 | 2 | 2 | 3 |
| | Compliance Integration | 3 | 5 | 4 | 2 | 4 | 5 | 2 | 2 | 2 | 3 | 4 | 4 | 3 | 2 | 3 | 1 | 2 | 1 | 2 | 2 | 2 | 3 |
| Market Infrastructure and Technological Readiness | DLT Infrastructure Availability | 4 | 5 | 4 | 2 | 4 | 5 | 1 | 2 | 2 | 3 | 4 | 4 | 3 | 1 | 3 | 1 | 2 | 1 | 3 | 2 | 2 | 3 |
| | Custody and Settlement Models | 4 | 5 | 4 | 1 | 4 | 5 | 1 | 1 | 2 | 3 | 3 | 3 | 3 | 1 | 2 | 1 | 2 | 1 | 2 | 2 | 2 | 2 |
| | Interoperability and Standards Adoption | 4 | 5 | 4 | 1 | 4 | 5 | 1 | 1 | 2 | 3 | 3 | 3 | 3 | 1 | 2 | 1 | 2 | 1 | 2 | 2 | 2 | 3 |
| | Cross-Border Settlement Frameworks | 5 | 5 | 4 | 4 | 4 | 5 | 1 | 3 | 2 | 4 | 4 | 4 | 3 | 1 | 3 | 1 | 2 | 1 | 3 | 2 | 2 | 3 |
| | Cybersecurity and Resilience Controls | 4 | 5 | 4 | 3 | 4 | 5 | 2 | 2 | 2 | 4 | 4 | 4 | 3 | 2 | 3 | 1 | 2 | 1 | 2 | 2 | 3 | 3 |
| Institutional and Market Engagement | Public–Private Collaboration | 4 | 5 | 5 | 2 | 4 | 5 | 1 | 2 | 2 | 4 | 4 | 4 | 3 | 1 | 3 | 1 | 2 | 1 | 3 | 3 | 3 | 3 |
| | Institutional Participation | 4 | 5 | 4 | 2 | 4 | 5 | 1 | 2 | 1 | 4 | 4 | 4 | 3 | 1 | 3 | 1 | 2 | 1 | 3 | 3 | 3 | 3 |
| | Regulatory Experimentation Level | 5 | 5 | 5 | 1 | 4 | 5 | 1 | 2 | 1 | 4 | 4 | 4 | 4 | 3 | 3 | 1 | 2 | 1 | 1 | 1 | 2 | 2 |
| | Ecosystem Partnerships | 4 | 5 | 5 | 2 | 4 | 5 | 1 | 2 | 2 | 4 | 4 | 4 | 3 | 1 | 3 | 1 | 2 | 1 | 3 | 3 | 3 | 3 |
| Financial Market Maturity | Capital Market Depth | 5 | 5 | 4 | 4 | 4 | 4 | 2 | 3 | 2 | 4 | 4 | 4 | 3 | 1 | 3 | 1 | 2 | 1 | 3 | 3 | 2 | 2 |
| | Liquidity and Investor Base | 5 | 5 | 4 | 4 | 4 | 5 | 1 | 3 | 1 | 4 | 4 | 4 | 3 | 1 | 3 | 1 | 2 | 1 | 3 | 3 | 2 | 2 |
| | **Aggregated Scores** | 4.0 | 5.0 | 4.1 | 2.1 | 4.0 | 4.9 | 1.3 | 1.9 | 1.6 | 3.3 | 3.8 | 3.9 | 3.1 | 1.3 | 2.7 | 1.0 | 2.0 | 1.0 | 2.4 | 2.1 | 2.2 | 2.7 |

**Score Scale: 1 (low) - 5 (high)**

**Figure 7** – Scoring Outcomes

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